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THE  
DUBLIN BUILDER;

ILLUSTRATED

Record of Art, Science, Industry, and  
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"The empire of man over material things, has for its only foundation the Sciences and the Arts."—LORD BACON.

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VOL. V.—1863.

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# The Dublin Builder.

VOL. V.—No. 73.

## CONTEMPLATED RE-ORGANISATION OF THE INSTITUTE OF IRISH ARCHITECTS.

IT is with much pleasure that we notice some signs of a stir amongst the members of the architectural profession in Ireland to revive the dormant (we will not even *now* say defunct) Institute, and the opportunity for effecting that very desirable object is by various circumstances presented at this period, when all learned, scientific, or professional societies have just inaugurated their respective sessions, and the necessity for some representative body for architectural practice is most keenly felt in a very special manner. We have urged *over and over* again that the stigma that rested on the architects of Ireland ever since the previous institute lapsed—by a sort of common accord, but without any necessity whatsoever—into a state of nothingness, should be removed as soon as possible; but though very many of, if not *all*, its members felt as we did, no one would assume the initiative towards its reconstruction. For our part, we shall both individually, and in our journalist capacity, most warmly co-operate with any move that may be made towards this end, but before the first definite advance is attempted, let us hope that all preliminaries as to the *basis* on which the structure is to be raised may be first carefully digested. It will not be sufficient to the purpose in view for a few gentlemen merely to put down their names as co-operators, and contribute a small annual pecuniary donation, nor for them occasionally to lend the prestige of their presence to its meetings, or its convivial gatherings as the case may be. Every architect who gives in his adhesion to the new or revived Institute or association (or whatever form it may assume) must be prepared to aid it by other means than mere “periodical subscription;” he must respect and *obey* its rules and cheerfully bear the penalty for their non-observance (which in each case, without respecters of persons, we must urge, should be rigidly enforced); he must either in papers, or in drawings, or in communication of *some* description, give his brethren the advantage of his learning or his experience in matters appertaining to their pursuits, and he must by *acts* as well as by *talk* maintain the rights, the privileges, and the dignity of his profession. Many architects, we are aware, would object to join, if there were to be a *compulsory* reading of papers—some because their avocations might not permit them to prepare them when their *turn* to do so should come; others because writing might not be their *forte*—but very few of them do not meet each month with some circumstance in the course of their professional practice, which, placed before a meeting of their fellows in the shape of a “communication,” would not prove interesting or fail to elicit instructive discussion.

The personal differences and jealousies which, unhappily, too often prevail amongst members of *this* as well as *other* professions, must also merge into oblivion on their associating themselves with the Institute, and their minds must be fully made up to maintain a feeling of accord, and let *every* consideration pale before that of the common weal.

Commencing with a good constitution of laws framed out of those of such eminent societies as the Institutes of British Architects, and of Scotland; of the Architectural Associations of London, Liverpool, Manchester, Glasgow, Birmingham, Bristol, &c. (with some members of each of which we had the pleasure of making personal acquaintance at the Conference in July last), with *determination* to maintain them, and throwing *earnestness* into the work the projected association *will* succeed, but without these and *other* requisites, we predict that it will be consigned to the ignominious fate of its predecessor.

As the officials of every body are its main spring and its vital source, the election of suitable parties to the respective posts comprised under that term is a matter of paramount importance. On the secretary or secretaries honorary, or otherwise, of an Institute,

almost everything depends; not on their diligence or their courtesy solely, but on their *capacity*, their business *system*, and their *tact*; and it seems to us very questionable if any “honorary” secretary can be found in the ranks of the profession, who could or would from *con amore* spirit spare time from his other pursuits to devote the *proper* share of *energy* to the duties consequent on the maintenance of such a body. We are clearly of opinion that, even from the inauguration period, there ought to be a properly qualified *paid* secretary—either with or without *honorary* secretaries—the payment of course to be small, but sufficient to give an impetus to exertion, for we all know that “*reward sweetens labour*.” His duty, in addition to the ordinary recording of proceedings, reading reports, corresponding, keeping accounts, &c., would be to ensure a respectable programme of papers or communications for each meeting, and to be ever vigilant in working up, both in the metropolis and the provinces, new acquisitions to the ranks of membership; and, in a word, to keep the Institute alive, and preserve its several parts in one substantial thriving constitution. Now for a glance at the probable financial side of the question; there are about forty practising architects in Ireland who would be eligible for the senior ranks of membership, and perhaps about as much more of the junior. Suppose, then, that each of the former would come forward (and we feel assured that they will), and pay their *two guineas* entrance fee, and a like sum per annum, there would at once be realized a fund of about *one hundred and seventy pounds* to commence with from that source *alone*; to which add a probable fund of *fifty pounds*, or thereabouts, from the juniors, forming a total, ample to meet any possible requirements. It must also not be forgotten that there still remains in bank, to the credit of the former Institute, a sum exceeding *one hundred pounds*—which we are confident has proved, a very uncomfortable incubus indeed in the hands of its respected treasurer—and nothing would be simpler than to convene, by requisition, a *final* special meeting of the still surviving members, and have this fund transferred, *pro forma*, to the credit of the treasurer of the new Institute, who most probably would be the very gentleman who formerly and so worthily held that position in the old.

We shall also like to see occupying the presidential chair such an elder member of the profession as really *will* strive to aid its purpose both by his *presence*, his *counsel*, and his literary contributions. One of the great features in the societies above named is “the president’s address at the opening of the session,” and again at its closing. The president of the Institute of Irish Architects will naturally be expected to deliver as instructive and comprehensive a discourse on these occasions—all due allowance being made for a comparatively limited sphere—as his contemporary in Conduit-street; and if he be indisposed so to do, with every credit to himself and to the important body over which he presides, he should not undertake it. The inducements to emulation amongst members and associates offered by like societies in England and Scotland, would furnish an example for that in Ireland most desirable to be followed; but this, and other subjects in connection, being matters of detail, we shall not pursue their consideration at present. Indeed we may venture to suggest here—we trust not inaptly—that the undertaking might assume the form of an “Architectural Club,” for daily rendezvous, which would prove most especially convenient to the provincial members, and, to a large extent, both a convenient and instructive medium for the local practitioner.

It now only remains for *all* to join heart and hand, earnestly and cheerfully, to ensure a desideratum which all acknowledge to be sadly wanting, and we sincerely trust that there will be a most numerous and influential gathering on this auspicious occasion. Our readers shall be informed of the proceedings in *extenso* by special report, and as long as the opportunity be permitted to us of giving a place to them in these columns, our friends will do us the justice to believe that we shall experience much pleasure in doing so.

**LIGHTING RAILWAY TRAINS WITH GAS.**—This long talked of and much desired improvement has at last been realised. A Scotch line has now provided its carriages with gaslight. Only those who know the horrors which accompany railway travelling in darkness can truly appreciate this improvement.

### CONSTRUCTION OF LABOURERS' COTTAGES AND SANITARY BUILDING APPLIANCES.\*

We are all, no doubt, well aware of the efforts that have been made to improve the condition of the labourer by improving his dwelling, and great has been the benefit obtained; but I think our over anxiety to provide him with a habitation that should come up to our own views and acquirements, rather than to what his wishes, habits, and inclination aspire to, have retarded much of that widespread benefit which might otherwise have been expected. For my own part, I would rather give the labouring multitude something better than they now have, than endeavour to make a few model cottages and labourers' homes.

Our experience, I think, has already taught us that, to build proper abodes for the working classes, will not return a remunerative per-centage; but we may, I think, with a reasonable prospect of success, endeavour to give the labourer something better than he has, and so gradually prepare him for the more perfect abode which we all hope in future time he may obtain.

I think a very grave error is made when a single penny is expended in architectural effect. Finishings and decorations, whereby the dwelling is reduced in size and the proper accommodation decreased, so that turn up bedsteads are found in sitting-rooms, and other such like expedients resorted to, even when such embellishments are carried out with every regard to economy, tend to increase the difficulty of producing a plain, humble, healthy cottage, at a reasonable expense; and hence the inducement to resort to many of the cheap shams and building contrivances of the present day. We are so apt for ourselves to require architectural effect, genteel appearance, and decorations within a limited rental, that it is becoming apparent that no honest builder can get a sufficiently remunerative rent. It is only the so-called "duffing builder" that knows how to set about this. It cannot be wondered at that, in the endeavour to build the labourer's cottage, resort is so often had to what is understood by "cheap building," although the after experience in repairs discourages those who have been misled, so that injury results where benefit was expected.

I will now explain the manner of constructing damp resisting foundations, ventilated floors or paving, dry walls, and a tight, warm roof. The question that must arise in your minds is, that granted all these are improvements, how are they applicable to a labourer's cottage? My answer is, that a mode of effecting this has recently occurred to me, and, although it has become the subject of recent patents, I now declare that any who wish to be supplied by me with such materials for the purpose only of constructing dwellings for the labouring poor, shall have them free from all royalties or patent charges whatever, so that a larger, healthier, and cheaper cottage may be built at a less cost than has before been done.

I will, however, first direct your attention to the plan of a double cottage, which contains on the ground floor a living room or kitchen, 12 ft. by 12 ft.; a washhouse or scullery, 11 ft. 6 in. by 9 ft.; a larder, 5 ft. by 3 ft. 6 in.; a store, 3 ft. 6 in. by 3 ft. 7 in.; and a large closet to the living room. In the washhouse are a good oven, grate, copper, sink, and dresser; and in the living room a range, with oven and boiler. There is a back door out of the scullery, and a door of communication between scullery and kitchen. The entrance door is in front, where there is a small lobby to the living-room and staircase; this lobby has also a pent externally for shelter. Upon the floor above is a bed-room for the parents, one for girls, another for boys; out of the parents' room is a linen closet and cupboard. The whole is comprised within four walls, without breaks, presenting the least surface to the external atmosphere, a great object in this climate. All the flues are collected into one central shaft; the roof is a simple lean-to, from party-wall to side-wall. There are therefore no gutters, valleys, or other intricacies of roof, and all the water falls into one length of eaves guttering, down one down-pipe, into a rain water-butt. No doubt, some portions of this plan have often been seen, but its simplification and adaptation to my peculiar mode of construction is what I claim your attention to. It would have been easy, and certainly very tempting, to have added breaks and gables, &c., and so to have produced a more picturesque effect. The difficulty has been to avoid this, and economise cost in every way.

I will now proceed to explain the several peculiarities of construction, and, firstly, as to the foundations. No doubt, you have often observed and felt the ill effects of damp rising up the walls by capillary attraction, the most fruitful source of an unhealthy dwelling. Stagnant and impure matters in the soil are sucked many feet up the walls, and become evaporated into the rooms—the higher the temperature the quicker the evaporation, and the renewal of the noxious supply. I recollect that when the Victoria Church, in the Isle of Dogs (the church so celebrated as connected with "Londoners over the Border"), was about to be built, I was asked to visit the spot. I found the soil a deep bog; the cottages of the poor in the

neighbourhood showed fearfully the effect of damp, rising up the wall some six or seven feet in height; the wretched inhabitants, as is too frequently the case, excluded as much air as possible, and so kept up the temperature, that the evaporation filled the room with foul vapour, and the result was ague and fever; and I think you would discredit me if I stated the quantity of "pitch pills" consumed as a cheap, and, therefore, the only available specific. The frost, acting upon the damp walls, destroyed the mortar and injured the bricks, and the ruin of the building was evident. In the church alluded to, my patent damp-proof course was introduced, and the damp so effectually cut off, that an observer, looking through any part of the walls, at a height of a foot above the ground, could see the traffic on the other side. The usual means employed hitherto to prevent this were either a layer of asphalt, sheet lead, or slates in cement; and recently, in attempts at cheap cottage building, we hear of a layer of "gas tar and sand," a layer of "gas tar and powdered slate," a layer of "boiling pitch," a course of "calico immersed in tar and pitch." I think we may next expect to hear of a "Holloway's Damp-Resisting Ointment."

In the construction of foundations, three essentials have been hitherto partially effected by as many separate means:—1st. Damp prevented rising up the walls by the means before named. 2nd. The introduction of air by air-bricks at intervals. 3rd. Strengthening and bonding by the use of rough York-stone, &c.

In my damp-proof course these effects are combined:—Damp rising is completely prevented by a highly vitrified and non-absorbent material, having an air space through the joints. Air is supplied through the perforations, securing a circulation beneath the surface of the walls. Strengthening and bonding are effected by the use of an imperishable material, capable of sustaining 600 feet of vertical brickwork upon each superficial foot. These three requirements are economically combined in the one article, with a saving of one course of brickwork in the height of the building.

The advantages to health and comfort that a properly-constructed wooden floor possesses over stone, brick, tile, or other paving, are well known; the latter, we find, laid upon the earth, or some other medium in connection with it, and damp rising is again the cause of cold and discomfort; and if the surface of the ground beneath any single tile becomes soft or defective, that tile sinks, the surface becomes uneven, and the paving is quickly dilapidated. My patent ventilated paving tile for floors or pavement is made with an under projecting rib or flange which, when laid, forms the bearer of the tile, and extends beyond the edge, receiving upon it the other edge of a similar tile, so that the rib only acts as the bearer of the tile of which it forms a part, but it also forms the bearer of one edge of the next tile, leaving a space under the tile for the free circulation of air, which is there introduced through the damp-proof course before described, and that the air may circulate transversely, as well as longitudinally, in the spaces under the tiles, openings are left in the ribs for the air to pass laterally through from the space under one row of tiles into the space under the next row. In beginning to lay down a pavement, a row of tiles is used, having an additional under rib; the air thus circulates freely under every part of the pavement, insuring its perfect dryness, and it becomes, in all respects, a suitable floor for a cottage, at a far less expense than any description of wooden floor, and, when we consider that there is no necessity for floor joists and sleeper-walls, the saving is very considerable.

We now come to the bulk of the building, viz., the walls. Ordinary brickwork, one brick thick. I consider totally unfitted for the abode of any human being. The single brick readily absorbs rain and moisture, and the through mortar-joint quickly conveys it from the exterior to the interior. Horizontal bond is studied and insisted upon by all careful builders, but, strange to say, vertical bond is never thought of; hence we see the one-brick wall, perhaps strong enough to bear the intended weight, but not stiff enough to stand even during its erection. Thicker walls are too expensive for a labourer's cottage. In seeking for a substitute, where economy is to be considered, the bulk of the material must be found upon the spot or in the locality, and nothing is more generally to be found than the necessary materials for concrete.

We all know that concrete is ordinarily composed of gravel and lime, and is in its proper place when in a trench of a foundation. Being retained therein, and prevented spreading, it will sustain any weight we like to place upon it, but when used in building walls, it is not so retained, and is incapable of enduring cross strains, when the boards, which are, in fact, the moulds in which the cast has been made, are removed. The construction mainly depends upon the adhesive quality of the lime or cement, and when it is no longer retained, cross strains and other causes produce cracks and settlement, and the action of the weather upon the surface soon produces premature decay.

The patent cottage wall is made by pressing clay through a die with hollow spaces, through which the heat readily acts throughout the block where desired, during the process of burning in the kiln, and, when standing on end, it occupies the least possible kiln room. It has been partially separated by knives in the die, but holds to-

\*From a paper read by Mr. John Taylor, jun., architect, at a meeting of the Society of Arts, on Wednesday, the 18th ult.

gether firmly enough during burning in the kiln and carriage to the intended building. Just before use, the bricklayer or labourer readily separates it into six bricks specially adapted for the reception of concrete.

It will be readily seen that in all the several processes of manufacture, six bricks have been produced instead of one. These blocks, or bricks, when used, are laid by the bricklayer on each side of the intended wall, distant from each other the thickness of it. The labourer then lays concrete in the trench thus formed, the vertical pressure upon the flanges counteracts the outward thrust, and thus the concrete is retained as in a trench, the mould wherein the cast was made remaining to protect the wall from damp, and to prevent the decay of the external surfaces of the concrete by the weather.

Thus each course is thoroughly constructive, and even first-class houses may be thus built to any reasonable height. In a cottage wall, 9 in. of thickness is sufficient, requiring only one course of blocks externally, with the bonding blocks at intervals, and the use of a movable board on the inner face during its construction. After this a little rendering inside with lime, or Scott's cement, which is better, finishes the inner face.

It is calculated that a rod of ordinary brickwork requires 4,352 bricks, which (at, say 32s. per 1,000) costs £7. One rod of the patent walling requires 1,450 of my bricks, which (at 25s. per 1,000), for labourers' cottages, only costs £1 16s. 3d.; add to this the cubic contents of the concrete,  $9\frac{3}{4}$  yards, at 16s. 8d. (calculating gravel at 2s. per yard, and lime at 10s.) £1 12s. 8d., together; £3 8s. 11d. the rod of 14-inch work, as against £7, the rod of brickwork.

Now, as to the weight; the 4,352 bricks weigh 9 ton 14 cwt.; the 1,450 of my bricks weigh 1 ton 9 cwt. We thus see that these blocks can be sent in a railway truck or otherwise long distances, where we could never hope to send bricks. When my blocks for facing ordinary brickwork are used, they cause continuous hollow air spaces to be left within the wall, and a great saving in bricks results. Vertical bond is obtained, and the yielding mortar joints are strengthened; and I have found that the walls of a house thus constructed become so quickly dry, that they may be papered almost immediately.

We now come to the crowning matter of my subject, viz., the roof. Slate is generally applicable for roofing, as it admits of being laid to a flat pitch, and is light, but is so absorbent of heat that rooms in the roof become unbearable. Plain tiling has not this objection, but must be laid to a steeper pitch, is much heavier, being nearly of double the thickness, and requiring greater strength of timber. Pan tiling is lighter, but so pervious to weather, as to be only suitable for sheds and similar buildings. My patent tiles may be laid to as flat a pitch as slates; their weight is 656 lbs per square. Plain tiling is 1,624 lbs. per square. Thus it appears that it is less than half the weight of ordinary tiling, pleasing in appearance, and combines all the advantages of slates and tiling without the drawbacks attending them. The price is £4 10s. per thousand, being enough to cover a square for sixteen shillings.

I make a tile wider at one end than at the other, and having flanges raised at two sides, the narrow end becomes the lower end of the lower or trough tile fitting into the wider end. The same tile reversed becomes the upper or capping tile; the two notches in the flanges enable each tile to take an even bearing upon the tile beneath, and allow all the ends of the tiles to range horizontally. The nib upon the upper part of the tile gives the necessary gauge, and firmly secures the tiles the one to the other.

The ridges are formed of a V-shape, having all their joints lidded or capped. These ridges are applicable for any ordinary slated roof, and all screw holes and their defects are avoided.

Having now set before you such particulars as time will permit, I will only just briefly conclude by stating that all the patent materials necessary for the erection of the pair of cottages will be as follows:—

The damp-proof course.....	} £40 0 0
The ventilating paving.....	
The wall blocks.....	
The roofing tiles.....	

I think we may now, therefore, reasonably expect that the remaining works may be done for such a cost as that a larger, healthier, and cheaper cottage may be available for the labourer than hitherto.

Having directed our time and attention thus far to the labourer's interest, let us look a little to our own, and at this season what is more constantly forced upon our attention than the discomforts that appear to be almost inseparable from our own firesides? We all know what is considered the next evil to a scolding wife.

Smoke, un deprived of its carbon or soot (which is fuel) contaminates the atmosphere, distigures and decays our buildings, and an incalculable amount of annoyance arises from smoke and smoky chimneys. Mechanical contrivances to effect the combustion of smoke are ineffective when left, as they must often be, to the care of our ordinary domestic servants. There is an annual loss in London alone of 75 per cent. of heat (an acknowledged fact) which

escapes up the chimney without adding to the warmth of the apartment. The calculation of this does not afford us any consolation in our discomfort.

The air necessary to support combustion makes its way to the fire from door or window, chink, or crevice, and visits our backs with hurtful draughts in proportion to the warmth we are receiving in front. A frequent cause of the chimney smoking is that it becomes filled with the air from the apartment, which, rushing in above the fire, lowers the temperature, and renders the flue incapable of acting as a sufficiently rarefied ventilating shaft, and often incapable of even conveying away the smoke at all.

The peculiar features in my patent grates are as follows:—When the register is closed, the smoke, having ascended from the fuel, and become mixed with atmospheric air, descends and passes through the hottest part of the fire, where the carbon or soot in the smoke is consumed as fuel. The heat which would have rushed up the chimney, calculated at 75 per cent., passes down and around the hollow fire lumps of which the grate is formed, and the external air with which these communicate, enters the apartment in a large body, moderately warmed, not heated. The apartment is supplied with moderately warmed instead of cold air from door or window, and thus thorough ventilation is effected. The cold air cannot rush up the chimney; the flue is therefore rendered a powerful extracting shaft for ventilation, and a highly rarefied, and consequently effectual passage for the products of combustion, thus obviating another fruitful source of smoky chimneys. Should the warmth be too great, the register can be opened, and the action of an ordinary grate will take place. In addition to these advantages, the fire is always under perfect control, and may at all times be brought to any degree of brightness. Its combustion of fuel is so perfect, that what remains in the ash-drawer, after the day's consumption, if proper attention has been paid, might be taken away in the palm of the hand. The occupation of the sweep will be nearly dispensed with.

#### TO A CATHEDRAL RUIN.

Consecrated ruin,  
Mystery profound,  
Shadows of the twilight  
Circle thee around!  
In thy deep recesses  
Holy sorrows sit,  
Monitory breathings  
Through thy deep aisles flit!  
Phantoms of dead ages,  
Making cold the heart,  
With the nameless horror  
Felt when souls depart.

And from out the darkness,  
And thy tombstones grey,  
And thy crumbling arches,  
Wrinkled with decay,  
Waves a silent glimmer,  
Like a phosphor light,  
From the spirit world,  
And voiceless Infinite;  
With a holy radiance  
None but sad eyes see,  
None but those that linger  
Pensive on rev'rent knee!  
And beneath the droopings  
Of thine hallowed walls,  
Feel a viewless Presence  
That calms and yet appals!

Miracle of wisdom  
And Celestial skill!  
They who built thee slumber,  
Cold as thou and still!  
But, sublime, their spirit  
Passed from them to thee,  
And made thee all-living  
With faith and sanctity!  
Gave thy shaded form  
A pervading soul—  
Sent down wordless teachings  
For the years that onward roll!

For the Ruin whispers,  
Echoing to our tread,  
Monumental stories  
Of faith of men long dead!  
Linking Past and Present,  
And to future years

The same trust revealing,  
And solemn hopes and fears!

And while mortals murmur  
The soft sounds of prayer,  
Spirits of the blessed  
Breathe upon them there!  
And the peasant gazing  
On the stony page,  
As he blooms to manhood,  
Or declines to age,  
Feels an influence round him  
With devotions fraught,  
As of friends departed  
In commune with his thought!

For the hoary ruin,  
Like a holy man,  
Is a mystic symbol  
Of more than eye can scan!  
Like a sage entranced  
'Midst his acts of praise,  
Wondrous visions rising  
Before his spirit gaze;  
Till each furrowed feature,  
And his transfixed eyes,  
Glisten with the glory  
Of heavenly surprise;  
And from out the stillness  
Of th' illumined soul,  
Spells of potent meaning  
O'er other bosoms roll!—

So beneath thy shadows,  
Venerable pile!  
Linger silent sorrows  
For sins that men defile!  
And thine aisles so gloomy,  
Like dark forest ways,  
Tell us of the doubtings  
That dim our dying days;  
While thine arches clasping,  
As with hands in prayer,  
Call us to Repentance,  
And bid us flee Despair!  
And thy spires uprising  
Raise our hopes on high,  
Ever pointing upwards  
To the eternal sky.

PERSIAN GULF TELEGRAPH.—The manufacture of the cable for this line will be commenced forthwith, under the superintendence of Sir C. Bright and Mr. Latimer Clarke, the government telegraphic engineers. The English and foreign system, which extends to Bagdad, is now being carried forward as part of one great scheme from Bagdad to the head of the Persian Gulf, and the communication is being simultaneously carried forward from Mekra to Funachee, where it will unite with the Indian Telegraph system—a total length, when completed, of 6,000 miles, as between Calcutta and Cornwall.

PRESENTATION TO CHARLES LANYON, ESQ., J.P.,  
ARCHITECT, AND C.E.

On the 15th ultimo a number of gentlemen, landowners and others, of the county of Antrim, assembled in the dining-room of the County Court-house to present Chas. Lanyon, Esq., ex-Mayor of Belfast, with a testimonial of their esteem and regard. Amongst those present were:—

Sir Edward Coey; John Lytle, Esq. (Mayor); Dr. McGee, J.P.; Rev. R. W. Bland, J.P.; Messrs. J. Thompson; D. Taylor, J.P.; J. W. S. McCance, J.P.; John Smith, J.P.; Orland; Hill Hamilton, J.P.; F. Hutchinson, J.P.; J. Thompson, J.P.; T. Montgomery, J.P.; R. Davison; T. L. Hutchinson, J.P.; W. T. B. Lyons, J.P.; J. Montgomery, Benvarden; Captain Murray, J.P.; J. Leslie, Ballymoney; Rev. W. Bruce; W. Ewart; R. Grimshaw, J.P., D.L.; B. Hughes; Rev. Dr. Miller (Vicar); Rev. G. Shaw; M. Saffern, Esq.; A. Tate (County Surveyor); J. Hamilton; Wm. Coates, J.P.; Henry H. McNeill, J.P.; J. Torrens; J. King; C. Shaw; F. Kinahan; A. Moore; J. Coates (Secretary to Grand Jury); P. Johnston; J. Girdwood; J. Forbes; R. Musgrave; Dr. Patterson; Dr. Ferguson, &c.

Robert Grimshaw, Esq., J.P., D.L., was called to the chair.

The Chairman, on rising, said, he had much pleasure in taking that position on the occasion. He supposed he owed that pleasure to being the oldest magistrate then present. Since Mr. Lanyon's settlement in the county he had abundant opportunities of witnessing the works which Mr. Lanyon had planned and completed, and he believed that no county in which he had been possessed works more complete or more suitable than those constructed by Mr. Lanyon. Mr. Lanyon had never lent himself to anything unworthy of the position he had occupied; and with regard to a specimen of Mr. Lanyon's taste in architecture, they need not go out of the building in which they were then assembled to find it. The building was one of the most beautiful in the North of Ireland, and highly creditable to Mr. Lanyon's professional ability.

Mr. Coates, Secretary of the Grand Jury, then read an address to Mr. Lanyon as follows:—

TO CHARLES LANYON, ESQ.

Sir—It has been your fortune to reach a position in society which could only have been attained by a steady course of strict integrity. In the discharge of your official duties you have gained universal respect, which is the highest reward of merit. As county surveyor, whilst you resisted unnecessary projects, you never failed to achieve improvement; and you enforced the performance of contracts as much by urbanity as by firmness. Safe and expeditious communication between distant districts is a strong evidence of a nation's prosperity. There are many persons now living who remember the tediousness and difficulty of a journey in this county from one town to another. But even before the introduction of railroads your suggestions and efforts had made travelling comparatively easy. In the new lines of road designed by you the ability of the engineer is apparent. The buildings which you have erected display in like manner the taste and genius of the architect. You will have left many monuments of professional skill to be admired by after ages, and your name will live in the memory of all who have enjoyed your friendship, or had the advantage of your acquaintance. Although you have deemed it right to relinquish the situation which, during twenty-five years, you so efficiently occupied, we, the landowners and inhabitants of the county of Antrim, are happy to believe you will still remain amongst us. On your retirement from office we desire to express the sense we entertain both of your private and public worth, and we request your acceptance of the accompanying tribute of our esteem, which would have been of greater value if the subscription of individuals had not been designedly limited. It was thought a small, however inadequate, gift from many would be preferred to a more costly donation coming from a few. With sincere wishes for your happiness, we beg leave to remain your faithful friends.

REPLY.

My Lords and Gentlemen—I accept with very sincere pleasure and gratitude the very handsome testimonial which you, the noblemen, landholders, and inhabitants of the county of Antrim, have presented to me on the occasion of my relinquishing the appointment of County Surveyor. Much, however, as I prize your valuable gift, I must say that the flattering address with which it is accompanied, expressing your appreciation of my services as a public officer, and your regard and esteem for myself as a private individual, is still more valuable to me than the gift itself. During the long period of my official connexion with the county I always felt that I was honoured with the confidence of those under whom I was acting, and there could be no greater stimulus to exertion in the execution of my duties than the knowledge that I possessed such confidence. Truly, indeed, do you say that the improvement of communication between distant districts is a strong evidence of

a country's prosperity. Pleasant is the reflection to me that I have in any way, however humbly, been instrumental in the developing this county, or aiding the march of improvement which is so apparent in it. Anxious, however, as I may have been to suggest improvement, little could have been done without that liberality and love of progress which mark Antrim amongst counties and Belfast amongst towns. You have been pleased to say that in the numerous works which I have carried into execution the performance of contracts has been enforced as much by urbanity as firmness. I can only add that I have always found, in my dealings with my fellow-man, that the interest of the employer was better secured by a kind and fair consideration of the claims of the employed than by the exactions of a hard taskmaster. One of the greatest gratifications which I have experienced as the result of this feeling has been the satisfactory manner in which the numerous public works of the county have been executed. I reciprocate most fully your flattering wish that I may still live amongst you, and though no longer your public servant, yet as your friend, to continue to deserve your regard and esteem, and to enjoy, in the private position to which you have so flatteringly alluded, the society of those who, with impartiality and firmness, have always supported me in my public duties. Again thanking you most sincerely and heartily for this further proof of your kindness and generosity, which is rendered even more agreeable from the nature of the gift, showing the esteem and regard of the many, not merely the liberality of the few. Believe me to remain, my lords, and gentlemen, yours most faithfully and gratefully,—CHARLES LANYON.

The presentation consisted of two splendid candelabra of solid silver, purchased at Messrs. Hunt and Roskelle's, New Bond-st., London. The *plateaux* of polished silver appeared about 18 inches in diameter. On each pedestal three figures, in dead silver, were placed, typical of Science, Art, Justice, Prudence, Liberality, and Success. The column of each candelabrum was decorated with shamrock, and surmounted with five branches for composite caudles or other luminaries.

LABORERS' COTTAGES.

At the meeting of the Society of Arts on Tuesday week, a paper was read on the "Construction of Laborers' Cottages and Sanitary Building Appliances," by Mr. John Taylor, jun., architect. The author deprecated attempts to arrive at too great perfection in the construction of the laborer's cottage, as these only tended to defeat the end in view—that of providing for him the best habitation that was possible at a really moderate cost. He thought it was a grave error to expend anything in mere ornamental and architectural effect. Everything should be exclusively devoted to the production of a sound and healthy dwelling. He first explained the construction of the particular form of damp-proof foundations that he had invented and found most effective. By this means, he stated that:—1st. Damp rising is completely prevented by a highly vitrified and non-absorbent material having an air space through the joints. 2nd. Air is supplied through perforations, securing a circulation beneath the surface of the walls. 3rd. Strengthening and bonding are effected by the use of an imperishable material, capable of sustaining 600 feet of vertical brickwork, upon each superficial foot. These are economically combined in the one article, with a saving of one course of brickwork in height of building. He next described his mode of constructing the walls. These consist of concrete retained by blocks of baked clay of a peculiar form, and it was stated that walls so constructed were not only much superior in dryness and solidity to brickwork, but that the cost was not more than half. The peculiar form of tiles used for the roof was next described. They may be laid to as flat a pitch as slates, and their weight was stated to be less than half that of ordinary tiling, besides being more economical. In conclusion, Mr. Taylor described a form of fire-grate, which he said possessed unusual advantages. Amongst the peculiar features in these patent grates are that, when the register is closed, the smoke, having ascended from the fuel, and become mixed with atmospheric air, descends and passes through the hottest part of the fire, where the carbon in the smoke is consumed as fuel. The heat which would have rushed up the chimney, calculated at 75 per cent., passes down and around the hollow firelumps of which the grate is formed, and the external air, with which these communicate, enters the apartment in a large body, moderately warmed, but not heated. The apartment is supplied with moderately warmed instead of cold air, from door to window, and thus thorough ventilation is effected. The cold air cannot rush up the chimney; the flue is therefore rendered a powerful extracting shaft for ventilation, and an effectual passage for the product of combustion. The combustion of fuel is stated to be so perfect that what remains in the ash-drawer after the day's consumption, if proper attention has been paid, might be taken away in the palm of the hand. A discussion ensued, in which Messrs. J. B. Denton, C. Bagnall, R. Rawlinson, G. Godwin, F.R.S., G. F. Wilson, F.R.S., Dr. Greenhow, and others, took part.

## EASTERN CATHEDRALS.\*

## NORWICH CATHEDRAL.

"The painted reredos or altar-piece of the Jesus Chapel; a picture, according to Dr. Waagen, 'of great significance in the history of English painting.' It contains, in five compartments, the Scourging, the Bearing of the Cross, the Crucifixion, the Resurrection, and the Ascension; and judging from the forms of art, may have been executed between 1380 and 1400. Here that idealistic tendency so often mentioned is still throughout adhered to: the well-arranged drapery is of great softness; the colouring powerful, and in many of the heads of great warmth; finally, the treatment in size-colours, broad, and in full body. Both the figures and the raised elegant patterns of the gold ground, entirely resemble the indubitable English miniatures of the same period; so that there is no question in my mind as to the English origin of this picture. Excepting the Bearing of the Cross, of which much has fallen off, the preservation may be called good, and a glass over it prevents any further mischief.† An engraving from this altar-piece will be found in the Norwich volume of the Archaeological Institute, together with a paper on the subject by Mr. Albert Way, who (as does Mr. Digby Wyatt) considers it a work of the Siennese School (circa 1307). The heads, he observes, especially that of St. John, 'recal strikingly the works of Simone Memmi. That artist, however, died as early as 1345.'"

"A vault of Early Decorated character crosses the north choir-aisle, and supports a gallery. The vault is of two bays; and in the eastern bay, at the head of the arch, is the quatrefoil opening into the choir, which has been already noticed. The vault has long had the name of the 'Confessionary,' and Blonfield (History of Norfolk) suggests that the priest, in the choir, heard confessions in the foiled opening, whilst the people remained in the aisle. The vault could not possibly, however, have served for this purpose, since the opening on the choir side is only a few inches above the pavement, and the priest must have laid himself on the ground in order to hear the confession through it. Professor Willis suggested it was made as a hagio-scope, to afford a view of the high altar from the aisle. Mr. Harrod, with more probability, considers that the Easter sepulchre stood within the choir at this place, and that the opening 'permitted the important duty of watching the sepulchre light during the ceremonies of Easter, without entering the choir.' The gallery over the vaulting in the aisle, he adds, 'might contain a pair of organs for assisting the service here and in Jesus Chapel adjoining.' . . . . 'The old singing-school was in the north aisle, east of the gallery, and in front of the entrance to Jesus Chapel, a position having no possible recommendation, unless it were that the organs were placed above.'‡

## ELY CATHEDRAL.

"Owing probably to its situation, no very important town ever rose up about the monastery. The houses which line the streets are unusually small and low; and the long ridge of the cathedral roofs with their towers and pinnacles, lifts itself above them on every side. Other English cathedrals form only part of the cities in which they stand; here the cathedral is, in fact, the town; and nowhere, perhaps, in England is there so complete and suggestive a picture of what a great monastery—such as Glastonbury or Melrose—must have resembled whilst its buildings were yet entire, and its church formed a landmark for all the surrounding district.

"Entering the cathedral, the visitor finds himself within the great west tower, through the eastern arch of which a superb view is commanded, up the nave, beyond the arches and graceful tracery of the lantern, and beyond the rich screen, to the coloured roof of the choir, and the stained glass of the distant eastern windows. When the painting of the nave roof, which is now (1861) in progress, shall have been completed, the view from this point will only be exceeded in interest by that from the south-west angle of the octagon.

"The tower, originally the work of Bishop Geoffrey Riddell (1174-1189§) was much altered and strengthened during the Perpendicular period; when the transition Norman arches were contracted by those which now exist. The zigzag moulding above marks the extent of the original arches. The work, after the erection of the upper or decorated story of the tower, had probably shown signs of weakness; and the fall of the central tower in the preceding century no doubt led the monks to apply a remedy to this one in due time. Two tiers of arcaded galleries, the arches of which have trefoil head-

ings, but are massive and Norman in character, run round above the pier arches; and above, again, are three Pointed windows in each side. On the west side the lower arcade is pierced for light as well as the upper. The window over the entrance, filled with stained glass, is modern, and was inserted early in the present century.

"The interior of the tower has been restored since 1845; when a floor above the lower arches was removed, and the present painted roof inserted. This was designed and executed by H. L. Styleman le Strange, Esq., of Hunstanton Hall, Norfolk.

"The style of decoration is that which prevailed in England about the close of the 12th century, when this part of the tower was completed. The subject, placed appropriately at the entrance to the church, is the Creation of the Universe. Stems and branches of foliage embrace and sustain five circles placed crosswise. In the upper circle towards the east is depicted the *Dextra Domini*, the 'Right Hand of the Lord,' as the emblem of the Almighty Father. The central circle contains our Saviour in an aureole, in the act of exercising creative power. In his left hand he holds the globe of the world; and He is surrounded by the sun, moon, and stars. About Him is written the text, 'I am before all things, and by me all things exist.' In the circle beneath is the Holy Dove, brooding over the waters of the newly-created earth. Rays of light proceed from the *Dextra Domini* in a threefold manner, and embrace within their influence the other two persons of the Godhead. In the other circles are figures of cherubim and seraphim holding scrolls, on which are the words 'Holy, holy, holy, Lord God of Sabaoth.' Round the whole is the text from Revelations, ch. iv. 11, 'Thou art worthy, O Lord, to receive glory and honour and power, for Thou hast created all things, and for Thy pleasure they are and were created.'

"It was while this work was in progress in 1845 that Mr. Basevi, the architect of the Fitzwilliam Museum at Cambridge, fell from the upper roof, and was killed on the spot. He was buried in the north choir-aisle, where a brass commemorates him."

"The roof of the nave, as originally constructed, was probably finished internally with a horizontal ceiling stretched across from wall to wall, as is the case at Peterborough and St. Alban's. This was the most usual mode in Norman times, where no stone vault existed. The external form, as well as that of the transept roofs, appears, from the weatherings still existing, to have been truncated. In consequence, however, of the deviation from the original plans made by Alan de Walsingham when he erected the central lantern, it became necessary to re-construct the roof over this portion of the building; and the result was the high-pitched form which exists at the present day, internally braced with a series of interlacing timbers in such a manner as to form an irregular polygonal roof sufficiently high to surmount the newly inserted lantern arch. This roof seems to have received no kind of finish until, after the painting of the tower ceiling, it was determined to extend the decoration to that of the nave, the roof of which was accordingly coated internally with boards. The paintings on the tower roof, and on that of the six westernmost bays of the nave, are the work of Mr. Le Strange, of Hunstanton, in Norfolk, who had spared no labour in the examination of manuscript authorities for Norman ornamentation, and of existing remains of Norman painting in English and foreign churches. At his death, in July of this year (1862), the paintings of the remaining half of the nave have been committed to Mr. Gambier Parry, of Highnam, in Gloucestershire, who is now occupied upon them. The general design of Mr. Le Strange's work was cast upon the model of the Jesse tree, which was itself to be incorporated into the work as the latter part of the history. But, as the painting advanced, the introduction of large sacred subjects seemed far more desirable on so enormous a surface; and the change has accordingly been made, in accordance with Mr. Le Strange's own judgment.

"The subjects of these paintings are the principal incidents of reference to our Lord, from the creation of man by 'the Word of God' to his final coming in glory.

"The six subjects completed by Mr. Le Strange, beginning at the west end of the nave, are in the

"1st bay. Creation of Adam.

"2nd. The Fall of Man.

"3d. The Sacrifice of Noah.

"4th. Abraham and Isaac;—'God will provide himself a Lamb.'

"5th. The Vision of Jacob's Ladder.

"6th. The Marriage of Boaz and Ruth, from whom springs Obed the father of Jesse.

"Twenty-four prophets and worthies, supporting as it were this central line, are arranged along the entire length of the roof, two in each bay, holding scrolls inscribed with their respective prophecies of the coming of our Lord. They are as follows:—

"1st bay. Abraham and Jacob.

"2nd. Job and Balaam.

"3rd. Moses and Nathan.

"4th. Jonah and Joel.

"5th. Amos and Hosea.

"6th. Isaiah and Micah.

\* "Handbook to the Cathedrals of England. Eastern Division—Oxford, Peterborough, Norwich, Ely, Lincoln." London:—John Murray, Albemarle-street; J. H. and Jas. Parker, Oxford.

† Art Treasures in Great Britain, vol. iii. p. 437.

‡ Churches and Convents of Norfolk, p. 293. The Easter sepulchre at Northwold, in the county of Norfolk, "has an arched aperture, in a similar position to this quatrefoil, communicating with the sacristy adjoining.

§ The extent of Bishop Riddell's work is uncertain. "Novum opus usque occidentem cum turri usque ad cumulum fere perfectit."—*Monach. Elyensis, ap. Wharton, Anglia Sacra*, i. p. 651. The "novum opus" may possibly refer to the nave as well as the west transept. The upper portions of the tower and transepts are Early English, and probably the work of Bishop Riddell's successor, William Longchamp (1198-1198).

"In the remaining six bays the series of sacred subjects, and large figures supporting them, are proposed to be—

"7th bay. Jesse; represented in the ancient manner, as lying asleep:—'There shall come forth a Rod out of the stem of Jesse, and a Branch shall grow out of his roots.'

"8th. David.

"9th. The Annunciation.

"10th. The Triumphal Entry into Jerusalem:—'Hosanna to the Son of David.'

"11th. The Tomb, with the angels sitting at the foot of it.

"12th. The Majesty:—'The Son of Man shall come in his glory, and all the holy angels with him.' Matt. xxv. 31.

"These subjects, like those painted by Mr. Le Strange, will be supported by Prophets and Evangelists, and the figures of the persons of our Lord's genealogy.

"Along each side of the ceiling is a line of busts, exhibiting the generation of our Lord up to Adam, according to the Gospel of St. Luke. The series begins with the great figure of our Lord, round which is the inscription, 'Being, as was supposed, the son of Joseph.' Thence it runs back to the western end of the ceiling, each bust being inscribed with the name, until it arrives at 'the son of Adam,' where it connects itself with the central medallion of the first bay, round which is inscribed, 'Which was the Son of God.'

"The evangelistic symbols are placed two at either end of the ceiling. They were prefigured by the prophet Ezekiel, and are here introduced in order to exhibit the union of the old dispensation with that which was to follow. The date of the commencement of the painting, in 1858, is shown at the western end by the arms of the then Bishop and Dean. The year of its completion will be marked by a similar record at the eastern end.

"In the present state of the cathedral the ceiling suffers much from the quantity of raw light which streams through the clerestory windows, and from the coldness produced by the uncoloured state of the walls and arches. It has been determined, however, to proceed with the colouring of the walls as soon as possible; and other improvements will no doubt follow."

## THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN COMPANY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Will you kindly permit me to make a few remarks upon the injustice practised towards the competitors, which will in a great measure account for the coolness so suddenly evinced for a project brought forward under most favourable auspices, having the approval and personal support of the best men in Ireland?

The directors advertised that they would give £150 premium for the design they should select, and £75 for the second best; the conditions were that the designs put in should be in "finished lines," or "tinted in Indian ink," and that "each competitor should be able to show that his design could be carried out for £35,000." These conditions were accepted by twenty-four persons, and a collection of designs exhibited in College-street, for iron and glass structure, combining all the excellencies of the various Crystal Palaces of Hyde-park, Paris, New York, Dublin, Manchester, Sydenham, Florence, and the monster of Kensington.

Those who complied with the conditions complain, and justly, that the directors did not observe their terms. In the first place they allowed coloured drawings to be exhibited, which was manifestly unfair towards those whose designs were in keeping with their stipulations. Again, BEFORE exhibiting the designs, the directors ought to have ascertained from the authors whether they were prepared to "show" that the design could be "carried out" for £35,000; if not, then such should have been excluded. I am sure you will see, and the public also, that to place in competition designs which had been carefully prepared to come within the stipulated sum, £35,000, with those prepared regardless of what the amount would be to carry them out, was placing the observer of conditions at great disadvantage.

In one instance £150,000 would have been required to carry out the design exhibited—viz., that of J; in another, at least £100,000 to carry out that of E.

After a considerable time has elapsed we are politely informed that our designs are to be returned to us, nothing more, not one word even of thanks for contributing to an exhibition of drawings which must have done some good, by aiding the education of the public eye, while it improved the judgment of the directors; nor are we informed whose designs are chosen; this we read in the public prints—that a certain design has been approved by the committee, and the author desired to furnish working drawings. I sincerely congratulate the author; at the same time it does not prevent my expressing an opinion, that the directors, by adding £5,000 to their advertised sum, ought in justice to those whose designs were within the mark, to have allowed them an opportunity of competing with

"Blue Star," by improving their designs by that addition. So much for the just cause of complaint on the part of competitors. The only redress the directors can now consistently make them is to divide the £225 between them; to give *no premium* is very paltry on their part, and certainly no gentleman on the directory would act in his *individual*, as they have acted in their corporate capacity; but it has been often said, "*Corporate bodies have no soul*"—it looks like it in this instance.

The depreciation of the shares arises from the fact that the design chosen will require nearer £60,000 than the sum announced to carry it out, and will thus require a staff of glaziers to be permanently kept as part of the establishment. These things being evidenced to him who can measure a drawing, and who are also competent to judge of what a roof ought to be, and the conclusions such men come to having obtained circulation among the shareholders, they see very little chance of dividend.

In conclusion, I would recommend to the directors of the company the perusal of the "proceedings of the Institution of Civil Engineers, for 1851," and they will find much to enlighten them on glass and iron structures, particularly on "roofs," from such men as Wyatt, Airy, Wild, Heppel, Russell, &c.

I enclose my card, and remain yours obediently,

A LATE COMPETITOR WITHIN THE STIPULATIONS.

## IRISH MANSIONS.

MARKREE CASTLE, COUNTY SLIGO, NO. 1.

ANXIOUS that the architectural merits of a few of the mansions of the Irish nobility and gentry—which in many regards bear most favourable comparison even with the baronial halls of old England—should be brought prominently before the public at both sides of the Channel, we commence herewith a series of illustrations—our present view showing an elevation of the magnificent seat of Rose Cooper, Esq., most picturesquely situated near Ballisadare, in the county Sligo. As we purpose giving another view of this structure, we postpone particulars till it appears. We shall thank any of our readers who will direct our attention to any mansions in Ireland of intrinsic architectural importance.

## Reviews.

"How Ireland may be Saved; or, the injurious effects of the present system of Agriculture on the prosperity of Ireland and the social position of the Irish people." By JOSEPH FISHER, London, Ridgway.

This pamphlet is a reproduction by the author of letters addressed to his present Excellency the Lord Lieutenant, which appeared in the *Morning Herald* between the months of January and August last. It forms a very valuable and practical statistical reference on numerous questions in which national interest is involved, educationally, commercially, and agriculturally; and we trust that the assiduity of the author in collecting most important facts and his ability in putting them forward comprehensively, will be appreciated as they unquestionably deserve. We quote elsewhere a few paragraphs therefrom, which will serve better to show the character of the work.

"National necessity for the Registration of Births, Deaths, and Marriages in Ireland, under a law and with a machinery assimilated to what is established in England and Scotland." By JOHN McEVoy. Dublin: Murray & Co.; E. Ponsonby; H. Morrow.

The author's name of this little work has been so frequently before the public in his earnest endeavours to attain the object set forth in the title, and his valuable arguments in its favour based on laborious statistical deductions, have also been communicated so frequently and so recently through the pages of this journal, that it would be quite a supererogatory task to enter on a critical review. There is one point, however, on which he seems somewhat in error, viz., in assuming that the machinery in England and Scotland of the registration system is the *ne plus ultra* of perfection. It has been proved to be capable of much desirable modification. We must therefore hope with the author to do not only as well as, but better than, our neighbours, when the proposed registration is entered upon.

The demise of Thomas Ellis Owen, Esq., the Mayor of Portsmouth, was announced last month. The deceased, who was an architect of some eminence, and Government surveyor for the South Hants districts, was eldest son of Jacob Owen, Esq., late architect to the Board of Public Works in Ireland, and brother to the present architect to that body. Mr. Owen had been twice Mayor of Portsmouth.

The Dublin

Jan. 1<sup>st</sup> 1863





MARKREE CASTLE, COUNTY SLIGO.

## METROPOLITAN SUBTERRANEAN RAILWAY.

THE spring, when this line was to have been finished, and the summer, too, have come and gone, but the city is still, in point of time, just as far distant from the west as ever it was. All the little delays, and all the great annoyances of overcrowded traffic which it was to mitigate, if not to do away with, are still as rampant and glaring as ever, and the public and the shareholders also seem to be getting impatient in the desire to know the reason of the long delay. The varying rumours and constant speculations to which the postponement of the opening has given rise have been numerous enough, one would have thought, to enable some to come near the truth as to the real causes of the delay. The latter, however, have been so very simple that no one has guessed them. The breaking in of Fleet Ditch, though it in no way affected the line itself, caused serious loss of time in completing the main city terminus at Farringdon-street. From the time when that obstacle was removed, now more than a month past, the line could have been worked easily at its *minimum* rate of traffic, which is to be no less than 90 trains a day each way. The only reason against such working in October last was the wise determination of the directors—in which they have been heartily supported by their able engineer, Mr. Fowler—not to run a single passenger train until every minute detail in relation to their stations and signals was finished, and arranged in the most perfect working order. The directors seem to be well aware that in a line on such a novel plan, and having so many peculiar features in its construction, it would be dangerous to open it to the public while still imperfect, or till they had so organised all their various departments as to give confidence by the customary appearance, which on these works denote a well-matured and deliberate system. Thus, even in such trifling matters as painting stations or preparing and furnishing waiting-rooms, nothing has been left incomplete, and from Farringdon-street to Paddington the whole line is now absolutely ready and perfect in every branch, even down to the liveries of the guards and porters. The usual ten days' notice was given last Friday to the Board of Trade to inspect the mechanism of the signals, and when these have been examined the line will open, and, as we have said, with as much completeness of detail as if it had been twelve months in working order.

The importance of this new route, both for the relief it must afford our overcrowded streets, and in diminishing in point of time the space between the various districts of this unwieldy city, makes it one of the most remarkable of all our railway triumphs. It is, for a London line, the cheapest that has ever been constructed, though the engineering difficulties it presented at every hundred yards were the most formidable of the kind that have ever been encountered. Sewers and gas and water-mains had to be respected, drains for the tunnel itself to be made, heavy buildings in near proximity to the excavations to be kept secure, and even the thoroughfares under which the shaft was driven, like an entrance to a mine, left undisturbed, with all the heavy traffic rolling incessantly overhead. How great were the difficulties these almost irreconcilable conditions imposed—and, above all, when it became necessary to make underground junctions, as at King's Cross, where a labyrinth of complicated brickwork for the tunnel had, in fact, to be invented for the purpose—only engineers can understand.—*Times*.

## THE PROPOSED CONVERSION OF STEPHEN'S-GREEN INTO A PUBLIC PARK.

THERE is a very strong and a very general feeling that the happy suggestion of Mr. Justice Fitzgerald—endorsed by our excellent Lord Mayor (Moylan), and many other distinguished citizens—viz., that this green should no longer be a "closed borough" for a favoured few, but a *free park* for the masses; and as we heartily co-operate in the project, we—with a view of rendering every publicity possible to the wishes of its promoters—give the following article thereupon from our able contemporary, the *Irish Times*, which very faithfully expounds on our view of the question expressed in previous numbers:—

The committee for opening Stephen's-green to the public have not the slightest intention of ceasing their exertions. They have recently been engaged in obtaining the votes of the owners of house property in the Green for or against the measure. They have met with most encouraging success. Of those who were canvassed no less than thirty-seven, in addition to the presidents of clubs and public institutions, expressed their warmest sympathy with the object, and but twelve gave their votes against it. Many of the owners of property in the Green are in England or on the continent, and cannot be immediately consulted. The committee have determined, indeed, they never intended otherwise, to continue their exertions. They might feel called upon to resign the struggle gracefully, if a considerable majority, or any majority, of house-owners should declare against them; but when the committee have reasons

to believe that a very inconsiderable, and, with one exception, influential minority is opposed to them, they rightly consider it to be their duty to support the wishes of the greater number of owners and the public benefit of the citizens.

The committee consists of noblemen and gentlemen of every creed and party. A great public measure like the opening of St. Stephen's-green should be supported by members of every class. We think that the names of the Duke of Leinster, George Woods Maunsell, and Judge Fitzgerald, are sufficient to show the open character of the committee. To desire that it should be exclusive would be most illiberal and ungenerous.

Every citizen of Dublin knows that the value of property in Stephen's-green has deteriorated of late years. We do not see round the Green that energy and spirit displayed in the ornamentation and reconstruction of buildings which are obvious in other parts of the city. The question now is, not that of the Green Commissioners, who profess to be alarmed lest the value of property should be diminished, but that of the owners of property, who see a favourable opportunity for increasing its value. If the opening of the Green to the public, on the prudent and wise rules established by the committee, is to affect the value of property, it must certainly be to increase it.

We have the experience of London to guide us in this matter. The aristo-terrace is the favourite residence of the very *élite* of the aristocracy, yet the windows of Carlton-terrace look out upon St. James's Park, now a place where

"The nineteenth century gambols on the grass."

The value of property has increased since the opening of the park; similarly, Park-lane is another chosen place of residence for the nobility; but Park-lane opens upon Hyde-park, also a place of public recreation. Her Majesty has not objected to witness the sports of people from her palace windows; but majesty, it appears, is less exclusive than the Commissioners of the Green. She finds pleasure in seeing crowds of people enjoying "trees, plants, shrubs, and flowers," in innocent recreation; and one of the last acts of the late Prince Consort was to purchase a house directly overlooking the chief resort of the people, out on their brief holiday.

The commissioners have now held in their hands the management of Stephen's-green, and what have they done with it? how has it been ornamented? how improved? how planted? Is that piece of mossy sward, in its present condition, worthy of the centre of a great and generous city? Is it to be compared with the public gardens or squares of a fifth-rate continental town? The instant the Green is open to the public, then ornamentation will begin. The people will become familiarised with the beautiful in nature and art. They have proved themselves worthy of every confidence. For nearly two years a purely scientific garden has been open to many thousands at a time, and yet not a flower stem has been injured.

It would be most desirable that the object of the committee could be attained without opposition. No member of that committee could desire to lessen the value of another's property. Respect for the living and the memory of the dead should alike influence the commissioners to yield gracefully to the wishes of all classes of her Majesty's subjects. If they will not, then when the votes of all owners of property are ascertained, a very short bill introduced into parliament will settle decisively the question, whether these commissioners hold the Green as a public trust or as their own private property.

## MONUMENTAL VANDALISM.

A CORRESPONDENT calls attention, in the following terms, to the present dilapidated and neglected condition of a highly artistic ancient monument in Thurlow churchyard:—

THE FINE ARTS.

To the Editor of the Freeman.

SIR—Permit me, through your instrumentality, to direct attention to a very beautiful specimen of mediæval art (or at least what the ruthless hand of dilapidation has allowed to remain of it). I allude to a tomb in Thurlow churchyard, consisting of two raised recumbent figures—one a knight in armour, the other his wife. It stands surmounted by a very perfect base of raised figures, I believe representing the twelve apostles. There is an inscription on the tomb nearly obliterated, and the tomb itself is fast falling into decay, the figures on which it is surmounted, in some instances, falling about the graveyard. A trifle would restore this magnificent tomb, and it is only necessary to direct attention to it. I inquired whom it represented, but I fear it will be difficult to trace same. Some say it is the tomb of the Archer family—others that it represents the Butler family; the latter is the most likely. I should say its date would be about the fifteenth, or early in the sixteenth century. I would suggest that it is worthy of being removed and set up within the church, which, although small, might be made to contain same; if not, there is room in abundance within the cathedral walls. At all events, let the ruthless hand of despoliation be stayed.

## DUBLIN WORKING MEN'S ASSOCIATION.

ON Christmas eve the inaugural lecture of the present session of this Association was delivered in the lecture-room, Westland-row, by L. Litton, Esq., M.A.—subject, “The Life of Mahomet the Prophet.”

The chair was occupied by Master Litton, who said they met that evening to give their humble aid to advance the interests, and well-being, and happiness of their humbler fellow-man, the working classes. This institution was established not more than two years ago, and its object was to give to the working man rest from his labours, and means of moral and social improvement. For this purpose the rooms in which they were then assembled were open during eight months of the year, from six o'clock until ten each evening, and were supplied with every comfort. A good library had been provided, and from time to time additions were made to it by friends of the institution. All unexceptionable newspapers were supplied, and unexceptionable periodicals—all that could improve the minds of the working men who attended, and raise them, at least mentally, in the scale of humanity. What would man be without education? What would they all be, too, but for the toil and labour of the working man? They ought to be ever grateful to the working man, for to him they are indebted, under God, for all their comforts. What state would they be in but for the working man? He it was who built the houses in which they lived, and provided the beds on which they rested, and placed within their reach all those luxuries which they enjoyed. In gratitude for all this, they who were placed in higher positions ought to seek to return to the working man something for all his labour on their behalf—something beyond the mere payment for work performed. They ought to labour to educate the working men of this country, to improve their minds, and enlighten their understanding. He might say that without education man was nothing. They found in different parts of the world that without education man remained in the same state of darkness and semi-barbarism for ages, little removed from the beasts of the field. Education raised man, and fitted man for the highest position. That institution, as he had mentioned, was formed but two years since, and every working man was admitted from six till ten o'clock each evening during eight months of the year, on payment of one penny a-week. That sum was charged, not for any great revenue which so small a charge produced, but because it was found in everything that men prized that more for which they paid than anything which they received gratuitously. Really it was true that whatever they got for nothing was valued as nothing. Who was there who valued light, or air, or water, or what either was in reality worth? Not one. It was thought right in that institution to charge that small sum of one penny per week, in order to make the more value be set upon the provision which had then been made for benefitting the working men. Although only two years instituted, the numbers had increased sevenfold. Want of education left men open to the craft and deceitfulness of the infidel and the socialist; but give the working man education and he was prepared to resist these, and to present a bold front to them all, whether infidel, or socialist, or radical. He might mention that that institution was established by a lady, and supported almost entirely by ladies. What institution did we ever hear of, supported by ladies, which ever failed? Was there ever one so supported known to fail? Their warm hearts gave a glow to everything which they supported, their sweet tones lent a charm to all they aided, and their glorious smiles rewarded all who aided them in their work. He then briefly introduced the lecturer for the occasion.

Mr. Litton, after a few introductory remarks (in which he apologised for taking the position which he had been requested to occupy this evening, and having noticed that the institution had been founded about two years ago by Madame Ernestina), proceeded to say that he would on that occasion first call their attention to some of the advantages of working men's associations and institutions with kindred societies, and then take a rapid glance at the life of Mahomet the Prophet, the son of the desert, who, from being a man of humble origin, propagated a creed which came to be believed by 110,000,000 of people, or one-eighth part of the whole human race. In dealing with the first part of this subject he might say that it was but of comparatively recent date that literary classes, and Working Men's Associations, and Mechanics' Institutes, had being formed. But the rapid rise of their own Mechanics' Institute, of the Dublin Athenæum, and kindred institutions showed how much they were appreciated by the working men of the community. A visit to the large institutions of this class in Manchester, Liverpool, and other towns in England, would show them groups of artisans, and labourers drinking daily from these fountains of knowledge, and the result was that from the hardy sons of toil rose up many to take their stand amongst the foremost ranks in the land. The self-denying efforts of ladies had done much to raise all these institutions, and to benefit the working classes. He could not help remarking here how many of those ladies who had been brought up in refinement and ease, visited

the squalid homes of the poor, and at the risk of disease, and sickness, and death, endeavoured to comfort and raise the degraded ones of mankind. And he felt it to be his duty here to bear his testimony especially to the efforts in this respect, not only in this country, but all over the Continent, of those noble ladies, with many of whom he had become acquainted—he alluded to the Sisters of Charity—who spent their lives and their all in their self denying work. They were bound, too, to honour such women as Caroline Fry, Hannah More, Florence Nightingale, Emily Faithful, and a host of others, who were nobly labouring for the amelioration of their race. By the establishment of working men's associations and reading-rooms, and all connected with them, they had less of idleness and less of drunkenness amongst the working men—less of the habit of casting blame upon employers, and complaining and repining at their own lot in life—less discontent amongst the working classes, and more endurance. What a noble illustration of this was set by the operatives of Lancashire. In former years they would not have borne all so patiently, and with so much heroism and courage; but they had become better educated, and working men's associations and mechanics' institutes had taught them better things, and the glorious results of such institutions, and the advantages to be derived from educating the working classes of a country were now seen in their patient endurance in this time of distress and severe trial. Working men's rooms are calculated to draw off the working classes from those sources of misery and ruin to so many—the taverns and gin palaces of these countries. . . . He noticed the objections of some in former times to the educating of the masses. They said it would only tend to make working men discontented with their lot, and above their work, but now it was found that this was not so. Some of the noblest men of our day had come from the working men. Such was Hugh Miller, George Stephenson, and a host of others. But yet there were people who said, “Let well enough alone.” . . . Having thus referred to the subject of working men's associations, he passed on to sketch the life of Mahomet the Prophet. Mahomet was born at Mecca, but at the age of ten years his mother died, and he was brought up for some time by a nurse. His father died, too, while he was a lad, and he was taken by an uncle, and in after years he managed a caravansery, and sometimes crossed the desert. He ultimately married the widow of one for whom he travelled with a caravansery, he being then about twenty-five years old and she forty years. After this came the time when he lived for a time in a cave, and saw what he said was a vision—the Angel Gabriel standing by him. The lecturer then noticed the events in Mahomet's life from that time onward, and expressed his own opinion that Mahomet, in endeavouring to reform his countrymen from idolatry, was fully alive to his work, and was earnest and sincere in what he did. It was quite incorrect to say “the impostor Mahomet.” The founder of Mahomedanism was no impostor. He was in error in many things, but he was not an impostor. He taught much that was superior to all known amongst his countrymen. He did not sanction polygamy, but only limited it. He made it a rule that none should have more than four wives, while before his time they had many more. The character and aim of Mahomet had been blackened in the past when his life and history were not understood, but lately much had been brought to light that showed Mahomet was at least no impostor. The lecturer concluded by reminding those present to aid an association like that in connexion with which they had met that evening.

Major Acton moved a vote of thanks to the lecturer, and said he could fully corroborate that Mahomet was not an impostor, and that Mahomedanism, next to the Christian religion, was the most enlightened; and they might all hope and pray that the day would soon come when the Mahomedans would discharge the crescent, and, raising the Cross, worship Christ.

Mr. Kennedy seconded the motion, which was put, and passed with acclamation.

Some beautiful and instructive dissolving views were then shown through a powerful magic lantern, under Mr. Simonton's directions.

## ARCHITECTURAL ASSOCIATION OF LONDON.

On Friday evening week last, the ordinary meeting of this association was held at Conduit-street; Mr. T. Roger Smith in the chair.

The report of the Curators and Librarian commenced by congratulating the members upon the establishment of the lending library, and stated that the necessity for its formation had been urged by the curators in former reports. Nothing, however was done towards its practical introduction until June last year, when a sub-committee was appointed, which recommended its establishment. The report of the sub-committee was adopted, and the curators were empowered to carry out the same. A voluntary subscription list was opened to meet the expenses, which had a liberal response. A list of rules were prepared and sanctioned by the general committee, and the members were admitted to the use of the library on April 4th of this year. With one exception, viz., the restriction of the loan of the

books for one week, the rules had been found satisfactory. It was suggested that it would be of great advantage to those members who proposed to submit themselves as candidates at the Voluntary Architectural Examinations of the Royal Institute of British Architects, if their library contained the books referred to in the list published by the Institute, as, although the library of the Institute had been made available for intending candidates, still it was considered that it would be a greater convenience if the candidate could study the books at his own residence, which he would be enabled to do if they were in possession of those books. They had no doubt that the subject would shortly be brought before the attention of the Association. Donations were then announced.

Mr. E. L. Paraire then gave his promised lecture upon "Perspective." His object, he said, was to explain in a practical manner the working of perspective. Like most other sciences, it resolved itself into a very limited number of problems. In fact, he might say, there was only one problem that formed the basis of this science. The experience which he had had led him to think there was no very great difficulty connected with the subject, but what might be brought within the reach of the most limited understanding. Upon sketching from nature, Mr. Paraire said there was no very great difficulty connected with that part of perspective further than the adaptation of certain simple mechanical operations to obtain the principal lines. When complicated objects were under consideration, their delineation in perspective was not so much a work of difficulty as a work of time. Several instruments had been invented by which saving of time was effected, but in ordinary subjects it was doubtful whether those instruments which, when employed, required great stability and care, were preferable to simple rules. In sketching from nature it was not necessary to have stationary vanishing points; let the *outline be carefully obtained*, and hereafter a method would be given where more accuracy could be observed. All this was exceedingly simple, and there were few persons who remembered being taught the same thing at school, still the manner in which such was explained, together with other instructions given, appeared to the pupil somewhat inconsistent, inasmuch as the observations were taken by the *short arm* of the pupil, then corrected by the *longer arm* of the master, or the eye was not on the same level, and in consequence the perspective was continually varying. The pupil was not always told the manner to hold his pencil while making his observations, neither how to make certain memoranda on the building as to where the pencil intersects, and, naturally enough, the omission of one of those points materially altered the perspective view—the pupil became disheartened, called it difficult, and finally put it aside. The whole operation was dependent on *fixed principles*, a certain process was required to be carried out; when begun on an object it was not to be altered, and if properly attended to, no other than a satisfactory result could be obtained; even in drawing from life these rules were applicable, and would be found, after trial, of such eminent service, in facilitating the perspective of the figure, that once employed they would always be resorted to. Having obtained the leading vanishing lines, they should mark out the various parts, irrespective of style or detail, which were to be introduced at the last. Mr. Paraire, by the diagrams, placed the *whole theory* and operations connected with the science of perspective clearly and simply before the student; in doing which, many unavoidable repetitions had, he said, occurred. For what was perspective? The geometrician would tell you "It is to find the point of intersection of a given line with a given plane." The artist would say, "It is the art of drawing certain objects on a picture." Both are right: for after the geometrician has performed his part, and obtained certain points, the artist united those different points by a series of lines, and produced a picture. The science of perspective resolved itself into the repetition of one single problem, viz., to find the intersection of a given line with a given plane.

#### ROYAL DUBLIN SOCIETY'S SCHOOL OF ART.

The annual distribution of prizes to the successful pupils of the various classes in the School of Art, in connection with the Royal Dublin Society for the past session, took place on the 23rd ult., in the lecture room of the Society's house, Kildare-street. The Marquis of Kildare, V.P., presided. The prizes were displayed on the table, and the successful pupils were present.

Mr. Edward Wright commenced the proceedings by thanking the noble Marquis for kindly undertaking to distribute the prizes awarded by the inspector appointed by the Committee of the Council on Education at the recent examinations. As many as 74 prizes had been awarded to the pupils of public schools of the metropolis. In explanation of that circumstance, it should be stated that the government had ever been desirous to extend the benefits of art instruction to all classes of the community, and as one means of advancing that object it was made a condition preliminary to appointing a pupil teacher, that that pupil teacher should have instructed at least 200 extern pupils. The Royal Dublin Society had always cordially

co-operated with the Committee of Council on Education in their benevolent and practically useful object, and at the present time, having the prospect of an increase at about 300 extern pupils, they were applying for an additional female teacher. The progressive advance in the proficiency of the pupils might be inferred from the number of the prizes about to be distributed, which were awarded by a perfectly competent and independent government inspector, after an examination held in strict conformity with the rules made by the Committee of the Council on Education. It should also be noticed that the government inspector in his report recognized an improvement in the classes, and remarked that the students who worked exercises in his presence obtained a fair proportion of success. The Committee of Fine Arts regretted that the inspector on this occasion conceived it to be his duty to set aside the works of one entire class of competitors for whom the Society and a large portion of the public felt much sympathy, namely—the female pupils, who on the solicitation of "The Society for Promoting the Employment of Women" were encouraged by the Society last year to commence the art of lithography, with the view of it being beneficial to them in their future struggles in life. It was, however to be hoped that this inopportune discouragement would not permanently prejudice this effort, and that talent united with industry would surmount such difficulties, and in future secure as well as deserve better success. After some further observations Mr. Wright concluded by giving into the charge of the noble marquis the prizes, 149 in number, for distribution.

The pupils, male and female, were then successively presented to the Marquis of Kildare by Dr. Steele and Mr. MacManus, and they received their prizes from the hands of the marquis amidst the applause of the audience.

Dr. Steele announced that the Taylor prizes for composition and landscape painting had been awarded as follows:—1st prize, £30, to Mr. H. Croly; 2nd prize, £10, to Mr. Perry. The thanks of the meeting were voted by acclamation to the Marquis of Kildare, who in acknowledging the compliment, said he presided with very great pleasure on the occasion. He felt a deep interest in the success of the School of Art. He was gratified to find that the amount of prizes distributed this year far exceeded those of any previous year. He found, too, that the number of pupils in the various classes of the school had of late greatly increased, and these circumstances afforded him sincere pleasure. He trusted that the School of Art would progressively advance in numbers, and in talent and industry, and that its instruction would prove beneficial to all who received it.

#### DRAINAGE OF FLOODED LANDS.

At the last meeting of the guardians of Edenderry Union, Edward Ledwich, Esq., J.P., in the chair, the following resolutions were passed unanimously:—

"Resolved—That we, the Board of Guardians of the Poor of Edenderry Union, are of opinion that the bill introduced last session of parliament by Colonel Dickson, to enable the owners of flooded lands to be incorporated and empowered to drain and improve them, would, if passed into law, be a material improvement to this country, by affording a reproductive investment for capital and remunerative employment for the labouring classes, now so much required, after the successive adverse seasons which have occurred; and we earnestly call upon our representatives and upon the executive government to take the necessary steps for passing the bill in the ensuing session, with such modifications as will facilitate its operations."

"Resolved—That we, the Guardians of the Poor of Edenderry Union, are of opinion that in cases where there are insufficient bridges on public roads, which are impediments to the drainage of lands, the public shall bear the expense of their modifications, so as to put the party draining in the same position as if such bridges were not so constructed as to be impediments."

The Clerk was directed to forward copies of the foregoing resolutions to the members for the King's County, County of Kildare, and County of Meath, also to the Chief Secretary for Ireland.

DEPARTMENT OF SCIENCE AND ART.—Mr. Dowling, lecturer on science, in connection with the Department of Science and Art, London, commenced a course of forty lectures on botany, on Thursday evening week, in the Dublin Mechanics' Institute. The lecturer dwelt largely on the value of botany as an educational means of strengthening the observant faculties and developing the reasoning powers. The structure of plants demand a personal observation of facts, and a decided mental effort to draw correct conclusions from the observed facts. In this way the observant faculties are educated and strengthened, and the reasoning powers developed. The course of instruction is essentially practical.

Mr. Hawkshaw, the engineer, is at present examining the works of the Suez Canal, and will, it is thought, soon make a full report.

## INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary meeting of this Institute was held on Monday, the 15th ult., Mr. Arthur Ashpitel, V.P., in the chair.

Mr. Charles Fowler, sen., Fellow, on his presenting five perspective views, and exhibiting other drawings illustrating Hungerford Market made some remarks thereon, in the course of which (which had the curious interest of being, as it were, a funeral oration by the author over his own work now being swept away, to be succeeded by the new railway station at Charing-cross,) much valuable information was communicated. The market was built upon the site of the Hungerford House estate, between York House and the Craven estate on the banks of the river. Sir Edward Hungerford, the last of the family, who were of Farleigh Castle in Wiltshire, having squandered his inheritance, in order to retrieve his fortunes, obtained a royal charter to convert his metropolitan seat into a market, 31st Charles II., A.D. 1681. The project for rebuilding the market originated with Sir Thomas Tyrwhitt in 1824, and the designs were approved by King George IV., in the same year. The works were commenced in 1834, and the new market was formally opened on the 2nd July, 1835. The area of the site was 3 a. 19 p., and 3-5th of the whole was occupied by buildings, which were of great strength and durability. Their entire cost was £97,535. As a public enterprise the market proved a failure, and was not able to break the monopoly of the previous principal markets. Still, after paying off in full the debentures and borrowed capital, the dividends or returns to the shareholders amounted to 79 per cent., besides compensations to all the officers and servants of the company.

A paper was then read by the Rev. Mackenzie E. C. Walcott, M.A., F.S.A., "On the Inner Life and Conventional Arrangement of the Monastery of Canterbury," illustrated by numerous plans, but founded principally on the view given by the convent as it existed in the 12th century, by Eadwyn, the monk, now preserved in the library of Trinity College, Cambridge. The Obituary of Canterbury, the Constitutions of Lanfranc, the architects of the buildings, the various notices in the *Anglia Sacra*, and the works of the local topographers, Somner, Batte, Gostling and Hasted, supplemented by a personal survey of the buildings enabled Mr. Walcott, to define the uses of the existing remains, and determine the sites of those portions which have been destroyed. The cloisters, lavatory, carols, refectory, dormitories, cellarage, chapter-house, infirmary, guest-house, kitchen, bath-house, granaries, almshouse, foreign cemetery, Prior's lodgings, gate-house, bell-tower, and water-courses, were all described in detail. Mr. Walcott pointed out the site of the doorway by which Becket passed through to the church on the day of his murder, and showed that the doorway hitherto assigned to that circumstance was, in fact, that leading to the cellarage, at the side of which the turn remains, the aperture to which no previous writer has assigned its proper use. He likewise exposed the erroneous description hitherto given of the carols, or monk's studies, insisting upon the importance of consulting the original authorities at first hand in investigations of this nature.

A cordial vote of thanks was given to the author, and a hope expressed that an opportunity might be afforded for considering and discussing hereafter the very important and interesting matter he had brought before the meeting.

## PROPOSED IMPROVEMENT AMENDMENT BILL.

At a meeting of the Town Council on the 16th ult., the following report, submitted by the City Surveyor, in September last, to Committee No. 1, was read:—

GENTLEMEN—Last October the council directed your committee to consider the expediency of applying to parliament for an act to enable the corporation to extend the time now limited by law for contracting with the owners of gas works, or other persons, for the supply of gas, or other means of lighting the city, including lamps, &c., &c.; and also to enlarge the powers of the corporation in reference to other contracts and agreements, and otherwise to alter and amend other clauses in the municipal statutes; and also to authorise your committee to direct the publication of the requisite notices in the newspapers.

In pursuance of this direction your committee, on the 26th of October last year, placed the matter in the hands of your law agent, Mr. Smyth, and he consulted your parliamentary agent, Mr. Mugeridge, who prepared a draft notice; and on the 9th of November last Mr. Smith reported to your committee that he had received the notice, but that he considered the time too short to properly mature (as the notices would have to be published in a week from date), and, in consequence, your committee postponed the question until this year.

Your contract with the Hibernian Gas Company for lighting the city will expire on the 5th of January, 1865, and you ought to advertise for tenders for a new contract at least eighteen months before that date, otherwise you can have no competition unless you

have the power for contracting for a longer term than three years; it is therefore evident that no time is now to be lost in obtaining the necessary powers to make contracts for such terms as the corporation may think fit, and such powers I find are now possessed by other public bodies and corporations.

Experience in the working of the improvement act has proved the necessity of getting many clauses amended and new ones inserted, and you greatly require powers such as are possessed by all large cities and towns in England and Scotland for the control and regulation of the erection of new buildings, and the alteration of old buildings, so as to secure public safety, and houses, &c., being destroyed, and life endangered by the reckless proceedings of builders altering houses. Those powers are pressingly wanted in Dublin, as a large proportion of cases reported to me as to houses being in danger of falling, the cause of failure can be traced to the cutting away of chimneys or walls to enlarge shops.

The appointment of one or two officers, called Building Surveyors, to work these powers would lie with the corporation, but entail no new salaries, as they are always paid by fees, to be paid, as scheduled in the building acts, by the parties building or altering houses. There will be no trouble in proposing these building clauses, as they are all comprehended in the London metropolitan building act, from which it would only be necessary to copy them.

(Signed)

PARKE NEVILLE.

September 13, 1862.

## THE WINTER GARDEN.

THE following circular has been addressed to (we believe) all the architects practising in Ireland, and we doubt not that it will ensure a large attendance at the proposed meeting for the discussion of important questions:—

"Some of the architects who competed for the Dublin Exhibition Palace and Winter Garden purpose holding a Meeting, on Saturday next, 3rd January, 1863, at the Antient Concert Rooms, Great Brunswick-street, to take into consideration the necessity that exists for a collective expression of opinion, respecting the extraordinary course adopted towards the competitors by the directory of the above project; and to take such steps—either by re-organising the Irish Institute of Architects, or forming an Architectural Association—as shall in future avert the possibility of a recurrence of such results as those arising from the Winter Garden competition.

"Your co-operation in this movement is requested, as it is but too evident that some bond of union is absolutely requisite to protect the profession from inroads so fraught with injustice and injury to all its members.

"Chair to be taken at Two o'clock.—Signed—John M'Curdy, E. H. Carson, J. Rawson Carroll."

## CHROMO-LITHOGRAPHY IN BELFAST.

MESSRS. Ward and Co. have just issued specimens of chromo-lithography, which we cannot praise too highly. They comprise a view of Carrickfergus Castle and a view of Dunluce Castle. Both these pieces are taken from water-colours by D. F. Murphy, and the truthfulness and accuracy with which they are executed leaves nothing to be desired in point of artistic excellence. The great difficulty to be overcome in chromo-lithography is the combined roughness and obscurity to which the productions of the art, even in the best hands, are liable. In the specimens before us there is hardly a trace of this ordinary defect visible. The bold frontage of Carrickfergus Castle is clearly defined, and the numerous figures in the foreground are brought out with a distinctness of outline and a mellowness of colouring in the costume that renders the grouping quite vivid and natural. The cloud tints, so difficult even on canvas, seem here charmingly pencilled off, and in both pictures there is a softness of hue and a blending of shades that imparts to them a peculiar and almost characteristic attraction for the eye. We (*Ulster Observer*) have rarely seen better specimens of this truly difficult art than the ones before us, and it is highly creditable to the taste and ability of the Messrs. Ward to have produced them.

The authorities at Naples have determined to put an end to the impositions to which foreigners who wish to see the curiosities of that city and neighbourhood, particularly the ruins of Pompeii and Herculaneum, have been long subjected. An order has been issued that for the future the guides shall only charge two francs for each person, and one for each child; and any infraction of this order will be severely punished.

Mr. D. C. Ferguson, architect, has been commissioned to report on the building arrangements generally of the Coombe Lying-in Hospital, with a view to improvements in the dispensary, and extended accommodation.

## NEW PATENTS.

List of Letters Patent which passed the Great Seal in December, 1862:—

J. Biers, for "Improvements in shoes for horses and other animals."

A. H. Perry, for "Improvements in fastenings for, and in the method of, fastening together or securing railway chains and sleepers, and for other similar purposes."

J. Rowell, for "Improvements in pillars and apparatus for straining wire."

J. W. Taylor, for "Improvements in valves and in means for regulating and indicating the flow and pressure of fluids."

F. G. Grice, for "An improvement or improvements in the manufacture of nuts for screwed bolts, and in machinery to be employed in the said manufacture."

J. Bell, for "Improvements in the fastenings for railway chains."

A. J. Adams, for "An improved method of rifling firearms."

J. Lovegrove, for "Improvements in apparatus for inspection of small sewers and drains, and for facilitating the removal of obstructions therein."

A. A. Loenard, for "A new and improved cement or mastic for making joints of steam, water, or gas pipes or chambers."

W. Wighton, for "Improvements in apparatus for regulating watches and other time-keepers."

W. Norman, for "Improvements in tables or drawers or other sliding receptacles."

H. Ledger, for "An improved substitute for tombstones, tablets, monuments, and other similar memorials, or commemorative records."

J. Parkes, for "Improvements in gas lanterns."

A. Gilbey, for "Improvements in apparatus for washing and cleansing bottles."

W. E. Newton, for "Improvements in mills for grinding."

## Notes of New Works.

Sundry works are to be executed at the church of Derrybruske, Co. Fermanagh, under the direction of the architects to the Ecclesiastical Commissioners.

Messrs. Wardrop and Son have been declared contractors for the intended new works at Monaghan gaol.

The Commissioners of Control for Lunatic Asylums require another contractor to complete the asylum in course of erection at Castlebar; the former contractor being relieved from his undertaking chiefly on account of ill health.

The Earl of Longford is about erecting farm buildings at Ardagh, Longford.

Three new houses are to be erected at Bray, according to plans by Mr. W. G. Murray, architect.

## Miscellaneous.

**BARON ROTHSCHILD'S CHATEAU OF FERRIERES.**—Of this magnificent building and the recent visit of the Emperor of the French to his Cr sean lord we collect the following particulars from a contemporary:—Arrived at the chateau, which is built entirely in the style of an English mansion, and is the work of Sir Joseph Paxton, the Emperor paused to examine the construction of the entrance-hall, which answers to the vestibule of the French chateau, with the difference that, in English architecture, the hall is carried to the roof of the building, and is lighted by a skylight, while the French fashion places the first landing of the staircase immediately over the vestibule. The Emperor was so well pleased with the grandiose effects of the hall, that he is said to have expressed his regret that he had not thought of this improvement while restoring the pavilion at Tuileries, which has been lately thrown down, and it is now fast building up again. It is in this piece of the chateau that the great treasures of art and *vertu*, amassed by the baron during his long autocracy over the different sections of the world, have been deposited. Besides the library, which, though small, contains some of the most valuable works known, principally of authors of the Middle Ages, cabinets, containing Italian classical remains—gems of the greatest value—antique gold medals, cameos, and enamels are placed round the walls, while paintings by the old masters—particularly one or two of the *chef-d'œuvre* of Velasquez—which are hung above, are said to represent a value of several millions. The chamber into which the Emperor was ushered on mounting the stairs greatly excited his attention. It is a *salle-des-gardes*, completely decorated from some ancient model in one of the old castles of Scotland. Then came the drawingroom, from the windows, by *echappes* artistically managed, a view of the whole country round is obtained. The banquetting hall is modelled after that of the Knights of the Garter at Windsor Castle. Of the Baron's plate

exhibited therein on the occasion in question, it is related that it has long been the custom of Baron James to add to his stock of plate at the birth of every child in his family. The number of his children and grandchildren may be calculated by the pieces of ornamental plate, all of the highest value, which adorned the long table. The Sevres china is unique. It is the famous set once belonging to Louis Seize—the one which the Emperor Joseph II. admired so highly that he exclaimed, when it was placed upon the table at Versailles, "Even to see this service the journey from Vienna would not be considered too long or wearisome." Each plate is valued at fifty guineas, being painted by Boucher, and signed by his own hand. The "Triumph of Mordecai," which adorns the great *salon* of Ferrieres, and is one of the finest works of the sixteenth century, has nothing to compare in gorgeousness of detail with the reception given to Napoleon III. by the financier Rothschild; and the festival ordained by Fouquet for the entertainment of the Grand Monarque fades into insignificance before it; and truly, when we behold the assemblage of grandeur and nobility gathered round the table in the great banquetting hall, we could not help repeating the words which, in black letter, issue in a scroll from the open mouth of the herald leading the steed on which Mordecai is seated, as represented in the panel facing the windows in the drawingroom—"Thus shall it be with the man whom the king delighted to honour."

The Lord Lieutenant, on the occasion of his visit to Belfast, last month, to assist at the inauguration of the new Ulster Hall, was the guest of Charles Lanyon, Esq., (ex Mayor) J.P., architect and C.E., at "the Abbey."

**REVENUE RAISED IN IRELAND.**—The amount of revenue raised in Ireland in 1799 was 3,131,833*l.*, the population then being 5,395,456 persons; in 1821 the population had increased to 6,801,827, and the revenue had increased to 3,999,924*l.* Between 1821 and 1841 the population had again increased, but the public revenue remained about the same, the amount raised in Ireland in 1841 being 3,969,633*l.* I shall presently glance at the amount of revenue which Ireland should pay under the articles of Union, but I shall first compare the amounts levied in the five years from 1842 to 1846, and in the five years from 1857 to 1861. The amount raised in the former period was 19,419,783*l.*, and in the latter period 33,496,860*l.*, the increase being over two and a-half millions per annum.

IRISH REVENUE.					
1842	...	...	1857	...	...
1843	...	...	1858	...	...
1844	...	...	1859	...	...
1845	...	...	1860	...	...
1846	...	...	1861	...	...

Total in 5 years...19,419,083

Total in 5 years...33,486,860

The taxation in Great Britain in 1841 was 42*s.* per head; in 1851, 46*s.* per head; and in 1861, 48*s.* 6*d.* per head. The increase between 1841 and 1861 was 6*s.* 6*d.* per head, or 13 per cent. The taxation in Ireland in 1841 was 8*s.* 8*d.* per head; in 1851, 11*s.* 2*d.* per head; and in 1861, 22*s.* 8*d.* per head; the increase in the twenty years being 150 per cent., or more than ten times the rate of England. Owing to the fiscal policy of Mr. Gladstone, the increase in the taxation of Ireland has been nearly doubled in the past ten years, but the ratio in proportion to the population has been actually doubled. In Great Britain the actual increase has been 8 per cent., but in proportion to the population it has been only 7 per cent—"How Ireland may be Saved," by Joseph Fisher.

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Parties can have estimates from Mr. Lyons by forwarding particulars and tracings of the situations to which it is proposed to adapt the shutters. These excellent shutters have been fitted on two fronts of Messrs. Kinahan's extensive establishment in Westmoreland-street and Burgh-quay, and are now being prepared for the Colonial Assurance Company's new offices in Sackville-street (to the order of Mr. Wm. G. Murray, architect, Mr. Beardwood, builder), as well as for other places in Ireland.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABOT-STREET." All other Communications should be addressed to the Editor, 26, LOWER GARDINER-STREET.

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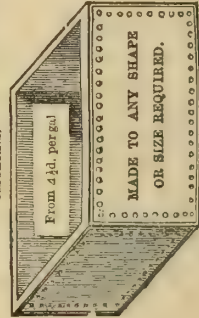
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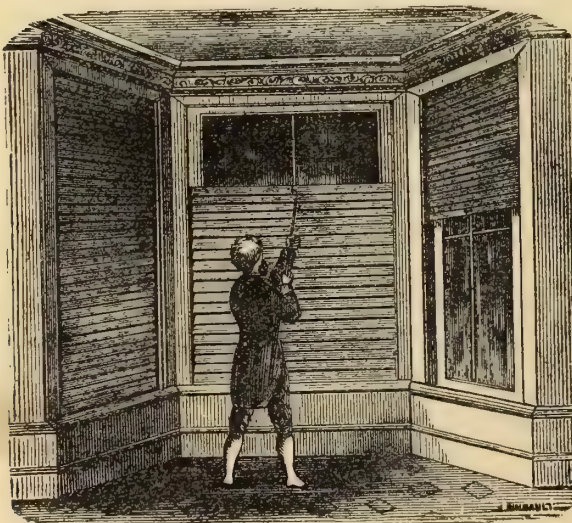
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# The Dublin Builder.

VOL. V.—No. 74.

NEW SERIES!  
FIFTH YEAR.

**A**VAILING myself of the opportunity presented on the occasion of inaugurating a new volume, of making desired modifications in the style of producing this journal, with a view to insuring the renewed patronage of many valued friends and supporters, and of acquiring fresh vigour henceforward, I beg to announce with this number the commencement of a new, and enlarged, and (I confidently submit) an improved series.

As stated in my circular, included in last No., arrangements for the securing of this end were under consideration at that time, but had not arrived at that climactic point of settlement, rendering the commencement of a new programme practicable with the first issue for the year. This, perhaps, is slightly to be regretted; but I trust that the supporters of the journal will kindly overlook the fact, and regard this as the commencement of their volume for 1863—at the termination of which each regular subscriber and advertiser shall be presented with a carefully prepared index and suitable title-page for binding. Hitherto circumstances, unnecessary here to recapitulate, intervened in this regard; but every reliance may be placed on my capabilities now to ensure the faithful performance of the undertakings herein set forth.

What I mean to convey to my readers by “a new series,” is, not merely the alteration of the size superficially to that of the London periodicals of similar character—which, however, I doubt not will be admittedly a desideratum—but a decidedly increased excellence in the character of the contents, and of the illustrations likewise; by the acquisition of qualified aid to our staff of literary contributors, by the ensuring of *variety* and special *merit* in subjects for engraving; by the presentation of special and *in extenso* reports of scientific and artistic societies’ proceedings, and generally original and interesting matter.

I am happy to announce that amongst those periodical contributors, whose good offices in behalf of the letter-press department I have been fortunate enough to secure, may be included an eminent practical *civil engineer*—who, with the number for the first prox. will take charge of his department—a learned ecclesiologist and artist, and two professors of painting and sculpture respectively, in connection with National art institutions. It is but justice to these gentlemen to add, that their labours are influenced by *con amore* feelings towards the advancement of their art and the mission of this journal; for the improvement of the latter, and its permanent establishment as an organ of Art and Science in Ireland—not to speak of the concomitant element of personal friendship, of the presence of which in each case I am fully sensible. They will, therefore, be appreciated more than if other considerations less lofty were in the ascendant. With the infusion of so much new blood in addition to my own humble—but without egotism, and in gratitude for kind encouragement, I may add—and so far successful efforts, I trust that the volume for 1863 will be found in every way equal to my representations.

I confidently hope that the re-establishment of the Institute of Architects (full particulars concerning which may be found on another page) will furnish me with much additional food for original and instructive matter on professional topics; and, under any circumstances,—whether within or without the ordinary pages of this journal, its transactions shall be published,—a faithful chronicle thereof shall be secured for the readers.

A like desirable object shall be attained, as far as practicable, in reference to the proceedings of “The Institute of Civil Engineers,” “The Royal Hibernian Academy,” and other bodies.

I claim permission here to mention incidentally, that it would very much conduce to “the news” department of the journal if my architect and builder friends respectively, both metropolitan and provincial, would kindly devote an occasional leisure few moments to jot down, briefly, notes of their works; for it must be obvious that I cannot, just yet at least, maintain a staff of correspondents to communicate particulars of every building in progress; and that in the absence of a little voluntary assistance on the part of the gentlemen engaged thereon, a record must necessarily be limited.

Two features, the pursuit of which I regard as of the highest importance and interest—viz., the “TOWNS’ SURVEY” series, and the notices of particular “INDUSTRIAL ESTABLISHMENTS AND MANUFACTORIES,” will be resumed immediately, and at least one of each included *monthly*. As I reserve, however, this duty for *myself*, and simultaneously purpose paying my provincial friends a business visit, the pledge must be subject to the non-intervention of any unforeseen circumstance, or of my other engagements. As at present proposed, the Midland and Western towns are first on my list, and afterwards the North-western and Eastern, the Eastern, and, finally, the Southern, prior to my usual periodical sojourns in the English metropolis and provinces. Nor shall Caledonia be forgotten, for I entertain an anxious desire to visit “the modern Athens,” and the great commercial seaport of that sister kingdom; to give my readers the benefit of my notes there, as well as to reap benefit myself. Should I be permitted to work out this portion of my programme with the facility expected, I likewise cherish the hope of being present at the inauguration of the Paris Exposition in autumn next, as I was at that of the South Kensington, in May last, as well as on different occasions at four subsequent periods.

I trust that by the foregoing sketch of what I propose, my friends and patrons will see that I am determined not “to rest on my oars,” but to devote myself earnestly to the prosecution of my editorial work, as well as to the perpetual collection of “grist to the mill”—a very necessary ingredient in the success of any enterprise.

My special attention having been repeatedly directed to the sanitary condition of certain districts in our city, as well as to certain towns in Ireland wherein the rate of mortality is something fearful, I shall, with redoubled exertions, return to my examinations of such localities; and, where language may fail to convey an adequate idea of their state, I shall have recourse to the additionally powerful aid of illustrations.

It is more than probable that, in the course of a few months, I shall have the pleasure of announcing the completion of two most important structures in this city—the one associated with the hallowed memories of the past of our national history and religion, and the other with the future of instruction and amusement combined. I shall not here dwell on the particulars of these works, or the various circumstances connected with their development (which are elaborately treated in the present number), but I may state that I have arranged for presentation herein, at an early date—possibly next issue—of a beautifully executed woodcut, showing the principal features of restoration in St. Patrick’s Cathedral (others to follow), and, shortly after, of “The Exhibition Palace and Winter Garden.” Whatever may be the nature of certain parties, opinions relative to the mode of accomplishing these undertakings, their successful consummation must be viewed with pleasure by all.

My reserve stock of other subjects for illustration is distinguished for its plenitude at present, but as there will, of course, be a continual draw thereon, I shall esteem as a favour the submission to me of photographs or drawings of works projected, in progress, or completed respectively.

In accordance with the suggestion of a valued friend, I propose further to introduce portraits of eminent Architects, Engineers, Builders—living or departed—and others distinguished in the artistic and constructive professions, together with accompanying biographies. For facilitating my views in this re-

spect, which I conceive will prove gratifying to the general readers of the journal, I shall be happy to receive from the friends of such parties their *cartes de visite* or other photographic likenesses.

Having now exhausted the relation of my proposed programme for the current year, I trust that I may be permitted to hope for renewed and additional support for this undertaking, which all the *profession* and the *trade*, as well as the general public, know to be an association almost inseparable from my own identity,—and that, whatever shortcomings may have taken place, or however much I may have lacked, or may still lack, ability to maintain an arduous position, the deficiency will be more than amply compensated by my earnestness to secure for Ireland a respectable organ of independent principle, and devoted to the advancement of our National ART, SCIENCE, and INDUSTRY.

In conclusion, while tendering my very warmest acknowledgments to the very many friends—subscribers and advertisers—that have stood by me during the last *four* years, and enabled me so far to ensure the maintenance of the journal, in its several departments, I should be, indeed, unmindful and ungrateful if I did not also take occasion to refer to the invaluable services rendered in the typographical, the wood engraving, and lithographing, respectively,—the first-named especially, involving more than ordinary physical and mental labour, besides heavy investment of capital and other responsibilities.

JOHN J. LYONS, Architect and C.E.,

Proprietor and Editor,

26, Lower Gardiner-street.

Dublin, 15th January, 1863.

## THE WINTER GARDEN COMPETITION QUESTION.

THE proceedings of the architects’ meeting on the 3rd inst., and the logical *semi-official* defence by a shareholder of the decision of the directors upon the designs submitted in the recent competition, are so fully before our readers, that it would be almost tedious to dilate upon them at length—limited space forbids it too. Brief comment by us is, however, necessary, and doubtless expected, but we confine ourselves to the simple abstract questions at issue, without entering on that of the integrity and “respectability” of the committee,—which nobody could, or ever *did* doubt. Some of the competing architects complain that first the committee misled them by furnishing instructions *impossible* to be complied with; that for a considerable time they buoyed *six* of them up with false hopes of success; that finally, after putting those *six* to much extra trouble and loss of time, they shelve the claims of five *in toto*, refuse to award the proffered premiums *at all*, but select the *sixth* design as “nearest to their requirements,” instructing the author to *alter and amend*, and in trade parlance “giving him the *job*,” his estimate for carrying out the design “curtailed of many fair proportions,” being in excess of the stipulated amount by £5,000! Others again say that *their* designs *did* give the required accommodation, and *within* the cost, as guaranteed by estimates from firms of undoubted experience and respectability.

One of the *six* (and whose design was in high favour) believes that the architects have only *themselves* to blame for competing on such instructions.

Is there not something complicated and contradictory in the above? But to the first opinions the majority incline.

The committee, through their spokesman “shareholder,” argue, that the architects, in any case, did *not* comply with the instructions; that they did not *prove* their “*impossibility*,” that a competent member of their own body drew up those instructions; and that such *non-compliance* constituted a practical termination to the competition, leaving the directors to do as they thought most conducive to the attainment of their object; that the designs were extravagant, and would involve ruin on the company.

The withholding of the premiums is attributed “to save outlay,” whereas the committee say, show us that you, or any of you, have a *right* to them, and we shall feel pleasure in awarding them; but if we awarded them under the circumstances, the authors of each set of drawings submitted might make a legal claim against us for compensation.

This latter is hardly *probable*, if *possible*; and, everything impartially considered, our judgment leads us to the conclusion, that there ought to have been a *second* competition limited to the *six*, and the premiums awarded to the two best plans.

It is really lamentable to see so much time, talent, labour, and money expended on a myth!

To say the least, the decision is more distinguished for *diplomatic caution* in avoiding legal responsibility, than for a desire, by waiving technicalities, to perform a *moral* duty. Which would have been the most *volitic*? Time will answer.

## THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN.

### IMPORTANT MEETING OF ARCHITECTS.

(Specially reported for the DUBLIN BUILDER.)

A MEETING of some thirty members of the architectural profession was held in the Ancient Concert Rooms on Saturday, the 3rd inst., "to take into consideration the necessity that exists for a collective expression of opinion respecting the extraordinary course adopted towards the competitors by the directors of the above project, and to adopt such steps—either by re-organizing the Irish Institute of Architects, or forming an Architectural Association—as shall in future avert the possibility of a recurrence of such results as those arising from the Winter Garden Competition."

At two o'clock the chair was taken by JACOB OWEN, ESQ. (late architect to the Board of Public Works in Ireland).

Messrs. Carson, M'Curdy, and R. Carroll acted as honorary secretaries to the meeting. Letters of apology were read from Mr. W. Fogarty, of Limerick; Messrs. Boyd and Batt, of Belfast and Derry; Mr. Deane, Merriam-street; and Mr. J. Lanyon, Belfast. Amongst those present were—Messrs. James Owen, Murray, M'Carthy, Ashlin, Carson, M'Curdy, Carroll, Geoghegan, Montgomery, Butler, Papworth, Bourke, Ferguson, Welland, Bell, jun., Maguire, Burne, Drew, Farrell, Astley T. Owen, Campbell, Franklin, R. Turner, T. Turner, Barre, Lee, Lyons (proprietor and editor of DUBLIN BUILDER), &c.

Mr. W. Murray, in moving the first resolution, (which with all the others subsequently proposed will be found at length in our advertising columns) said, that the present meeting was convened in consequence of the great abuses which had crept into the system of professional competition existing in public bodies, and more particularly with regard to competition for the building of the new Winter Palace. The commissioners interested in that project had laid down a series of rules and regulations with regard to the furnishing of plans and specifications, which in no one instance were strictly conformed to. There was a general impression amongst the profession that competition was not carried out in such a manner as the public might expect. In almost every instance the prescribed regulations with regard to the plans and specifications were broken through. For instance, it was said the designs were to be in Indian ink, whereas they were almost all coloured. £35,000 was the sum estimated for the work, and that was broken through, on the assumption it was almost impossible to get the building executed for that. It was necessary the profession should adopt some rule with regard to committees, who, not thoroughly understanding what they required, met together as judges of competitive plans.

The Chairman—Do you mean a rule for the information of competing candidates?

Mr. Murray—Certainly: some information should be given to guide them. The system at present was very bad. Committees, necessarily ignorant of such matters, were called on to decide respecting plans, without any professional assistance.

Mr. M'Curdy, in seconding the resolution, said that Mr. Murray had fully explained the grievances of the profession, and the position in which the members were occasionally placed by building committees. The plans sent in by Irish architects for the new Winter Palace were creditable to the country. They were creditable to England as well. The response was most liberal on every side; and it certainly appeared to him the profession deserved a little better from the committee than a mere acknowledgment that the plans had been received.

Mr. Maguire—Do you know on what terms the plans were accepted?

Mr. M'Curdy—I cannot say positively.

Mr. Thomas Turner said they were all agreed that the committee referred to should have adopted a course that would have preserved firmness in the system of competition. The matter more or less lay with the competitors themselves. From experience they were aware that building committees were generally very unreasonable in their demands on the profession. No matter how unreasonable those demands might be, he regretted to say they found too ready a response from the profession. Committees would propose conditions still more ignoble and degrading to professional men, if they found competition notwithstanding. To defeat such an object, whenever unreasonable terms were proposed, professional men should decline to compete. So long as gentlemen complied with unreasonable conditions, they would be repeated. It consequently lay with members of the profession themselves to protect their interests. A code of laws, drawn up by the profession, might not, perhaps, influence public bodies, but they could, nevertheless, act independently by not competing whenever unfair terms were proposed. As he before stated, so long as unreasonable terms were complied with by members of the profession, they would be repeated.

Mr. Carson—The profession might arrange amongst themselves when to compete, or not compete, as they thought proper. If plans were advertised, and unreasonable conditions proposed, they might not compete.

The Chairman—If disapproved of by the profession, the members thereof might decline competing.

Mr. Carson said he was sure every respectable member of the profession would belong to an institute having such an object. He considered such an institute should be established for the guidance of the profession. Members of the profession could write to the secretary of such an institute, and receive advice, under certain circumstances.

The Chairman—Is any gentleman aware whether steps were taken by the London architects with reference to competition under such circumstances?

Mr. Carson—I don't think they have taken any steps in the London Institute.

Mr. R. Carroll—Most of the English architects do not compete except in very important cases.

The resolution was carried *nem. dis.*

Mr. C. Geoghegan considered competitors in the case of the Winter Palace could obtain redress, by respectfully protesting against the decision of the committee. He had reason to believe that they would be happy to give the proposed premiums if there was a resolution to that effect on behalf of the profession.

Mr. R. Carroll proposed the next resolution, and said that, as one of the competitors, he wished to state what their case against the committee was. It was not to be supposed that twenty-five gentlemen competed, at an expenditure of £150 and £200, for the mere premiums of £75 and £150, which had been offered. They competed for success. They had not, however, a fair competition. The directors threw all the original designs aside, and received designs on different conditions, increasing the cost by £5,000, and reducing the amount of accommodation required. The design which was to be carried out, and which Mr. Jones was at present preparing a specification for, would cost £40,000—£5,000 over the stipulated sum. The accommodation given by the accepted plan was not at all equal to some of the designs which the authors were prepared to carry out for £35,000. The new designs had been selected without any competition, and in the preparation of them the directors had the advantage of studying all the other designs for weeks. It was understood that, to save outlay, the directors adopted this course; but why should twenty-five men sacrifice from £2,000 to £3,000 in preparing their drawings, in addition to an equal sum to compensate them for loss of time. He had spent £80 in the preparation of his design, and another competitor nearly £200. It was not a fair course to adopt towards the competitors. He considered there should be a new competition on the altered conditions. Further, he would say, that the committee having issued instructions to architects inconsistent in themselves, they should be made to pay for all the trouble they had put the competitors to in the first competition, and that the premiums should be divided amongst those best entitled to receive them. If there was any doubt on the subject the competitors could settle the matter amongst themselves. He considered the directors had no right to institute a new competition, because, forsooth, they found their first instructions were inconsistent, and could not be carried out. They ought to pay for that mistake. They were not acting in the dark. They had the assistance of one of the oldest members of the profession in drawing up their instructions. The competitors were compelled to go to a certain expense, which he considered the directors ought to remunerate them for. As to the question respecting the colouring of the design he would not refer to it, as it did not bear directly upon the question at issue.

Mr. J. Owen (architect and engineer to the Board of Public Works in Ireland) seconded the resolution, and remarked that it was painful that the profession should be brought into collision with a portion of the public. They ought to provide a remedy to meet such grievances for the future—a sort of tribunal before which such matters could be brought for settlement. Unfortunately situated as they were in Ireland, it was difficult to get together, on ordinary occasions, an assembly of the members of the profession, when they could express their opinion on any question affecting their interest. It would be very desirable if there was some professional tribunal to which they could appeal. One of the most desirable objects to which they could now direct their attention was to the formation of such a tribunal. With reference to the competition for the building of the new Winter Palace there could be only one opinion—namely, that the directors had made a fearful mistake. They had put themselves into a false position before the public. They found out that what they wanted they could not get for the stipulated sum, and they endeavoured to recoup their funds by refusing fair competition to competitors well entitled to receive it. The minor point of colouring, or not colouring designs, was not worth

dwelling on; but there were many designs there of a high class of merit, and there were several would have given the committee all the required accommodation, and have afforded a building of which the directors might well feel proud. The directors ought to have known beforehand, that what they wanted could not be had for the money, and it was very bad taste of them to receive the designs of twenty-five gentlemen, and then act in the manner they had done. Practically they had said to the competitors, "We have put impossible conditions before you, you have not fulfilled impossible conditions, and we will not pay the premium." That was the state of the case between the profession and the directors; beyond that expression of opinion on the present occasion there was no practical remedy. It was suggested they might establish a legal case against the directors, but he doubted whether they could be made legally responsible.

The Chairman said, it appeared to him that Mr. Carroll had collected data well calculated to make an impression on the directors. It was almost desirable they should adopt some course in order to induce the directors either to give the premiums, or compensation independent of the premiums. He was sure they would see the gross injustice to the profession in the course they had adopted.

Mr. Carroll said he had no doubt the directors were given to understand, by their legal adviser, that if they gave premiums to the authors of designs not conforming to the conditions, that then every one of the twenty-five competitors would have a case against them. Even if they did pay the premiums they were not acting fairly towards the profession. The sums offered in premiums, £150 and £75, were not sufficient, but they ought to divide a much larger sum amongst the competitors.

The Chairman said he was sure they would be glad to get out of the difficulty in which they were involved, by paying the premium, for it was a most discreditable transaction.

Mr. Geoghegan said it was better to refuse the premiums.

Mr. T. Turner said it appeared to him the only means of remedy they had would be a new competition. If the committee had departed from their conditions, did they not nullify the whole proceeding, and make a new competition the only remedy? It appeared to him that that was a point for consideration.

Mr. Carroll—I don't think we have any legal remedy.

The resolution was adopted.

Mr. Geoghegan proposed the next resolution.

Mr. Carson seconded it.

Mr. Barre proposed the next resolution, and conceived that it was the duty of the meeting to inform the directors that they were determined to protect the public as well as themselves from the consequences which were pointed out in the resolution. A variety of abuses had crept into the system of competitions in this country. He did not agree with the remarks of one of the speakers as to the non-importance of colouring, *versus* line-drawing. Men who were professionally uneducated found it difficult to form a just comparison between two designs, one of which was coloured and the other a line-drawing. They were generally led away by pictures, and the very fact of putting that proviso in their printed instructions, that all the designs were to be line-drawings, or shaded merely in Indian ink, showed that the directors were aware of it themselves. Another abuse which had grown up in the system of competitions was the way in which time was treated. In some recent competitions, architects were told their plans must be sent within a certain time. In one case he had seen the secretary on the subject, and asked him was it possible to obtain an extension, the time being too short, and the secretary told him no extension could be allowed; yet, within a few days of the appointed time, and when his plans were all finished, he was told the time had been extended.

Mr. J. S. Butler seconded the resolution, and observed that, though not himself a competitor, he sincerely sympathized with the twenty-five gentlemen who had been so treated.

Mr. James Owen proposed that for the future protection of the profession at large the meeting should forthwith undertake the re-organization and revival of the Irish Institute of Architects, or the formation of some similar body, and that a committee be formed to consider how this object could best be effected, and report to a future meeting of the profession at large, at which the rules, by-laws, &c., could be discussed and adopted.

Mr. J. J. Lyons, of the DUBLIN BUILDER, said he felt great pleasure in seconding the resolution substantially, believing that it might be capable of some modification as suggested. As he had set forth his views in relation to this subject comprehensively in another capacity, it would be superfluous on his part to enter into further explanations; however, he had had opportunities which, perhaps, others had not, of judging of the necessity for some representative body

for the profession in Ireland as well as in England and Scotland. Last July he attended a conference of members of their profession in London, and he heard a slur cast in no measured terms upon the Irish architects because they had no representative body. He believed the feeling of those in the place to which he alluded was, that they would be most willing to co-operate with any institution or association that might be formed with this object in Ireland. He made the acquaintance of some gentlemen there who were willing to co-operate with their professional brethren here as far as possible. With reference to the Winter Garden, he had had opportunities of learning what the precise nature of the decision of the committee was better than some gentlemen. After an article relative thereto appeared in the DUBLIN BUILDER, a report of the committee was placed in his hands. It was a cleverly drawn document, evidently the work of a gentleman of high legal attainments. He had heard all that was said that day in reference to the competition, and individually his sympathies were in favour of the profession; but he thought there might be something to be said by the others too, which would form a subject for public comment, and that shortly he might have to deal with it in another capacity. As to the formation of an institute, he would be happy to give his time and exertions to forward it in every possible way.

On the motion of Mr. Carroll it was resolved to publish the resolutions in certain journals at the discretion of the secretaries.

A short discussion took place whether copies of the resolutions adopted at the meeting, or such of them as referred to the Winter Garden Competition, should be sent to the directors or not. It was ultimately determined that no communication should be sent, as the proceedings would be published in the newspapers, to which the directors had access.

Mr. James Owen was then called to the second chair, when the thanks of the meeting were accorded to the former chairman, and the proceedings terminated.

In a few days after the above meeting took place, the following letter appeared in the columns of a daily contemporary, and being subsequently addressed to us, we give it insertion as a *semi-official* reply, doubtless, to the architects' complaints:—

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—I trust you will permit me to briefly review the position which the competing architects in this matter have assumed, as evidenced by the proceedings of the meeting on Saturday last, and to state what appears to me to be the duty of our directors to the shareholders in this company.

In discussing this question, I shall not rely upon the position of the noblemen and gentlemen who comprise the directory; but, when I state it comprises amongst its most active members the Duke of Leinster, Mr. Benjamin Lee Guinness, and Mr. Wm. Dargan, I do think the public will be slow to believe that, at the hands of such men, an injustice could be done to any person; and I hope to prove to you, sir, and to the public, that these architects have nothing to complain of, except "a disappointment," which is attributable alone to their own acts and indiscretion.

This company, with its limited capital of £50,000, proposes to erect extensive buildings, to form ornamental gardens, and to execute such works as will render their property attractive to the public. To men with such practical minds as Mr. Guinness, Mr. Dargan, &c., the apportionment of this capital became evidently a matter of importance; and accordingly, after much consideration, a sum of £35,000 was allocated for expenditure on the buildings alone, while the residue of the capital was applicable to the other requirements of the company.

The expenditure on the buildings having been thus limited, the directors, with the hope of obtaining suitable designs, submitted same to public competition, and offered £225 as prizes for the two plans which would most effectively meet the requirements of the company; and, to prevent any misconception, they prepared, with the assistance of their advising engineer, printed instructions for the guidance of competing architects; and which instructions contain this important condition—"That the expenditure on the buildings and winter garden should not exceed £35,000, and that parties sending in plans should be in a position to prove that their designs could be properly executed for that sum."

Twenty-five designs were the response to this public appeal, and were submitted to the board, subject to the condition that they could be executed for £35,000. Six of these plans were provisionally selected as the most worthy of consideration; and then the entire lot were sent to a committee of selection, consisting of the Duke of Leinster, Lord Talbot de Malahide, Benjamin L. Guinness, Thomas Vance, and G. Sanders. The meetings of that committee were extended over many weeks. They examined architects, builders, and measurers; but, I cannot more clearly describe their proceedings than by taking the following abstract from the written re-

port of that committee, which is open to every shareholder, viz.:—

"This committee finds that printed directions were given by the board to all those who proposed to submit competitive designs for the Exhibition Palace and Winter Garden Buildings, clearly specifying and describing therein the buildings, the accommodation, and the requirements of the company, and stating, amongst other matters, that the 'expenditure on the Buildings and Winter Garden should not exceed £35,000, and that parties sending in designs be in a position to prove that their plans could be executed for that amount,' and the directors by that document reserved to themselves 'the right to reject all designs without a premium if considered by them unsuitable.' Your committee, in considering the matters to them referred, have felt bound in justice alike to the company and to the competing architects to keep prominently in their view these specific instructions and conditions subject to which these designs have been submitted. Your committee feel that before reporting the opinion and conclusions to which they have unanimously arrived, it may be satisfactory to briefly state the course of proceedings which they adopted during the inquiry, and your committee therefore report that in the first place they carefully considered the details of the six designs provisionally selected and referred to them; and with the object of enabling your committee to form an opinion upon the approximate expense of carrying each of these designs into execution, they applied directly to the authors of these designs, who appeared separately and personally before your committee, and in reply to the questions by your committee, explained the general character of the proposed buildings, and materials to be used in their erection, and the probable expense thereof. This proceeding appeared to your sub-committee to be the most just and reasonable towards the authors of these designs, as it afforded to them every facility for bringing the details of their respective plans before your committee, and of proving the probable expense of carrying them into execution. Your committee having carefully considered the statements made by the authors of these six designs and other evidence obtained by your committee, are unanimously of opinion that none of these six designs so referred for their consideration could be executed for the sum of £35,000, or for any sum approximating that amount, with such materials as your committee could recommend or the board approve of; and therefore your committee unanimously report that in their opinion none of these six designs are entitled to either of the prizes offered by the board of directors. Your committee having thus ascertained that none of these six designs could be properly executed for the sum limited by the directors, next considered the remainder of the plans submitted for competition, some of which appeared to your committee to possess considerable merit; but your committee, after a careful investigation, are of opinion that none of the designs possessing merit could be executed for the sum limited by the board, and that there is not one among them which they could recommend the board to adopt, nor one to which they could recommend the directors to award either of the prizes offered by the company."

To a commonplace person like me, who has had no experience in brick and mortar, the pecuniary limit of £35,000 appears the most important element even for the consideration of competing architects, but in the present case the £ s. d. seem to have been completely overlooked by these gentlemen as unworthy of notice. To state that none of these six designs could be executed for any sum approximating to £35,000 is a mild expression, as it is a fact that, after careful measurements and estimates, it appeared that these six designs would respectively require an expenditure ranging from £95,000 to £60,000. Perhaps one or two might be executed with inferior and perishable materials for £50,000, but they all would require an outlay much beyond the resources of the company or the pecuniary limit of the board. I shall not discuss here the merits of these plans, or the beauty of the designs. To us, as shareholders, they were worthless, and if our directory had not the firmness to reject them all, this company would have been ruined, and they would have been guilty of a gross breach of trust to those who, relying with confidence on their honour and public character, had placed their money in their hands.

But Mr. Carson, Mr. Carroll, and their friends exclaim, "We have incurred much expense in the preparation of these designs, and the board should have awarded the premiums of £225 to some of us." I ask those gentlemen, to whom should the prize be paid? If awarded to the author of the £95,000 design, the projector of the £70,000 would condemn the decision as unjust, and declare that he could have produced a better article for the same sum; and then, if the £70,000 plan be selected, the £60,000 will put forth a similar plea, and contend that he kept down his expenditure with the hope of meeting "the published conditions," while, sir, if the £60,000 project be chosen, then I, as a shareholder, protest against the injustice of paying £150 for a design which, to us, as

shareholders, is worthless, and I do think, sir, you and the public will admit that, of all these claims and positions, the shareholders' alone is just and equitable.

It is true, we have been told by the competing architects that evidence was produced to prove the expense of their designs, and that some of them, with slight modifications, might have been safely adopted. In reply to this statement I shall only observe that the same plausible argument was put forth in favour of a plan which would cost at least £95,000, but, fortunately for us shareholders, mere statements or irresponsible evidence were not accepted, and competitors were required to sustain their case by "figures" before gentlemen who, from long experience, were peculiarly adapted for the duty entrusted to them. To the noblemen and gentlemen forming the Committee of Selection the shareholders in this company are deeply indebted for the time and care bestowed upon the minute investigation of these matters, and for the firmness manifested by them in the protection of their interests.

To what, it may be asked, is the failure of this competition attributable? Has it been caused by a vicious system of competition introduced by architects themselves, under which competitive designs are prepared, regardless of "the pecuniary limit," and with the hope of thus getting in the wedge, after which the design is shorn by degrees of its fair proportions, and untimely results in some poor, meagre building, bearing no resemblance to the original conception? Such a practice cannot be justified. How far it has been adopted in the present competition I leave the public to judge.

As a shareholder in this company, I might with justice complain of the competing architects, who, having been invited to submit plans which could be executed for £35,000, produced costly and fanciful designs, which, to us, are useless. Thus valuable time has been wasted, the public misled, our shares depreciated, and our property injured. But as complaints are generally fruitless, I shall only, in conclusion, express a hope that this "Winter Garden Competition" may result in establishing "an institute of architects," and that then "a system" may be abolished, which, in the disguise of competition, is so prejudicial to the interests of the public, and of your obedient servant,

January, 1863.

A SHAREHOLDER.

#### LEINSTER-LAWN v. STEPHEN'S-GREEN FOR THE ALBERT MEMORIAL.

So much discussion has prevailed on the subject of the proposed opening of Stephen's-Green as a public park, and the placing of the Albert (Irish) Memorial therein, as a central and imposing feature, and so many eminent opinions have been elicited in its favour, while as many equally eminent prevail against it, that we are scarcely surprised that a third party in the person of the Royal Dublin Society taking advantage of the difficulty, should, somewhat after the fashion of the fabled dispute over "the oyster," step in and claim the prize for himself. That the public is in favour of the opening of the Green—that the press almost without exception desires it—not for the interests of one section of the community to the detriment of another, but for general advantage, and that common sense and every principle of justice—nay, humanity—ratify the desire, is now almost beyond controversy; yet withal, an imaginary deterioration of property as a consequence of the humbly clad members of society being conceded admission even under restrictions within its "hallowed precincts," is the barrier (only temporary we hope) to the attainment of a cherished object. What a bugbear! How fallacious to vociferate about "invasion of private rights" and property—this dreaded intrusion on the privacy and the dignity of a few philanthropic (?) purse proud potentates! Centralization and exclusion principles have been ever too prominent in the councils of the Society, and we hope that it will not have the opportunity of adding another to its many acquired laurels of that colour. For a memorial, on which £600 is to be expended, and a "national memorial" moreover, the lawn, as a site, would be too confined and unsuitable. If the Society desire to beautify its lawn, and set off to advantage its recently erected ugly buildings, it ought to look to its own exchequer for the wherewith, but not to the united contributions of the general public, against which it will surely close its gates, allowing only (unless upon stated occasions, and by grace special) a peep through a gaunt, tasteless railing into the *sanctum sanctorum*. Might not some sapient member happily suggest that the Society's gardens at Glasnevin, whose gates were, until very recently barred to the working man on his only day of rest in each week, and the bolts firmly held in their sockets until wrenched by an all-powerful united force, would form as fitting a site for an Albert monument as the adjoining Cemetery is for "the O'Connell?" If such there be, we shall hail the suggestion without surprise, all antecedents considered.

## PROPOSED RE-ORGANISATION OF THE INSTITUTE OF IRISH ARCHITECTS.

We (*Building News*) perceive, with satisfaction, that there is a likelihood of the re-organisation of the now defunct Institute of Irish Architects. It will be remembered that, a few years ago, the Irish Institute, lacking the necessary elements which constitute the success of any associated body—zeal and unity—gradually sank into insignificance, and nothing was heard of the institution save the efforts of a few gentlemen who endeavoured to re-organise it. The DUBLIN BUILDER expresses its belief that an association will be ultimately formed. It appears that there is in hand, in the bank, £100 to the credit of the former institute, and our contemporary advocates transferring that amount, by the unanimous consent of its surviving members, to the proposed re-organised institute. Whether this is effected or not, we should hope that there is a sufficient number of architects and architectural students in Ireland to form an association possessing enough of capital, and, what is more, good sense, to satisfactorily carry out its schemes. The advantages of architectural societies—to the student, in his instruction, or to the qualified architect, for the extension of his acquaintance with his professional brethren—are too marked to require any observation. Just at this time, the Dublin architects are suffering from a want of united action. The Dublin Exhibition Palace and Winter Garden Company some time ago announced their readiness to receive designs for their new building, offering £150 premium for the best plan, and £75 for the second best. According to the advertisement, the conditions were that the designs put in should be in “finished lines” or “tinted in Indian ink,” and that “each competitor should be able to show that his design could be carried out for £35,000.” Twenty-four [*five*] architects accepted these conditions, and a number of these designs, of varied excellence, were sent in. It appears, however, that, contrary to the conditions of the directors, several coloured drawings were allowed to be sent in; and some of these designs required, in order to carry them out, the expenditure of, in one case, £150,000, and in another, £100,000. The design has, it appears, been selected by the committee, and the author—whose name is not known to his fellow competitors,\* has been requested to make working drawings.† At the same time, the drawings of the unsuccessful architects have been politely returned, without any expression of thanks or a word of explanation. It has been stated, however—but we are not answerable for its accuracy—that the selected design will require nearly double the amount at first specified.‡

This injustice, like thousands of similar ones, will bring its benefits. A meeting has been held to consider the matter, and it is very probable that the result will be the establishment of a united body of architects to defend their mutual interests, and to prevent the recurrence of such an injury to the profession. We sincerely hope the object of its promoters may be fully and successfully carried out.

[We understand that the *first* meeting of the committee appointed to carry out the re-organisation is to take place *next* week, and we hope to find every man at his post. The names of the members comprising it are—John M'Curdy, N. Montgomery, W. Murray, J. H. Owen, T. N. Deane, J. R. Carroll, E. H. Carson, W. J. Welland, and J. J. Lyons, Esqrs., and their first duty will be to appoint from amongst themselves an efficient secretary, who will go earnestly at his work, and devote time to the preparation of a well-digested programme for future guidance. The proceedings of the committee meetings will, of course, be private, but as we are advancing into the session, we trust that no time will be lost, and that we shall be permitted the pleasure of announcing the names of officers and all other particulars in our number for 1st prox. The Irish Architects have with good intentions undertaken a responsible task, they must now go forward *spiritedly*, and remember that their brethren at the other side of the Channel are looking for a successful consummation, with nothing less than which will they be satisfied. The inaugural meeting should take place early next month, and be attended with more than an ordinary degree of *eclat*.—ED. D.B.]

\* The gentleman referred to as “unknown to his fellow competitors” is a very well known local practitioner, in something over moderate practice, viz., Mr. Alfred G. Jones, late Carmichael and Jones.

† And it should be added, modifications and curtailments likewise.

‡ This is incorrect, as an eminent building firm has tendered to execute the work for £40,000, or £5,000 over the stipulated sum.

## THE RESTORATION OF ST. PATRICK'S CATHEDRAL.

[The following critical and pointed reflection, both on the *veracity* of our statements and our *capacity* to deal orthodoxically with a Cathedral restoration question, might possibly not have come to light through the columns of the DUBLIN BUILDER, were we either so infatuated with our own opinions as to deny space to an enunciation of opposing principles, or did we fear the result of a “*candid and unbiased*” enquiry into the subject at issue; but to our respected professional friend and correspondent—who is admittedly eminently qualified to deal with such subject from his *own* point of view, and to take the DUBLIN BUILDER'S “*course of reading*” to task for inconsistencies and unjust concessions of “*technical objections*”—our columns have been thrown open almost to an indefinite length. While acknowledging the truth of Mr. M'Carthy's remarks immediately referring to the points of *questionable* beauty in some of the restored features of the Cathedral, we, nevertheless, confess that we are not yet persuaded of our error in the main, nor do we perceive the force of his arguments in *many* respects; and, furthermore, that what we *saw*—(“and seeing is believing”)—during our *numerous and lengthened* visits to the Cathedral in *every stage* of the restoration, does not correspond with his assumptions of what were, or what *might* have been, and which were formed on the occasions of recent inspections when the greater portion of the restorative works was *all* but complete, and every particle of the original removed or covered over. This, however, is a mere desultory reference to the communication, and is not to be understood as “an answer” thereto, which—whatever it may be worth in our correspondent's estimation—may come bye-and-bye.—ED. D.B.]

SIR—A controversy having arisen between the DUBLIN BUILDER and other periodicals respecting the architectural merits of the restoration of St. Patrick's Cathedral, now in progress, will you kindly permit me to express my opinion on the subject, and with special reference to your leading article of the 15th ult. In the first place, allow me to inform you that the article by a “*sapient* critic and correspondent of the *Oxford Herald*” first appeared in the *Ecclesiologist*, a periodical which arose with the revived taste for Mediæval architecture and church restoration, and which has been, from that hour to this, the most intelligent and effective organ of the movement. It is conducted and written by some of the ripest scholars and most learned architectural critics of the English universities; and its literary and scientific character is such, that a writer in a journal of more recent birth might hesitate before he decided off-hand that its opinions were a “jumble of inconsistencies,” “vapid talk,” and blissful ignorance. The writers of the *Ecclesiologist*, too, are principally not professionally connected with the practice of architecture, so that the ready, but hackneyed, reply to all unacceptable criticism of “professional jealousy and rivalry” cannot apply to them.

Our immediate business, however, is an enquiry into the real character of the “restoration” of the venerable Cathedral of St. Patrick—an enquiry which should be conducted in a candid and unbiased spirit, not carried away by admiration of the princely munificence of the generous citizen who has taken upon himself the entire responsibility, pecuniary and artistic, nor swayed by “professional rivalries,” or by trade interests—which do sometimes exercise a warping influence on critics and criticism—but rather consulting the higher interests of art, and keeping truth and consistency ever in view. A question might arise on the outset of the discussion as to what a “restoration” really is—whether it means a re-production of every feature good, bad, or nondescript; or a judicious eclecticism, which would eliminate all decidedly bad or incongruous details, and replace them by others in harmony with the more perfect parts of a building. When there is question of a “restoration,” one naturally desires to know to what period in the architectural history of an edifice the restoration is to extend. We are not left in any uncertainty in this respect about St. Patrick's. You inform us that the intention of Mr. Guinness is “to place the Cathedral before the world in its *original state*, such as it was centuries ago.” An article in the *Freeman's Journal* (evidently based on information received from authentic sources) further informs us that “photographs were taken of the

oldest parts of the structure which were not to be removed, and careful drawings taken of others which were much decayed. By close and careful investigation it was fully ascertained what St. Patrick's was architecturally—say four or five hundred years since, and to make it what it was then, was the work which Mr. Guinness undertook to accomplish.”\* Here certainly is a magnificent scheme of church “restoration.” Every lover of mediæval art must have been delighted at the prospect of beholding St. Patrick's as it was in its “original state,” or even “four or five centuries since.” A clean sweep, of course, was to be made of the abominations and trumpery of the last three centuries. The fame of a Wykeham would have been the fitting crown and reward of Mr. Guinness's generosity and labours. And no more successful means of gaining information could have been adopted than—firstly, photography, and secondly, “close and careful investigation to ascertain what St. Patrick's was four or five centuries since.” For the latter purpose, however, according to “this would-be architectural critic” of the *Ecclesiologist*, a leader of the Ecclesiological School was needed. St. Patrick's, like other cathedrals, has had a long history: the Catholic Churchmen and architects of the 13th, 14th, and 15th centuries have left their marks on it; so had the “great Earl of Cork,” Strafford, Cromwell, and many a Vandal destroyer, and still more vandalic restorer since their evil days. Consequently, many a fair feature of the edifice, in its “original state,” has been utterly destroyed and replaced by works of the degenerate age, and no direct authority remains in the building itself for the restoration of these lost details. How then restore them? how bring back the venerable pile to its “original state,” except by reasoning from analogy, by comparing the existing ancient features of the Church with those of other churches of the same date and style, and by supplying the lost features of the one from authorities derivable from the other? This would be the work, according to the *Ecclesiologist*, for a leader of the Ecclesiological School; but you generously “concede the technical objection,” believe that in so small a matter as a “strict restoration” of an ancient and interesting Cathedral no professional duties are involved, and that it may be safely left in the hands of an amateur, and of builders and tradesmen, who now, probably for the first time, have turned their attention to the work of church restoration. This, however, was not the opinion of the Dean and Chapter, and Committee for the Restoration of St. Patrick's in 1848. In the Report of that body in 1850, we find the following words:—“Our first step was to fix upon an architect of celebrity, whom we were fortunate enough to find in R. C. Carpenter, Esq., who caused the most accurate admeasurements of the structure to be taken as it stood, after which, in some months, he furnished plans of exquisite beauty for the restorations.” This committee consisted of the Lord Primate, the Duke of Leinster, the Marquis of Kildare, Viscount Adare, the Lord Bishop of Cork, the Hon. and Very Rev. the Dean of St. Patrick's, Rev. J. H. Todd, D.D.; Rev. E. Marks, D.D.; G. Petrie, Esq., R.H.A., LL.D.; Stewart Blacker, Esq.; Frederick Burton, Esq., R.H.A.; W. Stokes, Esq., M.D.; W. Digges La Touche, Esq.; J. Huband Smith, Esq.; Wyndham Gould, Esq.; and Rev. R. Sadlier.

Those who have seen Mr. Carpenter's plans, and have compared them with the works at present in progress, must see how great has been the loss to St. Patrick's, that the views of that gifted artist have not been realized, and that the works so auspiciously commenced in the Lady Chapel fifteen years ago were discontinued soon after in consequence (to use Dean Pakenham's words) “of the famine, which put a stop to all contributions, except for food, and left no prospect of raising funds for pious uses from so utterly pauperised a land.”

We shall now see some of the results of the system at present acted on, and in what way the promise of “strict restoration” is being realized.

It requires, indeed, but a “flying visit” to St. Patrick's, and a very “ cursory examination” of the works in progress—and, by no means, a course

\* The principal parts of St. Patrick's belong to the 13th century, and their architecture recalls that of Salisbury Cathedral, and some of the finest specimens of Early Gothic in England. The tower is the work of Archbishop Thomas Minot, whose episcopate commenced in 1363 (just five hundred years ago), and extended to 1375. These dates will at once suggest to the architectural antiquary “what the cathedral was originally.” The spire, or, as some one has called it, the “extinguisher,” was erected last century. Mr. Carpenter's design contemplated its removal, and the erection of an appropriate spire in its stead. I believe this forms no part of the present project of restoration. For forty years the north transept lay in ruins, till restored as the Parish Church of St. Nicholas Without, during the episcopate of Archbishop Magee, and in the most approved Gothic of that period. A restoration or rebuilding of this transept is in progress. Can we hope that it will be more successful than that of the south transept, where there was less to be done, and more authority to guide the doing?

of reading in the DUBLIN BUILDER—to enable any one skilled in Mediæval architecture to arrive at the conviction that the system so confidently set forth has not been adhered to; and that works of the last three centuries have been religiously restored in all their hideous deformity, while original and perfect works of the earlier and better period have been ruthlessly destroyed to make way for unauthorized and unnecessary features. An example of this sort of restoration may be seen in the pinnacles of the side buttress—imitations evidently of the weakest, worst, and feeblest Tudor architecture, consisting of square masses with shallow panels, surmounted by pyramidal lumps of stone, unrelieved by crocket or finial. Does any one pretend that such things belonged to the cathedral in its original state, or were to be seen there four or five centuries since? Several other similar restorations might be pointed out; but at present I confine myself to this one, that I may pass to a few examples of destruction, one of which may be found in the westernmost bays of the arcade between the nave and north aisle. There, as the *Ecclesiologist* observes, the pillars were doubtlessly plain octagons, and for this reason, by one of those strange irregularities, so often observable in Mediæval churches, the springing of the groined ribs of the nave ceiling did not come centrally with the piers between nave and aisles. The consequence is that the shafts, which would otherwise have sprung from the nave floor, spring from a corbel in the triforium stage. The south sides of the piers were thus left without those slender shafts observable in other parts of the Cathedral, and, to give consistency of character to these piers, the second or under-order of arch mouldings were made to spring from corbel shafts. These corbel shafts were being removed when I visited the cathedral, and their places supplied by entire shafts of gross proportions and coarse details. Let us take another example of destruction. What has become of the ancient roodscreen? I am not going to enter on the question of the compatibility of roodscreens with the services of the Established Church (and the ecclesiastical authorities of the Cathedral may have left all ritual, as well as architectural, arrangements in the hands of Mr. Guinness), but I may remark that these services have been very comfortably conducted, east of the ancient roodscreen, during many long years, and if there is to be no improvement, no modernization, why destroy a venerable and interesting relic of undoubted antiquity? Stranger still; in this work, professing to be strictly a restoration on the most rigid principles, I understand we are to have a copy of the side screens or parcloles (solid ones, too,) of the Cathedral of Notre Dame, of Paris. No doubt they will be beautiful works in themselves, but why destroy the work of our forefathers, and introduce copies of foreign works, all the time professing loudly to do nothing of the kind.

I must pass over many works of "restoration" and destruction, to come to features for which there is not, nor ever was, authority in St. Patrick's, or any other ancient building in its "original state." Who ever saw till this century an ancient Irish way-side or cemetery cross, on a reduced scale, surmounting a gable? Such are the *new* gable crosses on *old* St. Patrick's. The massiveness of the ancient way-side or cemetery cross so fitted for objects fixed on the earth, and near the eye, renders it totally out of place on the very point of a gable where all should be light and efflorescent. Let the observer turn from the cross on the south gable of the transept to those on the Lady Chapel, and mark the contrast. How are we to class the new south porch? Is it pretended that that is a "strict restoration" of a pre-existing porch, and that authority, "beyond the shadow of the shade of a doubt," has been obtained for it, too. I believe not; and that the only authority said to be obtained by the "aid of photography," or otherwise, has been for the foundations or a portion of them. The superstructure has consequently been *designed* (which, you inform us, was in no case to be attempted) or composed, if you like the term better, from authorities found in other parts of the building—precisely what Mr. Carpenter would have done—if authorities did exist there, if not he would have gone to another building of the same date; but in the actual work we see either the character of the authorities themselves, or the amount of intelligence exercised in the use of them; and it is not too much to say that the result is unmistakably a production of the 19th century, not worthy of a leader of the "Ecclesiological school," but of an artist whose special vocation may call him to the highest place in a building, but whose intelligence is not necessarily of the highest order. I will not stop to inquire what authority there was in the ancient work for the sham ashlar of the wall plastering, but turn to the strange peculiarity in the groining of the nave ceiling. There was another instance in which the assistance of an experienced architect of the Ecclesiological school was needed.

Some of the springers of the ancient groining of the nave remained attached to the clerestory walls. It was found that if the curves of these springers were continued, they would cross the clerestory windows. The builder hit on the ingenious device of making the arches trefoiled, thus surmounting the (to him) apparent difficulty presented by the height of the window,\* but producing an unique style of groining, which, fortunately for its stability, is executed in lath and plaster, as it certainly would be an impossibility in stone. An architect of the Ecclesiological school would have solved the difficulty (if any there really was) differently.

Before I close for the present, I cannot let the opportunity pass of saying a few words on the "style" of the workmanship which has been challenged by the *Ecclesiologist*, and defended by the DUBLIN BUILDER, on the ground that "the builders and workmen have NOT been allowed to follow their own fancies in the foliated capitals." You further inform us that some of the "original capitals have been re-produced faithfully by the aid of photography" (that is, I suppose, pictures have been made of them), "and where not so, the workmen were required to model the new caps in strict accordance with the style of the others throughout; although, of course, permitted to design the disposition of the foliage." Now what is that but allowing the workmen to follow their own sweet fancies under very slender guidance? And it is the proper system to adopt under one condition; that is, that you have skilful and practised workmen, for no amount of "re-production by the aid of photography," can supply the want of the "cunning hand" of the artist. And that "cunning hands" were *not* employed on the capitals and carved corbels in St. Patrick's, is painfully evident in the lifeless, coarse, and clumsy treatment of these details.

I shall not dwell further, in this too lengthened letter, on the many other shortcomings of this splendid opportunity of cathedral restoration lost and thrown away; but I cannot close without calling your attention to a paragraph from the article in the *Freeman's Journal*, to which I have already referred:—"The general view to be obtained from the cemetery would be very fine, were it not for the presence of the building which has been erected at the eastern end, on the site where the Lady Chapel stood. The material alteration of this building, if not its removal, would be most desirable. The apex of its roof interferes with the five-light window in the sanctuary; other portions also interfere with the aisles, while its presence mars to some extent the general harmony of the Cathedral." This was not the opinion of the noblemen and gentlemen forming the restoration committee. In their report for 1849 they speak of the building which has so offended the critic of the *Freeman's Journal* in the following terms:—"The Chapter House, formerly St. Mary's Chapel, consisted *originally* of a centre and aisles. These were entirely destroyed, and its ancient stone-grooved roof replaced by the most barbarous flat plaster ceiling. The details are throughout very similar to the aisles. The east end is lighted by a triplet, with a single lancet at each side (that is at the end of each aisle), and the sides have had couplets similar to the aisles. A peculiar, but characteristic corbel-lattice runs round the entire of this building, formed of trefoiled arches with sloping top. The restoration of this building would add materially to the architectural effect of the entire church." In the following year the Dean expresses his own opinion of Mr. Carpenter's design for its restoration in the following words:—"The Chapter House (formerly the Lady Chapel) will be one of the most beautiful things of its kind, if ever finished, so light and elegant; and the cost being but £2,500 to complete it, we may hope, should our country ever recover, it may be done." It has been done, and has realized all the anticipations of the Dean and committee; and let us hope that it may long remain a monument of the late Mr. Carpenter's genius, and a standing reproach to the perpetrators of the deeds now being done in other parts of the Cathedral. I remarked, during my recent visits, that the persons engaged in the present restorations spoke in very depreciatory terms of Mr. Carpenter's work—a circumstance easily accounted for by the antipathy ever entertained by mediocrity or dullness for talent. Poor Carpenter's work, however, speaks for itself. Thirty years ago M. de Montalembert, in his famous letter to M. Victor Hugo, before the science of ecclesiology had yet arisen, classed those who meddled with the ancient churches of France into "Vandal destroyers" and "Vandal restorers." The present restorers of St. Patrick's are earning for themselves a prominent place amongst the latter. It needs only their

carrying into effect the suggestions of your contemporary, (*the Freeman*) to entitle them to the first place amongst the former.

J. J. M'CARTHY.

Concerning the same subject, we find the following in a recent number of the *Freeman's Journal*, which it is but fair to place in continuation of the preceding. Our space does not admit of our reproducing the article in its integrity, but we take the salient points:—

It had been repeatedly prophesied by men learned in the profession that the whole building would tumble to the ground if any attempts were made to remove the old walls—the roof to a certainty would come down—in fact, the old Cathedral was to have been reduced to a heap of ruins. Notwithstanding all that had been stated by the prophets, the old walls were removed and replaced without disturbing the roof. Columns sustaining ponderous weights were taken down and rebuilt by the Messrs. Murphy without the slightest injury having been sustained by the structure, or by any of the men engaged on these great and, we must confess, hazardous undertakings. Those who had known the Cathedral well, and had watched, year after year, the rapid progress which ruin and desolation were making on "the hallowed fane," so fraught with historic associations and traditional glories, saw the old minster spring up in newness and grandeur, at a period at which they believed, at one time, it would lie prostrate in the dust, and the finest ecclesiastical monument in the kingdom numbered amongst the ruins that are broadcast throughout the land. . . . It was much dreaded by many that, in attempting to restore the building, its old and honoured characteristics would be destroyed, and that Vandalism and innovation would obliterate every vestige of its antiquity. Mr. Guinness saw this danger, and, with the sound judgment and good taste for which he is so remarkable, took every precaution to guard against the church being *modernized* or "improved" in its style, as he had determined on doing nothing more than to restore it, as far as possible, to what it originally was. Photographs were taken of the oldest parts of the structure which were to be removed, and careful drawings taken of other portions which were much decayed. By close and careful investigation it was fully ascertained what St. Patrick's was architecturally—say four or five hundred years since, and to make it what it was then was the work which Mr. Guinness undertook to accomplish at his own cost, a circumstance that stands unequalled in the annals of the kingdom, or in the records of individual liberality and munificence since the Reformation. . . . Now it may be said that the external works are complete, with the exception of a portion of the northern transept (formerly the parochial church of St. Nicholas Without). . . . We must now ask our readers to accompany us to the interior of the time-honoured "Old St. Patrick's." From end to end it is free of all obstruction, and as the eye wanders along the rows of massive though graceful columns which divide the aisles from the nave, the effect is most impressive. The arches which spring from those columns are exceedingly graceful, and carry the mind back to a few short years ago, when this portion of the edifice was crumbling into dust, and to all appearance irretrievably past remedy. The clerestory windows above, and the bold, though simple groined roof are all in harmonious keeping with the rest of the building, and have been erected in the strictest conformity with the ancient models in the church. The ceiling in the nave had to be put up in wood and plaster, as it was wisely judged that it would be hazardous to erect a stone ceiling, owing to the north wall not being sufficiently strong to bear it. The only fault to be found with this part of the building is the west window, erected about forty or fifty years since. In the first place it is out of character, being a poor attempt at the "perpendicular" style of architecture, while the church is in the earliest style of Pointed Gothic. But the great objection to it is that the arched groining of the ceiling cuts off a portion of the upper section of the windows, and destroys its effect. The remedy for this is obvious. The introduction of a triple window, similar to those in the transept, could be easily effected with little cost and with great advantage. The shafts of the pillars to which we have already referred are exact copies of those which existed formerly, and which were found when sinking the floor of the nave. The caps of those pillars, which differ from one another, are also copies of the old originals, and not "the result of the whim or caprice of the workmen," as was glibly stated in a letter recently published. The bases and plynths which have been found in the excavations were used as models in the carrying out of this stupendous work of restoration. The aisles are charming specimens in their order, and are now to be seen as they were five centuries ago. The lancet opes by which they are lighted are furnished with dull milled glass adorned at the headings with geometrical ornaments. The old style of glazing is strictly preserved. This portion of the

\* I know an authority is quoted for this, not "in the features of the existing structure," but from the Lady Chapel of Chester Cathedral. Although the poor engraving in "Winkie's Cathedrals" looks like it, the reality is not.

work has been executed by Messrs. Barff and Co., in excellent style. The upper sections of the clerestory windows have been adorned with beautiful stained glass, excellently painted by Messrs. Casey, Brothers, Marlborough-street. The southern transept is that which now reveals what the interior of the cathedral will be when the restorations are completed. The fine triple window to which we have alluded above is furnished with one of the most magnificent stained glass pictures of modern production that we have seen here or elsewhere. It represents the Ascension of our Lord, and the three lights are used for the purpose of making the work one picture and not a series of pictures. The drawing of the faces and figures is admirable, and the management of the light is most judicious. The design of the picture is original, and represents in the lower part the Blessed Virgin, the Apostles, and the men of Galilee on Mount Olivet, as Our Lord ascends into heaven. At either sides are the prophets who foretold the coming of Christ, witnessing the fulfilment of their prophecies. In the upper section are angels and the symbol of the Trinity, surrounded by brilliant clouds. It has been produced at the establishment of Messrs. Barff and Co., Potter's-alley. Up to the present it is supposed that Mr. Guinness has expended between eighty and ninety thousand pounds on the restoration of the cathedral, and, with a munificence that does honour not only to himself but to the community of which he is a member, he has determined to expend all that is necessary to restore the venerable pile in all its original beautiful integrity. The manner in which the Messrs. Murphy have discharged the important duties confided to them does them infinite credit. The old minster of St. Patrick's will for the future be intimately associated with the name of Benjamin Lee Guinness, who has shown a noble example to all in high places and those who have been blessed with wealth. From his princely fortune he has given freely an enormous sum, and will give more to rescue a great national church from destruction.

#### IRISH MANSIONS.

##### KILLYLEA CASTLE.

At the termination of a leading street in the thriving town of Killylea, county Armagh, is a domestic residence of more than ordinary architectural pretensions, a view of which we present herewith. The main block of building is 70 feet square, but a quadrangular court-yard, with enclosed walls and distinct entrances is attached, and materially increases the area. Excepting the circular tower seen at north-east angle, the structure is new, and was erected from the designs of Mr. Chas. Lanyon, of Belfast, architect. Its composition is highly artistic, and displays, perhaps, one of the best specimens of castellated architecture applied to domestic residences in Ireland. We look at it from the south-west, each elevation facing the grounds which are beautifully laid out, and contributing naturally the pleasing picturesqueness of a sloping approach. This is the residence of the Hamilton family, having passed thereto from other hands, and was altered and improved to its present condition by the late Captain Hamilton. Internally the arrangements are most commodious indeed; such as should be comprehended in the requirements of a gentleman's mansion, some of the apartments being remarkably spacious and handsome, the fittings, carvings, and other decorations, approaching "the superb" in some respects. The material employed for walling is the basaltic stone of the neighbourhood, and the dressings and finer class of work is of Scotch stone, which is extensively employed in Ulster. The design of the architect for this mansion was ably carried out by the eminent contractors Messrs. D. and J. Fulton, at an expenditure over £8,000, and it will bear most favourable comparison with many others of modern times in the kingdom.

#### NEW PRESBYTERIAN CHURCH AT BALLYMENA.

A NEW Presbyterian church has been built at Ballymena, on the vacant space lying to the north of the courthouse, and was opened for Divine worship on the first Sunday in this year. It is in the decorated Gothic style; the plan a parallelogram, with tower at south-west angle, containing vestry-room, and surmounted by an octagonal spire, attaining a height of 100 feet, also three porches, two of which give access to the body of the church—the third leading to a school-room. The general dimensions are, 82 ft. 6 in. by 45 ft.; height of walls, 25 ft.; height to ridge, 55 ft. The roof is of open timber work, with five principals of hammer beam construction supported on ten cast metal columns, 25 feet high, painted chocolate colour, and with foliated capitals, painted green and gold. The west or principal window consists of four bays with foliated heads, and tracery

composed of three quatrefoils enclosed in circles with intermediate cusped spaces; while the side are two light foliated lancets. A gallery is placed over the school-room, and is lighted by four large circular cusped windows.

A platform floor, 30 x 11, is placed about 3 ft. 6 in. above the level of aisles, and has a trefoiled and cusped front about 15 in. high. The side walls, and wall at back of platform, are richly ornamented with an arcade of nineteen stalls, 2 ft. 6 in. wide, besides two small niches at each angle. Moulded elbows separate the seats. Over each stall is a canopy resting on two carved columns, ornamented with vine, water lily, and other leaves, and dog-tooth moulding. The other fittings are of characteristic design. A screen, which separates the church from the school-room, is a notable specimen of cusped carving. All the woodwork is stained and varnished, the material used therein being supplied by Mr. Swinburn, of Bush-lane, London. Seats are provided for about 700 people. Messrs. Lanyon, Lynn and Lanyon, are the architects. Mr. Joseph McAuley the builder. Messrs. Musgrave, of Belfast, have supplied the hot air apparatus. Gas is also provided through three handsome brackets attached to the columns. Expenditure about £5,000.

#### CARLISLE BRIDGE.

We cannot obtain the trifle of £30,000 to rebuild Carlisle Bridge, and relieve a most crowded thoroughfare of its difficulty and peril. We have the means of repaying the Treasury, if justice be done. No gift is asked, but merely a loan, and that actually a loan of *our own* money. One year's surplus money abstracted from the Irish Woods and Forests, and transmitted to London, for the ornamentation of Kew Garden, and Hyde Park, would suffice to build the bridge. Even that will not be granted.

Contrast this miserly and illiberal policy with the lavish extravagance authorized for the construction of an English bridge. A return was issued yesterday, showing the amount already expended upon Westminster Bridge and its approaches. There was paid to contractors, up to the 14th of July, 1862, the sum of £145,057. There was paid to "other parties" £248,132, and there was expended on "the approaches" £109,054. Thus a single bridge exhausts a total of £502,241—upwards of half a million!—*Irish Times*.

[We understood Alderman Reynolds, on his own behalf, as father of this project, as well as of his brother committee members, to pledge himself before his Excellency to the effect that "the committee would not rest from its labours till the bridge was built;" but he is not keeping his word, for the consideration of the affair seems to be adjourned *sine die*. Good faith should be kept with the competitors *at any rate*, the promised premiums awarded, and the drawings returned to the unsuccessful competitors whether the bridge is to be built or not.—Ed.]

#### DUNDALK HARBOUR IMPROVEMENT.

A VERY long and interesting report has been prepared by Mr. Hoskyn, R.N., Surveyor to the Admiralty, condemning the works in course of erection for the improvement of the harbour. He says the northern embankment is unnecessary, and can only be looked upon as an experiment, intended to supply scour to the main channel; is of opinion that the improved depth already obtained to the immense quantity of deposit annually raised by dredging, and that to carry out the proposed works would be positively dangerous to the very existence of the harbour. He thinks the banks will silt up if enclosed by walls, which would counteract the channel, and suggests that all impediments to the free flow of the ebb and flood tide should be removed, and that a training wall at the level of high water should be carried from Tipping's-quay to a point near the light-house, and the removal of the rock perch in order to guide the tidal stream into the channel, where its action would be beneficial for scouring purposes. He also recommends the removal of some old weirs between the quays of the town and the bridge which to some extent intercept the flow of the tide, and regrets that his opinion is antagonistic in some respects to that expressed by Sir John Macneil and Sir John Rennie.

Copies of the report have been sent by the harbour commissioners to the two eminent engineers named, and a special meeting will be convened when their replies are obtained.

#### THE DUBLIN METROPOLITAN RAILWAY.

Yesterday the parliamentary deposit, amounting to £50,000, was lodged in the Bank of Ireland, in the Accountant-General's name. [How often will the instant requirement be reported before this colossal project can be carried out?]

#### STATE OF THE BUILDING TRADE IN GALWAY.

THERE are no public or private works in progress, or even in contemplation, in the City of the Tribes. No one, as I can learn or perceive, in this town, is either building, altering, or repairing his dwelling. The masons, the carpenters, the smiths, the bricklayers, the slaters, and other tradesmen, have, without exaggeration, no work—not even the most trifling. Walk through the streets in the morning, at noon, or in the evening, and you will see the unemployed artificers and mechanics in groups of half a dozen at the corners, conversing, with a settled despondency visible in their countenances, on their probable fate. They have no food, no earnings, and, as a consequence, no credit. A chance job is the temporary and only resource that seems left to them, excepting, of course, "the House," as a help to survive this season of privation, the horrors of which, I need scarcely add, are shared, to the fullest degree, by their wives and children, who, wretchedly clad and half famished, are hid in the dark, bare, and filthy lodgings afforded in the huge old ruined store-houses to the victims of destitution. This is without colouring or straining the sad state of the great mass of the industrial classes of Galway.—*Freeman*.

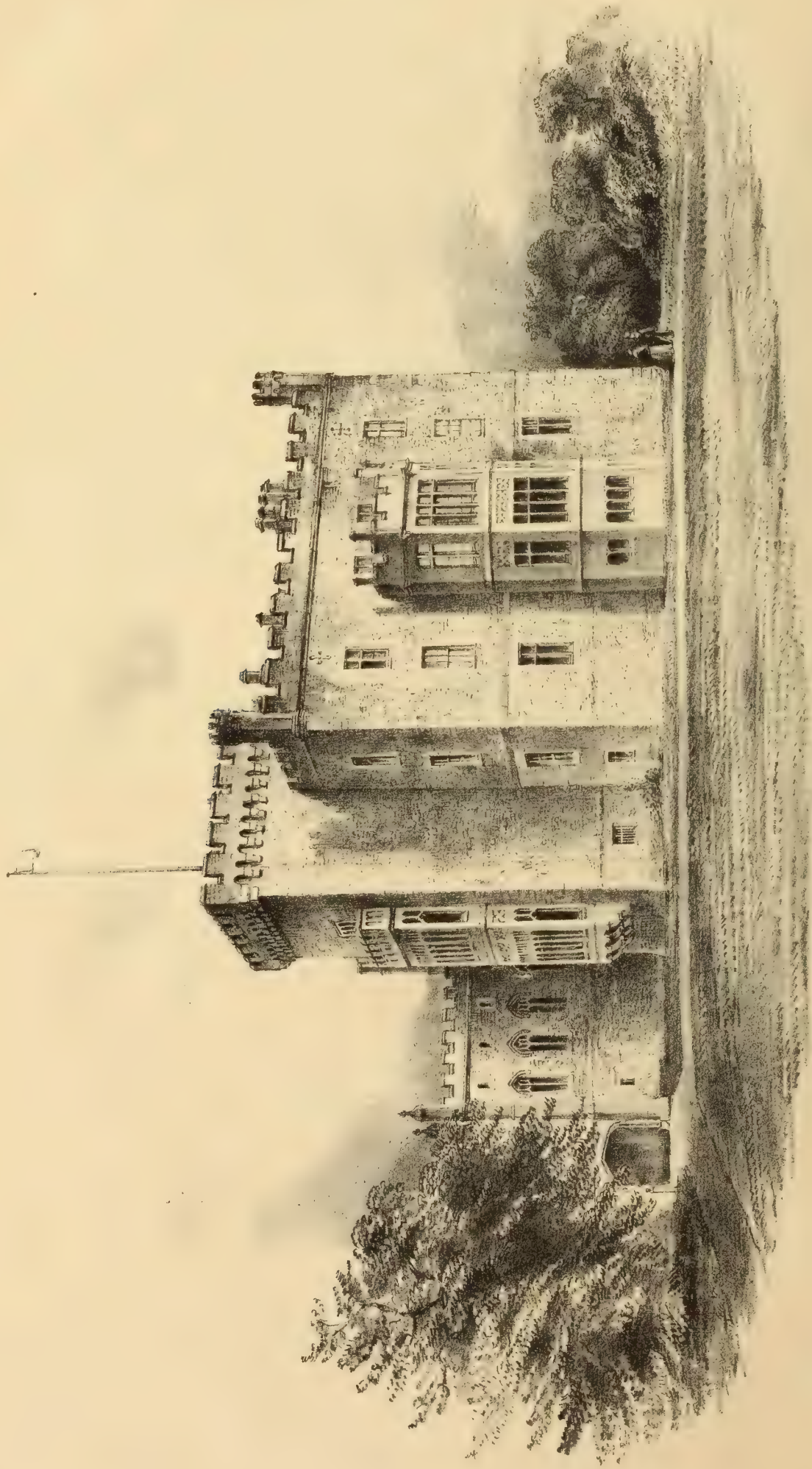
#### LANDLORDLY ENTERPRISE.

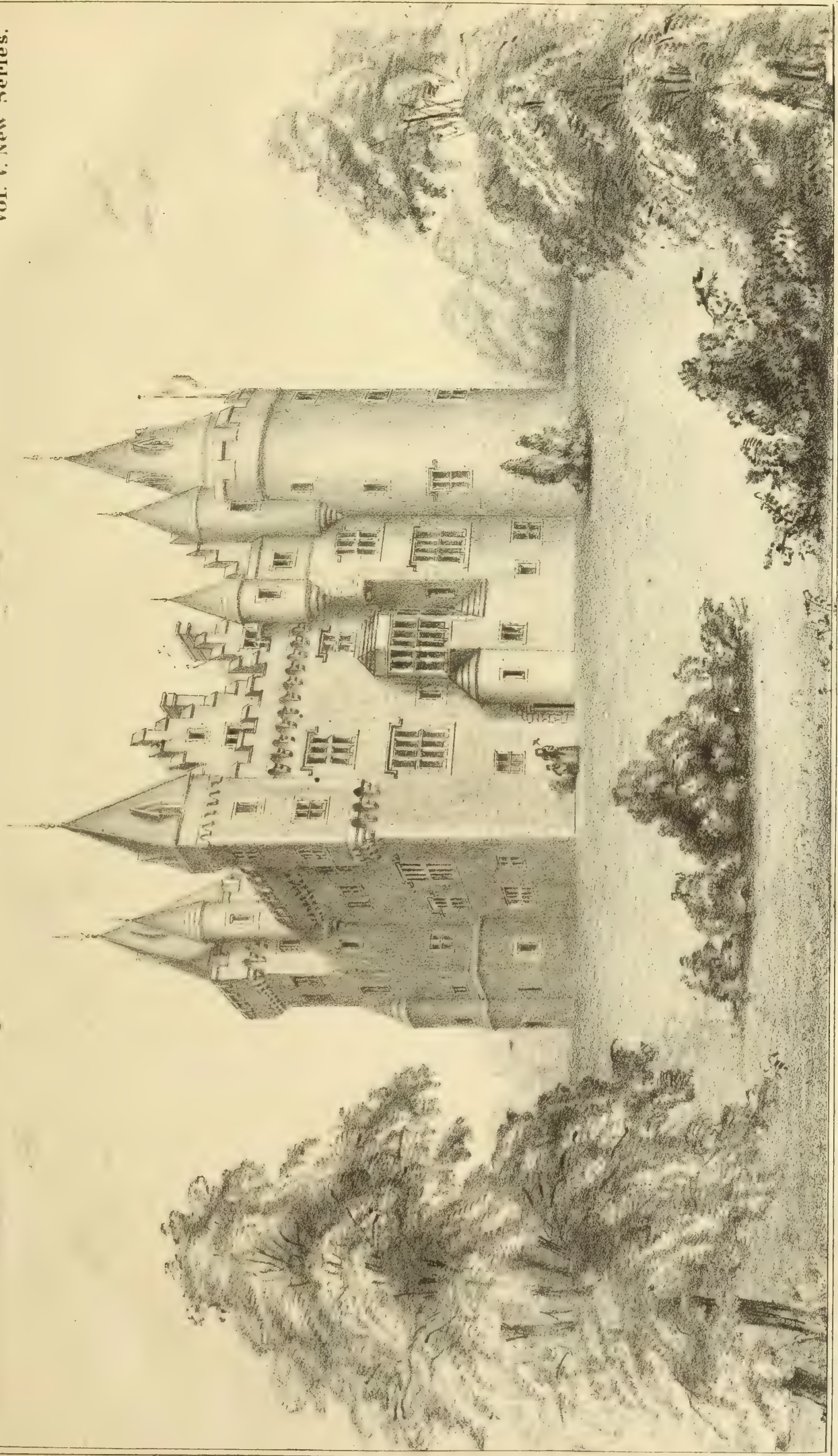
It appears that Captain Beresford, M.P. for Carlow, has been expending large sums in the improvement of his estates in that county, and that in a most praiseworthy manner he has especially devoted himself to the construction of a better class of tenants' cottage residences. The following description of them is in the wording of our contemporary, the *Agricultural Review*:—

"Of the cottages which have been erected at Fenagh, it may be said that their appearance is as good as need be desired, and when the village will be completed we have little hesitation in saying it will be one of the prettiest in Ireland. Situated in a beautifully wooded district, surrounded by the seats of resident gentry and the farmsteads of a thriving and respectable class of farmers. The cottages have been designed by one of Captain Beresford's tenants, under whose supervision they have also been built; and it is but a matter of justice to Mr. Butler to say that both design and execution do him great credit. The cottages are built in rows or blocks, one block being finished, numbering eight houses. Each cottage is 25 feet long, and 13 feet 6 inches wide, and contains on the ground floor a kitchen or living room, 13 feet 6 inches by 12 feet, and two bed-rooms, each 6 feet 2 inches by 6 feet 6 inches; over these bed-rooms is another bed-room of a size equal to the two on the ground floor, access being had to this room by a stairs from the living room. The living room is not ceiled, but the roof is well rendered; it is a fine airy room. The bed-rooms are ceiled. Behind the house, and with a door from the living room, there is a pantry and a porch in which the sloppy work may be done, and thus the kitchen can be kept clean. A small yard is attached to each cottage, in which is erected a privy and pigery; but we do not quite approve of the mode of cleaning the privies, being by a drawer, which must be carried some distance to the manure heap. Now it occurred to us that a cesspool in each yard, into which the night soil might be conveniently removed by a shovel, and into which the ashes, &c., of the house could be thrown, would be a better plan. The row of houses now in progress will be of a more ornamental character than the first one; but they are all ornamental enough, whilst the quality of the workmanship and of the materials is first-rate, the best Memel timber being used for roofs, and of the stone it is enough to say that it is granite, the eave course being chiselled granite, and over the top of each window is a cornice or string course of the same material. The cottages are not dashed, but the stones have got a rough hammering, and as their colour is good they look better as they are. Patent metal sashes, to open on pivots, are used in the windows. The cost of these houses is about £62 each, and, taking the accommodation afforded and the quality of the workmanship into account, they must be considered as cheaply built. A visit to Fenagh, and a conversation with Mr. Butler, will repay any one who may be inclined to build labourers' houses; and we feel warranted in saying that Mr. Butler will be quite willing to give every information on such matters.

"We hail with much pleasure so greatly needed an improvement, and trust that the gallant and worthy captain's example may serve as an inducement to other landlords to do likewise. The cost, moreover, seems a fair one for the accommodation afforded, which is ample for any ordinary purpose. We hope yet to see that the cottages of the Irish tenantry and peasantry throughout the length and breadth of the land may not shew cause for the now popular designation by our cross-channel neighbours of 'Irish pig-sties.'"









IRELAND'S RESOURCES.\*

AN undertaking to write a work in which "the agricultural powers," "the manufacturing capabilities," "the commercial advantages," of a country are to be treated, is attended with no ordinary labour, and no individual of ordinary mental capacity durst approach it with reasonable hope of success. Few amateur agriculturists could write a readable and practically useful dissertation on husbandry and tillage, and as few amateur architects could discuss architectural theories and principles of construction; and fewer still could volunteer to grapple with abstruse and political economic considerations involved in manufacturing, commercial, mineral, and other great national questions. Such, however, is the object of the book before us, which, though comprehending so much important and varied matter, does not exceed in bulk an ordinary octavo volume of 180 pages; and we shall, with a view of illustrating its object and the mode of accomplishment, endeavour to follow the author through it. We must premise that the contents are a reproduction of twenty-four articles written in the capacity of special commissioner for our able and independent contemporary, the *Dublin Evening Mail*; and the fact of their appearance in that excellently-conducted journal, authenticated by the responsibility of its talented conductor, is at once a guarantee of their worth; of something above the common order of superficial and mythical enunciations. While acknowledging that emigration, as far as Ireland is concerned, "is not wholly an evil," the author maintains the propriety of a reversion of the system, forasmuch as that such are "her resources for the employment of labour and the investment of capital, she may be placed first on the list for immigrants." We most religiously believe in this, and we point to our own periodical notes of progress of strangers who, emigrating to Ireland, took possession of barren wastes having seen previously with the lynx eyes of clever speculators, neglected resources, which, by industry, judgment, and capital, might be turned to account, as proof.

May we particularise one instance, and associate with it the name of Allan Pollok?

Referring to the question of Manufacturing Capabilities, the author strongly urges that the abundance of water-power in Ireland gives it undoubted precedence over the sister kingdom, and for eligible sites for mills especially, directs attention to Limerick and Galway. Can any more conclusive proof be afforded of the correctness of his deductions, than in our own personal notes in "the Cite of the Tribes," in April, 1862, and the information on its boundless waste power then collected? It would be idle to pursue persuasion, where proof is incontrovertible. He also adds a tabular statement, showing a difference of 13.6-10 per cent. water power for cotton manufacture in favour of Ireland. From the chapter on this subject we take the following:—

"Perhaps the best way would be for landowners to build mills and workers' houses, and then let them. Most of those who have suitable places for such erections have also sufficient money to build them. The beneficial effects on the other parts of the property of any owner who would erect factories, would be equal to more than the highest rate of interest he might get in any other way for his money. It would also give an opening for his younger sons getting into a trade by which they might become rich, and in which they would always be as respectable as in those positions, either at home or abroad, in which those of their rank have hitherto been found. Had Connaught possessed hundreds of mechanics, and Munster been well supplied with merchants and engineers, and both had a liberal share of handicraftsmen, the flax trade (once flourishing near Galway), and the opportunity once given the people of Cork, would not have been allowed to slip."

Glancing at three forcible chapters on *Linen Manufactures and Flax Culture* (the present state of which in Ireland the author chiefly attributes to the deficiency of education of the Irish in practical things); on *freights* (in which the geographical and natural capabilities of certain towns in Ireland—viz., Galway, Limerick, Cork, Derry, and Wexford, are urged in

contrast to those now more prosperous); on *woollen manufacture* (wherein consists a history "full of warning and instruction," and a cry of the trade lost irrevocably)—we pass on to that on *silk and other branches*, from which latter we reproduce the following suggestive and apposite observations, in which, especially as regards the importation of slop work in cabinet-making we fully concur:—

"Enterprise and the investment of capital on sound principles would speedily and certainly bring back to Ireland hatting, shoe-making, and tailoring, on a large scale. Cabinet-making is another trade that Ireland ought to have a liberal share of. In this trade there must be the introduction of machinery and the investment of capital, as well as a sensible reduction in the prices of the various articles as between the housekeeper and the vendor. If such reforms be not introduced, the trade will fall into a mere traffic between England and Ireland; and even those who require first-class articles may yet have to go to England to get them. There is an opportunity at present in which joint-stock manufacturing companies might be started, and, if well conducted, would certainly supplant what is called 'slopwork,' and yield a fair dividend to capitalists, as well as afford employment to Irish skilled and unskilled labourers. It is strange that so many cabinetmakers from Ireland should have to seek employment in England, whilst so much of the furniture sold in Ireland is made in that country."

Upon the points hereinafter quoted with reference to the condition of "small manufacturers," we cannot admit the soundness of the author's principles, for no statistical evidence or careful observation can verify them. Where is the improvement manifested? If the number of persons now employed be greater than heretofore, why the emigration from, and not to, Ireland, so forcibly lamented? Why the perpetual cry of distress; of no work; of unprecedented tightness in the money market; of consequent bankruptcies; of the all-destroying monster-house monopoly; of the detrimental influence of machinery on hand-labour; of English capital in competition nullifying Irish efforts, lacking the commodity? We give the paragraph, however, that it may speak the author's own sentiments clearly:—

"The condition of small manufactures in Ireland is decidedly better than ever before. The number of persons employed is greater than in any recent period of Irish manufacturing industry. The wages paid to operatives are good, and the chief cause of success, next to an abundant supply of raw material, has been the introduction of capital. If, in fact, the growth of the small trade of this country is now compared with that of the large trade of England, the comparison is not at all discouraging."

With this we conclude our first notice of this work, with intention to resume consideration in our next; and while we take exception, as conscientious critics, to a single paragraph, our readers will, nevertheless, understand that we prize highly the unexceptionable matter which is in overwhelming superabundance therein; presenting a lucid, most comprehensive, and most difficult condensation, in a small compass, of facts nationally historical, and of the highest national importance, socially, industrially, and commercially. We trust that "the enlightened patron of Irish progress," Sir Robert Peel, Chief Secretary,—to whom, by permission, the book is dedicated,—will appreciate the deserved ability of its author, and digest the invaluable information communicated on the past history, the present state, and the neglected capabilities of that portion of the Queen's dominions for which he especially legislates.

DUBLIN, WICKLOW, AND WEXFORD RAILWAY.

FROM DIRECTORS' REPORT.—The details of the revenue account show a small increase in the receipts of the Wicklow line as compared with the corresponding period of 1861. The Kingstown line exhibits a falling off of £2,018 in its receipts. The total revenue expenditure, as will be observed, is less by £1,700 than it was for the corresponding half of 1861. A gratifying progress has been made with the works of the extension to Gorey and Enniscorthy. Anticipating the opening of the line to Newbridge in the coming spring, an addition has been made to the rolling stock of twenty waggons, expressly adapted for mineral traffic. With a further view to the accommodation of this mineral traffic, the directors have obtained the sanction of

the Board of Works and the Treasury to lay down a branch line of rails from the Kingstown Railway to the Traders' Wharf at Dunleary, and the necessary works for this are now in progress. The directors have every confidence that the engineer will be fully able to redeem his promise to open the lines the entire way to Enniscorthy during the autumn of the present year. The importance of the passenger traffic over the Kingstown line, in connection with the Holyhead mail service, have induced your directors to provide, in the bill before parliament, for "enlarging and improving the station at Westland-row," so as to give increased facilities for the conduct of the business there. The station at Merrion has been closed, and a new one opened at Sydney-parade, which is more central, and, consequently, more convenient to the public of the Sandymount neighbourhood.

FROM THE ENGINEER'S (W. R. LEFANU) REPORT.—Your contractor, Mr. Edwards, has been actively engaged on every part of the works between Rathdrum and Enniscorthy. The heavy rock cuttings between Rathdrum and Arklow are almost complete; the arching of the Upper Rathdrum viaduct is finished, and that of the lower one is in progress; the excavation of the three tunnels is complete; three miles of permanent way are laid between Rathdrum and Newbridge; and the contractor is laying the permanent way at Arklow. I expect the line to be ready for opening to Newbridge early in April next. Between Newbridge and Enniscorthy very good progress has been made with the works. A great deal of masonry and a large proportion of the earthworks have been executed; and as the works between Arklow and Gorey are not heavy, and those between Gorey and Enniscorthy are remarkably light, I see no reason why the line should not be opened the entire way to Enniscorthy early next autumn. About 1,400 men and 200 horses are at present employed on the line. The siding to the jetty in Kingstown is in course of construction, and will shortly be complete.

CONCERNING MEMORIALS AND TESTIMONIALS.

A COMMITTEE has been appointed to receive subscriptions for the erection of a memorial to the late Primate Beresford. We (*Newry Telegraph*) understand that two projects occupy the minds of the committee as to the form the memorial should take, one being the foundation of an exhibition in Trinity College, Dublin, open only to the sons of clergymen of the diocese of Clogher. For this purpose a sum of at least £300 is stated to be required. The other, the erection of a memorial-window in the church at Clogher, with a proviso that certain improvements in the church at present in contemplation are eventually carried out. (The former suggestion has been adopted.) The inauguration of the testimonial to the Gould family (who are extensive estate owners in the county Limerick), of which the late Master Gould, Wyndham Gould, M.P., &c., were respected members, took place on Tuesday, the 6th inst., at the picturesque village of Athea, and in presence of a large assemblage of local gentry, tenant farmers, &c., &c., making upwards of 100,000 persons. Lieutenant-Colonel Dickson, M.P., presided. The monument consists of a beautiful cross, after the style of the ancient cross at Clonmacnoise, resting on a handsome pedestal of cut stone, inlaid with slabs of excellent Irish marble of different colours. It bears inscriptions of the names of deceased members of the Gould family. The pedestal rests on three diminishing steps of fine cut stone, exceedingly well worked. The cross itself is a beautiful object. It is composed of two fine blocks of cut limestone, the shaft being eight feet high, capped with a graceful ring, which is one whole stone perforated from the solid block, and which shows the arms of the respected family, and the apex is as elaborately worked in Gothic lace tracery as it could be done on cloth by the most expert proficient. A part of this splendid memorial is a ring, before mentioned, which contains, as it were, the arms. At each opening between the apex and the arms of the shaft are scrolls, on which shamrocks are deeply cut, and these are formed in the Norman style of Gothic carving. On the front elevation there are several raised bosses, globe-like, on which are finely displayed the sun-flower, the oak leaf, the shamrock, ivy, and thistle. These bosses are well and boldly relieved. The centre "boss" attracted our particular attention; it is somewhat larger than the others, and has engraved on it a charming cluster comprising the national emblem, the shamrock. On the two arms which extend to the wing are richly-carved clusters of ivy and oak leaves. The apex is also beautifully and richly carved, and the whole executed in the Norman Gothic style of architecture. The monument was designed by Mr. William Fogarty, architect, of Limerick, and was executed by Mr. Purcell, Mr. Walsh being the contractor.

\* "Industry in Ireland: a Treatise on the agricultural powers, manufacturing capabilities, and commercial advantages of Ireland," by William Glenny Crory. pp. 180. Dublin: William Robertson.

## Learned Societies' Meetings.

### ROYAL DUBLIN SOCIETY MONTHLY MEETING.

THE usual meeting was held on the evening of the 8th inst., Mr. L. E. Foot, V.P., occupying the chair, and Viscount Duulo acting as secretary. Nine members of council were elected, viz., Sir R. Griffith, Bart., Major-General Colomb, Rev. J. Galbraith, F.T.C.D.; Messrs. J. Barton, G. Saunders, A. Parker, J. R. D'Olier, H. T. Vickers, and E. Vickers.

In the report read from the council, it was stated that "it desired to suggest to the society the expediency of instituting examinations, and issuing certificates of competency in agriculture similar to those in general subjects, which have proved so successful. The council submit a scheme for the examination and education of candidates for agricultural certificates, which, as it has received the sanction of the Committee of Agriculture, it does not hesitate to recommend it to the society for adoption," also that "the committee having had under their anxious consideration the question, as to how they can best accommodate the stock and implements to be exhibited at the next spring show, now that the lawn is no longer available for implements, and having had the valuable assistance of Sir Richard Griffith in the matter, beg to report generally that they propose, in the first place, to restrict implement exhibitions to the accommodation requisite for but one sample of each of the large machines and two of the smaller implements, and to entirely prevent the exhibition of any articles but those which are strictly agricultural in their nature. These they propose to distribute partly in the front court-yard and partly in the ground at the rear of the School of Art. They intend having the horses exhibited in Clare-lane yard, and to remain on exhibition during the days of the show. In order to accommodate both these classes it will be necessary to erect suitable and permanent shedding, according to a plan submitted by Sir Richard Griffith, the estimated cost of which will be about £500."

Resolved—That it is referred to the council to consider whether it will not be desirable to offer to the Committee of the Prince Albert Memorial a site for the Memorial in Leinster-lawn.

Mr. Alexander Tate having resigned his membership of the Committee of Manufactures, Mr. J. W. Mackay, J.P., was proposed for election in his stead. Several new members were elected.

### ARCHITECTURAL INSTITUTE OF SCOTLAND.

IN connection with the ordinary published transactions of this body there has been issued a series of lithographed "Illustrations of Scottish Buildings," accompanied by descriptive letter-press. The subjects comprise elevations of long ranges of houses east and west sides, respectively, of West Bow, in Edinburgh, from measured drawings by the late Thomas Hamilton, Esq., architect (they are very quaint and picturesque); also detail *moreaux* of the Priory of Inchmahome, by Mr. Edward F. C. Clarke, and of Holyrood Abbey, by A. C. Beattie.

We beg to thank the Honorary Secretary, Mr. Miller, for his courtesy in forwarding a copy to us, and also may take occasion to mention that that gentleman gives us his assurance that "the Institute of Scotland would feel the greatest pleasure in co-operating with the proposed Institute of Architects in Ireland. The publication referred to is the first donation entrusted to us for the new Institute. We shall be happy if other societies will immediately follow the example. By the interchange of courtesies much mutual benefits may result. The Institute of Scotland consists of five classes of members—viz.:—Fellows, associated builders, associated draughtsmen, and ordinary and honorary members. Their respective positions are carefully defined.

### STATISTICAL SOCIETY.

THE third meeting of the sixteenth session of this Society was held last evening, at 35, Molesworth-street, General Sir Thomas A. Larcom in the chair. There was a distinguished assemblage.

Dr. W. M. Hancock read a most elaborate paper on "Secondary Punishments," by his Grace the Archbishop of Dublin.

The Archbishop said—I wish to state, with reference to these papers, a thing that has always struck me with a great deal of pain, and that is, to read of a person being condemned to imprisonment with hard labour for life, and the association of the idea of hard labour with crime. A great deal in human conduct depends upon the formation of associations; but when I recollect that a very large proportion of the population of this country and Great Britain are condemned to imprisonment with hard labour—that is to say, that they are obliged to labour hard, and in one particular spot, for the

maintenance of themselves and families, it seems a hard and cruel thing that we should consider imprisonment with labour—for, in fact, it amounts to that—as something to be shunned and considered as punishment. I want to create a different kind of association, and for that reason it is that I wish to associate the idea of labour, not with punishment and imprisonment, but with liberty, by requiring a certain amount of work of the criminal instead of a certain period of confinement. He will then labour hard to get out of prison, whereas in England nothing of the kind can be effected. We all know how laboriously prisoners have laboured to dig a hole in the walls of their cells, and how they labour day by day and night by night to escape. By the plan which I propose the man would be labouring to make his escape by performing the work assigned to him, and would have his mind prepared after a few weeks of this kind of toil to associate labour, not with disgrace, but with reward and with liberation.

Mr. Edward Gibson also read a lengthened and able paper on "Penal Servitude and Ticket of Leave."

Some new members were afterwards duly elected.

### PROPOSED SOCIAL MEETING OF ARCHITECTS IN MANCHESTER.

WE perceive that it is intended to hold a professional congress in the Athenæum, Manchester, on or about the 27th instant, and have to acknowledge the courtesy of an invitation thereto, which we purpose accepting, if circumstances will permit.

### GEOLOGICAL SOCIETY.

A GENERAL meeting of this society was held last evening in the Museum Building, Trinity College. Rev. Professor Haughton in the chair. On the motion of Mr. Scott, seconded by Professor Forbes, Mr. T. W. Kingsmill, who lately contributed a paper on China, and Mr. A. B. Wynne, who had lately gone to Calcutta on the India geological survey, were elected corresponding members of the society. Professor Jukes read an interesting paper written by Mr. A. B. Wynne, F.G.S., on the "Geology of Parts of Sligo." Mr. Scott read a paper, communicated by Mr. H. J. Holmberg, of Helsingfors, on the "Granite Rocks of Finland." A discussion ensued on both papers, after which the Society adjourned.

### ROYAL IRISH ACADEMY.

A GENERAL monthly meeting of the academy was held on the evening of the 12th inst., at the academy house, the Very Rev. Dean Graves, President, in the chair.

Several new members were ballotted for.

The president having vacated the chair, and proceeded to the desk for the purpose of reading his communication,

Dr. Petrie, on taking it, said that they were all aware of the great loss which Ireland had sustained in the death of a distinguished foreigner (Professor Seigfried). Although the distinguished deceased was not a member of the academy, he would throw it out as a suggestion that the academy should adjourn as a mark of respect to the memory of the distinguished philologist.

The President said it was right on the part of the chairman to leave the matter to the consideration of the academy. Although it would be more convenient for him (the president) to read his paper that evening, he would willingly postpone it if the academy decided on it.

A conversation on the subject ensued, in which Mr. Haughton, the Rev. Dr. Todd, and Mr. Pigott took part.

Dr. Wilde said that it was with a great deal of difficulty he brought himself there that evening, and he would not have been there only that he had promised to read a paper, and he did not like to disappoint the academy. He did not think there was any precedent for adopting the course suggested by the chairman. Dr. Wilde spoke in the highest terms of the great merits of Professor Seigfried, and concluded by moving that the members of the academy should attend the funeral officially, as the best means by which it could show its respect to the memory of the deceased.

The motion was seconded by Dr. Stewart, and was adopted.

The Rev. Dr. Reeves moved the following resolution:—"That the academy has received with deep regret the intelligence of the lamented death of Professor Seigfried, and, although he was not a member of its body, avails itself of the present opportunity to testify its respect for a scholar of such distinction, who had so cordially made Ireland his home and its language the favoured subject of his valuable studies."

The resolution was seconded by the Rev. Dr. Todd, and carried unanimously.

The Very Rev. the President then proceeded to read a communication "on some notices of the acts of St. Patrick contained in the Book of Armagh."

On the motion of Rev. Dr. Todd, seconded by the Rev. Dr. Reeves, the paper read by the President was referred to the council for publication.

### INSTITUTION OF CIVIL ENGINEERS.

LAST evening there was a general meeting of the institution, in the New Buildings, Trinity College—B. MULLENS, Esq., C.E., in the Chair.

Mr. Joseph Smyth, jun., read a paper on "Irish Linen Bleaching and Bleaching Machinery." He gave a general description of the method of bleaching linen practised in the North of Ireland, and pointed out the difficulties in the way of a bleacher—first, in removing the colouring matter in the fibre itself; and, secondly, those colouring matters which it receives in the manufacture, the dressing laid on by the weaver, and the smoke from the weavers' houses on the newly-woven linen moist with dressing. He then described the Milltown bleachworks, where 20,000 miles of linen could be bleached in one year, and where the steam for boiling was first used for driving a steam-engine, thus costing nothing extra for that purpose. He showed from the various forms of bleaching propounded by various parties, how little was known on the subject, and also how advisable it was to make experiments on this subject, especially with regard to the action in the ozone in the atmosphere on the colouring matter. He also described the machines used in the process of bleaching.

The Chairman said that, however important the manufacture of linen was, it would have little claim on the attention of members of the institution but for the very ingenious machinery used in its manufacture, the construction of which had been so fully explained by Mr. Smyth. It was of considerable importance to utilise steam after it had passed through the engine for manufacturing purposes; and as it was found very useful under high pressure, it required chemical knowledge of the highest possible order to utilise a power so great as that of steam. Mr. Smyth had, in a very simple, lucid, and unpretending manner, brought forward the subject of linen manufacture, and he had set an excellent example as to how such matters should be treated.

Mr. Price believed they were indebted to the linen bleachers of the Bann for one of the finest pieces of engineering in Ireland, namely, the Bann Reservoir.

Several gentlemen interested in the linen manufacture discussed Mr. Smyth's paper, and complimented that gentleman on the knowledge and ability displayed in his treatment of the subject under consideration.

Mr. Anderson, C.E., exhibited Mr. Faulkner's improved fish-bolt for joining rails. The difference between this and the screw at present in use consisted in making it a double screw, seven-eighths of it being right-handed, and a three-quarter screw left-handed, acting in opposite directions, and touching each other. By this plan the possibility of the rails becoming loose was entirely prevented.

The meeting then adjourned.

### VOLUNTARY ARCHITECTURAL EXAMINATIONS.

#### THE REGULATIONS AND COURSE.

ON the 28th inst. will be inaugurated the commencement of a great annual establishment, forming a new era in the history of the architectural profession, for, on that date will be held at Conduit-street, London—the focus of architectural talent in the kingdom—the first of the voluntary examinations. We have been favoured by the Royal Institute of British Architects with a copy of the prescribed "regulations and course," which certainly will—if rigid scrutiny be exercised in each department, and we judge that it will, without doubt—"try the metal" of the aspirants to future fortune and fame. No architect above thirty years of age is encouraged to offer himself as a candidate for diploma, nor is such examination contemplated for architects in practice; nor for the classes of "proficiency" and "distinction" respectively under the ages of twenty-one and twenty-five years. The first day's examination will be in "drawing and design;" the second in "mathematics and physics," with professional practice; the third in "materials and construction," with history and literature; while the fourth, fifth, and sixth days, shall be assigned to the same subjects in similar order, languages being included on the fifth day. [Who will be so hardy as to say that the student who successfully perseveres through such a curriculum is not entitled to be regarded as a member of a learned and gentlemanly profession?]

## UNITED TRADES' ASSOCIATION OF DUBLIN.

A MEETING of representatives of the United Trades' Association of Dublin was held ere yesterday evening in the Bakers' Hall, Upper Bridge-street, to consider how far the registration of births and deaths is useful to the working classes. The following trades were represented:—Bricklayers' Society, (Halston-street); Boot and Shoemakers', Cabinet-makers', Bakers', Basketmakers', regular Operative Smiths', Cork Cutters', Coopers', Brassfounders', and Poulterers'.

On the motion of Mr. M'Namee, secretary to the Bakers' Society, seconded by Mr. Keegan, secretary to the Cabinetmakers' Society, Mr. Rice took the chair.

The Chairman, after some remarks, called upon Mr. John M'Evoy to explain the subject, for the consideration of which they had assembled.

Mr. M'Evoy then proceeded to show the necessity of a correct registration of births and deaths, and detailed at considerable length the many advantages derivable therefrom. [Mr. M'Evoy has written a pamphlet on the subject, which he would be happy to give for perusal.]

Mr. Keegan then proposed the following resolution:—"Resolved—That impressed with the importance to the working classes of establishing a proper system of births and deaths' registration, we attend the conference at the Prince of Wales' Hotel, on the 15th instant, to represent thereat our respective trades, and sustain the movement then to be commenced for bringing the public opinion of all classes of Irishmen to bear upon Government and Parliament on the question."

Mr. Scully, in an eloquent speech, seconded the resolution, which was adopted.

Mr. M'Namee proposed the next resolution:—"That the earnest thanks of the United Trades' Association are due, and are hereby given, to Mr. M'Evoy, for the very able and energetic manner in which he has taken up the question of registration of births and deaths in Ireland."

Mr. Miller seconded the resolution, which was unanimously adopted.

Mr. M'Evoy returned thanks, and said that he had very good authority for informing them that a very popular member of Parliament had notified his intention of introducing the subject to Parliament.

Mr. Reed having been called to the second chair, a vote of thanks was passed to Mr. Rice, and the meeting separated.

## PEAT MANUFACTURE IN IRELAND.

"OF all the sources of industry in Ireland none deserves a higher place than peat. In the immense quantity of this most valuable article in the bogs of Ireland there is the means of industrial power, and consequently of wealth, beyond all calculation. The bogs most valuable in an industrial sense lie south of Dublin and west of the Shannon. These would yield fuel for many years to come, and this fuel for domestic use would be both cheaper and more easily obtained than sea coal.

"Many projects have been started for getting its valuable products from peat. The experiments designed to utilise peat as fuel have succeeded best, and the present circumstances of the country afford a suitable opportunity for the further adoption of peat fuel, if not its substitution for coal for house purposes. Coal usually ranges from 15s. to 20s. per ton, in towns near the bogs of the west; in which towns peat fuel for domestic use might be sold at 10s. to 12s. per ton. The outlay of a few thousand pounds in making 'ways' to the bogs, and erecting machinery for compressing the peat, may bring this article into every town in Ireland. The utilisation of Irish bog, to the production of an abundance of cheap fuel, must be conducted on a large scale, and in something like the way English and Scotch people go into coal mining. The preparing of peat for fuel might, in fact, be made a most extensive source of industry. Not only might the towns of Roscommon, Galway, Mayo, Limerick, &c., be supplied with cheap fuel from the western bogs, but the price at which peat fuel might be sold would bring it largely to Dublin, and just as coals are sent to various places now, peat fuel might be sent to displace their use. The several smaller bog districts would also come in for a share in trade, just as the several smaller coal districts in England get a part of the general business. In places approachable from each bog there would be a brisk competition. Besides, the variety in quality of the several bogs would produce a list of descriptive names to guide purchasers, just as those attached to coal. Manufacturing in this article might be carried on every day in the year. Even if stocks of peat fuel were not gathered in several towns against severe weather, it would be easy for merchants to get supplies at a day's notice, so that famine prices for fuel would not be likely to occur often, if at all, even in the severest season."—*Croxy's "Industry in Ireland"*, (elsewhere referred to)."

## TESTIMONIALS AND MEMORIALS.

Mr. Marshall Wood is to execute a statue to the Queen, to be erected at Montreal.

Mr. Woolner is executing a memorial statue of the late Prince Consort for Oxford.

Mr. Thorneycroft has a commission for a bronze equestrian statue of the Prince Consort for Halifax.

A fine statue of the late Henry Cockburn, the friend of Jeffrey, has been set up in the Parliament House, Edinburgh. It is by Mr. W. B. Brodie.

A communion plate-chest has just been presented by the Duke of Portland to the Church of Hucknall Torkard, near Nottingham (the burial-place of the noble bard), for holding the silver gilt service given to that church in 1664 by the Hon. Elizabeth Byron, daughter of Viscount Chaworth, and ancestor of the great poet. The chest is of oak, very rich in tint, taken from an ancient building near Welbeck Abbey, the seat of the Duke of Portland, and is an admirable specimen of ingenious cabinet work.

On the 1st inst. an address, beautifully illuminated on vellum by Mr. Owen Jones, was presented to the Venerable Professor Cockrell, R.A., by the Institute of British Architects, on the occasion of the professor's retirement from the presidency of that body. The deputation consisted of Mr. Tite, M.P., and Professors Donaldson and Kerr, being necessarily limited to personal friends, in consequence of the state of the professor's health, who received the address in his room. The wording of the address is as follows:—

DEAR SIR,—Upon the occasion of your retirement from the office of President of the Royal Institute of British Architects, we deem it our duty, as the members of that body, to place on record the very great satisfaction which your presidency has afforded us.

When the demise of our first president, the late Earl de Grey, brought to a close the lengthened period during which his lordship had so worthily occupied the chair, the unanimous voice of the institute, in acknowledgment of your pre-eminent merits as an architect and as a promoter of art, called you to take his place.

The same unanimity marks our regret that the period for your withdrawal has arrived.

It is with much pleasure that we avail ourselves of your permission to place your portrait in the rooms of the institute; long to remind us and our successors of that dignity and courtesy, those resources of knowledge and graces of character, by which you did honour to the highest office in our gift.

Although now retired from those professional labours which have gained you so many trophies of success, we hope to enjoy the frequent pleasure of seeing you amongst us; and still more we trust that England may long have the advantage of including in the number of her artistic counsellors one whose reputation is so long established and so widely spread. We remain, dear sir, very sincerely yours,

WILLIAM TITE, President.

## ALMANACS.

WE have to acknowledge the receipt from J. R. Curry, Esq., manager for the Southern district of the Royal Insurance Company, a very handsomely-produced almanac for the current year. Besides information relative to insurance principles generally, and to the business of "The Royal" Company especially, which, we must observe, is a highly-thriving concern—the book contains episodes of the American War, remarks on the life and character of Prince Albert, on the death of Lord Herbert, &c., as also useful memoranda blank pages. A less expensive form than the editors' copies of the same work is presented gratuitously to the general public, and may be had likewise from J. Gore Shields, Esq., the manager of the North of Ireland branch of the same company, at his office in Dame-street.

## CONTRACT QUESTION.

C.P.—*Hynes v. the Newry, Warrenpoint, and Rostrevor Railway Company*.—Motion, on behalf of plaintiff, to make a consent a rule of court. By consent defendant agreed that the demurrer filed by plaintiff to defendant should be allowed plaintiff's costs of demurrer and proceedings thereon to be costs in the cause.

The Judge made order accordingly.

[This, we understand, terminates the litigation between the Newry, Warrenpoint, and Rostrevor Railway Company and their contractor in reference to the erection of the station-house at Newry, a verdict for £1,000 (being a reduction of £250 on the amount claimed) having been taken by consent at the last after-sittings before the Lord Chief Justice.]

At a meeting of the Dublin and Kingstown Steam-packet Company, held on the 6th inst. at Kingstown, John Skipton Mulvany, Esq., architect, was elected a director of the company.

## THE PANTOMIME.

*The Theatre Royal*.—Digressing for a while from "the sublime to the ridiculous"—a wholesome digression both mentally and physically betimes—we pause to view imaginary groves of enchantment and Elysian fields, with the concomitant marvellous doings of their inhabiting fairies and genii; afterwards to join in mirthful bliss at the frolics of mischievous "Clown"; to condescend with unhappy "Pantaloon"—born under unlucky star—to admire the meanderings in mazy dance of silver-clad "Harlequin," with magic wand, and his ever fair, faithful, and graceful partner, "Columbine." These are the reigning spirits in the halls of good old Christmas, and right welcome are they as well to the young, with breasts to care unknown, as to adults whose "wrinkled fronts," show the *impreste* of numerous summers. At this festive season, the lessee of a theatre is a species of terrestrial deity from the moment the bolts of his temple of amusement are withdrawn on "boxing night," to the final fall of the curtain on his annual ministration; and never was adoration accorded to such deity more bountifully or more justly than it is to the lessee of our "Royal" on this occasion of Christmas ('62-'63).

If not in certain respects as gorgeous as some of its predecessors, the pantomime of "Cinderella" has, nevertheless in others and in its integrity, not proved one whit less attractive; nor does the result demand to be withdrawn from the laurel crown of its enterprising producer one single sprig of the many acquired during his long managerial career; for in every department is visible that emulative spirit to be second to none other effort; and to present a more than ample return to a patronising public, which has ever been characteristic of Mr. Harris' caterership.

To antiquated nursery rhymes pantomimic authors must almost invariably look for their theme, and indeed the category has been well nigh exhausted, forasmuch as that while the demand on the stock resources is incessant the fresh supply is literally nil. Where is the inclination now on the part of authors to attempt new compositions such as are found in the "Arabian Nights" entertainment, as "Baron Munchausen," "The O'Donoghue," "Jack the Giant Killer," "Cinderella," &c., &c.? and these, with very many others of similar character, have been so often re-produced in a variety of shapes and forms, and in numerous degrees of excellence, or the reverse, that as a suggested "novelty," in selecting them as a subject for pantomimic display, they fairly put a manager to his wits to present features in them not presented before. In the production, however, of the opening of the last-named for this Christmas, the element of "novelty" in every department is sufficiently predominant to make spectators, young and old, admire it; and the beauty of the scenic effects, combined with excellently composed and effectively played music, with a capital ballet and appropriate decorations and appointments, almost rivet attention thereto, independent of the merits of the performers, which is of no common order. Mrs. Burkinshaw is, of course, the heroine cinderwench, and though clever and vivacious in every role she undertakes, unquestionably does not shine to the fullest advantage in this. She is ably supported by Miss Brennan as her devoted Lothario, and by Messrs. Barfoot and Thorne as her amiable (?) sisters, Clorinda and Thisbe, with immediately expansive crinolines—a libel on the prevailing fashion—as well as by the other members of the company who sustain the accessory characters.

Cinderella's equipage, produced out of a pumpkin by the good fairy godmother, for conducting her to the ball, at which she is destined to make a conquest of the prince—the beloved of her heart—is a very beautiful work of art, and (if we mistake not) the same that was used some years since in this establishment, when Miss Lanza was the heroine in the operatic version. Like our gilded civic chariot of respected memory, it has, no doubt, been "re-embellished for the occasion." We have never witnessed, in the most celebrated of the London theatres, for scenic effect, a more picturesquely, beautiful, and attractive scene, than "the golden groves of fairy land;" it does immortal honour to the artist, Mr. Craven, who nightly receives the congratulations of the audience. We understand that some of the valuable glass mirrors belonging thereto were broken in the transit, but their loss is not perceptibly experienced by the spectators. The grand ball-room scene is also most effective, with ranges of superb standard gaseliers at either side of the stage, which is thrown in to its full depth. The libretto (if we may so term it) of the burlesque opening is by the late Mr. Albert Smith—a clever production, but lacking pungency. At scene thirteen, "The vision of the Rose," take place—the transformation, when Columbine (Miss Leonora Davies), Harlequin (Mr. Saville), Clown (Mr. Buck), and

Pantaloons (Mr. Beckingham), first make their entrance into the busy world, and commence their characteristic evolutions. Henceforward, except the graceful dancing of the Harlequin and Columbine, and the usual "tricks upon travellers" by the Clown and Pantaloons, and their mutual complimentary exchanges with each other, there is little remarkable to note. Would that even the comic department of all pantomimes were made a little more consistent and subservient to rational enjoyment, for "the street fights" are certainly not to be classed under that head.

#### NEW PATENTS.

List of Letters Patent which passed the Great Seal since the 1st January, inst., Byrne and Lambert, Patent Agents, 4, Lower Ormond-quay, Dublin.

William Lennan, of Dawson-street, in the city of Dublin, "an improved safety stirrup."

Thomas Edwards, for "Improved movements for the indices for gas, water, and other fluid meters."

J. H. Johnson, for "Improvements in wet gas meters."

C. B. Gruner, for "Improvements in photographic apparatus."

F. Wethered, for "Improvements in the construction of handles, latches, or fastenings for doors, gates, and windows."

H. S. Pontifex, for "Improvements in apparatus for distributing water, applicable to cleansing casks or other vessels, or for other purposes."

E. Jandeau, for "An improved method of, and apparatus for removing the bad flavour from alcohols distilled from grain, beetroot, or other vegetables, and for extracting the whole of the alcohols contained in the fermented juice."

J. H. Johnson, for "Improvements in braiding machines."

James Miller, for "Improvements in apparatus for steering ships and other vessels."

The Hon. W. E. Cochrane, for "Improvements in railway fastenings."

J. R. Abbott, for "Improvements in sliding chandeliers and other pendant lamps."

G. Nock, "A new or improved safety or moveable self-acting crossing for railways."

A copy of any specification describing the nature of the invention and the mode of carrying it into effect, can be procured at the office for a sum not exceeding 5s.

### Correspondence.

#### TO THE EDITOR OF THE DUBLIN BUILDER. THE SEWERAGE OF DUBLIN.

SIR—The above important subject suggests to me the propriety of submitting for your consideration the following remarks:—If we divide the subject of improved sewerage into three parts, namely—1st, The necessity for such improvement; 2nd, How funds may be procured to carry out such improvement; 3rd, The best, cheapest, and most advantageous system of sewerage for this city—I think we take in all relevant matter relating thereto, and merely require to consider the several parts. So, taking into consideration the first part, I don't believe that in the city of Dublin a dozen of persons could be found who would conscientiously protest against "sanitary improvement" in this respect. With regard to the second part, or the mode by which funds for such improvement may be procured, I am of opinion, "to make the undertaking a paying" as well as a useful one, private enterprise, with a government or corporate guarantee—if such were possible—would be the best mode for the purpose. If we now consider the third part, or the cheapest and best system, I believe it to be this—simply to run one large sewer on each side of the Liffey, not to but from the east or sea direction; connect them at the King's-bridge, or thereabouts, and run the main to the proper tanks, filters, &c., which might be erected at that very low ground—the least elevated about Dublin—Chapelizod, where these tanks, &c., would be between the two canals and three principal railways. By this arrangement much expense would be saved for tanks, filters, "extra staff," pipes, or sewerage beds, &c.; besides the advantage of direct transit, "for ever and for ever," to localities where ejecta would be required. Surely, the "four feet" fall that might be gained by running the sewers towards the sea would be as nothing if viewed in connexion with my proposal.—Fiz.

SIR,—I was much pleased at reading a report of the proceedings of the Meeting of Architects held in the Antient Concert Rooms, on the 3rd instant, and fully concur with the remarks of the several speakers. But from long experience I fear there is little hope of the architects of Dublin mutually banding together for the honor of their profession. Petty jealousies and attempts to crush each other preclude the possibility of any positive good being done, as witnessed in the fate of the late Royal Institute of the Architects of Ireland. An opportunity is now afforded of testing the unity of Irish architects in respect to honourable competitions. The trustees of the Kingstown Mariners' Church, three days after the time appointed for receiving designs, have announced "an extension of time," a proceeding manifestly unfair to those gentlemen who had sent in their designs on the 1st of January, as stipulated. I ask you, Mr. Editor, to

note those architects who send in designs in accordance with the latter announcement of the trustees, when you will likely find many defections from the ranks of the forty architects who so loudly complained of the injustice of the directory of the Winter Garden Company. While such a state of things can exist amongst ourselves, can it be wondered at if public boards take advantage of our weakness and want of unity? ARCHITECTUS.

### Notes of New Works.

A handsome new dwelling-house is being erected in the neighbourhood of Parsonstown, according to designs by Mr. J. S. Mulvany, architect; Mr. John Dwyer being the builder.

A new college hall, for the pupils attending the schools of the Dominican Fathers of the Holy Cross, Tralee, has been commenced, and the foundation stone laid by the Most Rev. Dr. Moriarty, Catholic Bishop of Kerry.

Messrs. Lovely, of Poolbeg-street, are, we understand, about opening out their extensive premises to Burgh-quay, and have received designs from Mr. J. J. Lyons, architect, for the erection of a handsome gateway, with show-room over, and offices in connection with same.

Two large corn stores are about to be erected in the city of Cork. Mr. Mulvany, architect.

The magnificent mansion which is being erected at Ballybrack for the Right Hon. Judge Dobbs, on the road leading to the railway, is, according to the *Irish Times*, fast approaching completion. When finished, it will scarcely be surpassed, either in regard to the beauty of its site, or in the chaste and elegant style of its architecture, by any country mansion in the neighbourhood of the metropolis. Few, if any, localities have, within so limited a period, risen into importance, and become so populous as Ballybrack. It is to be hoped that the railway company will do everything within its power to meet the wishes of the great number of respectable and wealthy families who have taken up their residences permanently in this beautiful and healthy district. A considerable number of new residences are projected, and few sites for building will, ere long, be disposable in the neighbourhood. In a few years this station will, doubtless, be one of the most productive on the line, if justice be done to it by the company.

The contract for the alteration of approaches and other works to be carried out at the Westland-row terminus of the Kingstown railway, has been given to Mr. T. Byrne, at £2,200; Mr. Wilkinson architect.

A contract is about to be entered into by the Government for the construction of an extensive powder magazine on Dalkey island, in connection with the martello tower and battery already established there.

At a meeting of the Belfast Harbour Commissioners on the 6th inst., Mr. Charles Lanyon (Ex-Mayor), proposed, that in pursuance of a previous resolution the Board shall direct Mr. Smith to prepare a plan before a fortnight for a floating dock. The dock should be proceeded with at once. Mr. Boyd moved an amendment, "That Mr. Smith prepare plans for both floating and graving docks." Original motion carried.

### Varied Items.

The Metropolitan (London) Underground Railway has been opened for traffic. The cost is said to have been £1,300,000. It appears that so far the project has been eminently successful. Messrs. Knight and Smith executed the western portion of the work, ending at Euston-square, and Mr. Jay the remaining portion to Victoria-street. Mr. John Fowler was engineer-in-chief, and Mr. M. Johnson the resident engineer.

The quaint old Exchange and Town-hall of the ancient city of Chester has been destroyed by fire. The cathedral and bishop's palace adjoining were at one stage of the fire greatly threatened. Several valuable portraits have been destroyed.

A considerable advance has taken place in pig iron at Wolverhampton, mainly in consequence of the large demand from America for the article.

The improving town of Gorey has been lighted up with gas. The works were both planned and erected by Mr. Holloway, the gas engineer and contractor of Kilkenny.

Mr. Sidney Smirke, R.A., architect, commenced his course of lectures at the Royal Academy, on "Architecture," on the 8th inst., and continues them on this date, the 22nd and 29th inst., and 5th prox.

The Cathedral of Notre Dame, Paris, has been reopened, after undergoing some restorations, which are said to be very complete. Amongst the decorative additions are a monument to Monsignor Affre, Archbishop of Paris, who in 1848 died upon the barricades. A life-size statue of the Archbishop has been placed on a pedestal.

Designs are invited in competition for the completion of the west front of the Duomo at Florence. There are three degrees of premiums. It is generally understood that Mr. Burgess, architect to the memorial church at Constantinople, and Mr. Papworth, of London, will be amongst the English competitors.

The Arundel Society's publications for the current year have been issued, and are stated to be of unusual interest.

The subscribers of the Art Union of London are about to subscribe for a testimonial of plate to Messrs. Godwin (editor of *The Builder*) and Peacock, their honorary secretaries.

In Italy, as forthcoming Carnival novelties, we read of 'Bianca di Montalto,' by Signor Perelli, and 'Carmelita,' by Signor Pacini, at Milan, and of 'Orlo Soranzo,' by Signor Zescevic, at Trieste.

The Council of the Art Union has offered £600 for the plaster design of a group in marble, to be decided by competition, open to all the world. It will probably share the fate of all such competitions—no first-rate artist will compete.

The Musée Sauvagent, recently added to the national collections of France, has just been thrown open to the public in the Salle de Henri II., in the Louvre. The collection consists of miniatures, old furniture, jewellery, bronzes, porcelain, enamels, &c.

The Royal Academy medals have been distributed:—To Mr. Thomas Henry Thomas, a silver medal, for the best drawing from the life; to Mr. F. Holt the same, for a drawing from the antique; also to Mr. Thebb, for perspective drawing; and to Mr. George Hall, for a specimen of sciography. No gold medal.

Two cuneiform inscriptions have been discovered in a cave from which the principal stream of the Tigris rises, and casts have been taken by Mr. Taylor. One is already in London, and is a record of Tiglath-Pileser I.; the other is supposed to belong to Sardanapalus.

Some interesting facts on the rage for collecting autographs in France is given by the *Jardin des Racines Grecques*. A short time since, at the sale of the library of M. Parisou, in Paris, a copy of Cæsar's Commentaries was offered for sale, of the value in itself of about 2fr. The volume, however, contained a single note of about fifteen lines, believed to be in the handwriting of Montaigne, upon the back of the last leaf, the desire to possess which occasioned so great a competition among the autograph hunters, that the volume was finally knocked down to a representative of the Duc d'Aumale for 1575fr.

Two bills applied for by the Blackrock, Monkstown, and Booterstown Improvement Township, and the Baggot Rath, Donnybrook, Sandymount, Ringsend, and Irishtown Improvement have been referred to the Waterworks Committee.

A letter from Bagdad, in the *Moniteur*, says—"The excavations carried on among the ruins of Babylon, under the direction of the French Consul at Bagdad, have resulted in some interesting discoveries. In the Nimroud Mound, which was visited by Mr. Layard in 1840, were found four bas-reliefs of colossal dimensions, each sculptured on a large slab of stone, and representing allegorical figures. The greater part of these bas-reliefs bear long inscriptions in cuneiform characters, and are remarkable for their state of preservation. A certain number of other sculptures of smaller dimensions, representing scenes of Assyrian life or warlike episodes, have also been discovered. These artistic treasures are on their way to France.

Dr. Edward Haughton delivered a lecture in the Athenæum on the 8th inst. (Mr. James Haughton in the chair) on "Nervous Equilibrium." An amount of very valuable information on the subject, supported by scientific principles and experiments, was pleasingly communicated.

The Father Matthew statue for Cork is far advanced towards completion under the chisel of our distinguished countryman, Mr. Foley, R.A., sculptor. The same artist is engaged on statues of Lord Elphinstone, for Bombay, Sir J. Outram, for Calcutta, Sir Charles Barry, R.A., for Westminster Palace, and of Sir J. Fielden, for Todmorden.

The Report of the Royal Scottish Academy (the thirty-fifth) states that the Exhibition in Edinburgh was opened on the 12th of February, and closed on the 10th of May last; it contained 824 paintings and 33 sculptures, mainly by resident Scottish artists. The exhibition was opened both in the day and evening, and pictures sold to about the total value of £5,000.

A biography of the late Sheridan Knowles is, we understand, in preparation by his son.

Mr. Boucicault at his new theatre, Westminster, has provided himself with a pantomime which reverts to the old style of discarding dialogue, and depending alone on the action and dumb show. The subject is of the author's own invention, and the piece is called 'Lady-Bird; or, Harlequin Lord Dundreary.' It commanded an overflowing house and great success on Boxing night.

The Polytechnic in London has a dissolving view pantomime entitled "Cinderella."

## Miscellaneous.

FROM LADY MORGAN'S DIARY.—I am leading a very gay life, for I think with so solitary a home as mine is, social excitement is almost necessary for me. First, Lady Beauchamp's grand majority rout (where I only staid half an hour) the heat and crowd was too much for me; but I had a "word and a blow," with fifty of my particular friends—old Rogers in the thick of the fight. Next on my list, on the 24th a dinner at Wentworth Dilke's; dinner excellent; company, the Earls of Carlisle and Granville, and all her Majesty's commissioners for the Exhibition, and many other eminent persons—a charming dinner. I must tell you of my visit to the Crystal Palace the other morning, where I have permission to go early, as I cannot encounter the crowd. . . . . On my return from this palace of the genii, a charming Bohemian lady, Madame Noel, took me to a *matinee*, given for the benefit of the distressed Hungarians, for which I had passed tickets and subscribed; but it was a hot crowd with cold draughts. Fanny Kemble recited the divine *Allegro* and *Il Penseroso*. It went to my very soul, where every line was impressed half a century back; but I returned tired and weary. Alas! I feel

"I am wearing away to the land of the leal."  
Still my spirits keep me afloat, and I am good for—  
"A few gay soarings yet."

Poor Rogers! I sat an hour with him the other day: he is the ghost of his former ghost; he talked with compassion of Moore's state, who is now bedridden, and has lost his memory—remembers nothing but some of his own early songs, which he sings as he lies, and which is heartrending to hear by those who are around him.

THE NEW WATERWORKS.—A visit to Stillorgan will amply repay any citizen who takes an interest in the employment of the people, or in the construction of useful public works. The mere curiosity-hunter will not yet find much to arrest his attention: "there are no great banks," no massive blocks of masonry, no deep excavations, no elevated water-towers as yet to attract the notice of the passer-by; but the traveller, as he shoots along the adjoining line of railway, will see many active groups of hard-working men scattered over a field, a portable steam-engine in one place, workmen's sheds in another, engineers' flags in another; and should the train chance to stop, and if he alight and traverse the field, he will find, on closer inspection, deep dykes, which the foreman will inform him are the sites of the future puddle-trenches which are to make the banks water-tight. In another place he will find men blasting rocks, while the whole field is intersected with temporary railways which are almost permanent in the strength of their construction, and along which the masses of earth to be removed for the formation of the reservoir are to be whirled to the surrounding banks. To the unscientific eye the amount of work already executed appears small; but to those accustomed to such undertakings, a brief inspection will show that much has been done, and that the hundreds of workmen who have been employed for nearly a month have not laboured in vain. Apart from the gratification of seeing so important a work thus well and effectively commenced, it is cheering to see so many employed at a season such as this, when wages are scarce, and food dear and inaccessible to the poor.—*Freeman*.

THE LATE JOSEPH LOCKE, C.E., M.P.—His wonderful success had arisen from the application of means to ends. Ends for which the means were not forthcoming had for him at any time but an evanescent interest, and sometimes no interest at all. How best to do something that wanted doing at once was the problem he most cared to solve. He enjoyed the peculiar character of a conflict with what we call inorganic matter. That passive submission to storm and sunshine which, even under the most favourable application of agricultural and chemical science, must be conceded by the cultivator of the soil, that waiting upon the seasons, that taking of time and silent growth into partnership with manual labour, would have irritated his active and monarchical mind. In the execution of the great undertakings of his manhood, it had been one continuous battle against time and growth, in which he could not afford to let them have a moment's truce. Truce meant victory to them, to him disaster. A holiday meant the collection of water and the caving in of a tunnel side. Waiting upon Providence terminated in a breach of engagement. He had been accustomed always to see his enemy and always to have one. He could never have sate quietly down and watched the barometer. He had been accustomed to obstacles enough; but they were obstacles he could compel, or at any rate encounter. Locke died rather suddenly, on the 16th September, 1860, in his fifty-sixth year.—*Devey's Biography*.

PORCELAIN.—The manufactures of porcelain in France is of very ancient date. Gallic pottery was found in antique tombs 100 years ago. In 1555

Bernard Palissy produced the first enamelled pottery manufactured in France. Porcelain was first manufactured at St. Cloud in 1695. Five years later the manufacture of Porcelain was commenced in Austria, Prussia, and Saxony. In the year 1741 porcelain of extraordinary delicacy was manufactured at Sevres. In 1770 the manufactory of Sevres first produced hard porcelain. The gate of the park of St. Cloud which opens on the square of Sevres, near the bridge, will serve as an entrance for the visitors to the museum and to the manufactory. Another gate is to be opened higher up for the artists, operatives, and others employed in the new establishment. A third entrance is about to be opened on the river side. When the director and officers of the Sevres manufactory shall have taken possession of their new building, the old manufactory is to be repaired and converted into a barrack for the pontonniers of the Imperial Guard.

SCIENTIFIC BOOKS.—Messrs. Spon, of Bucklersbury, London, publishers, have just issued a new edition of their catalogue of architectural, engineering and other books, revised to end of year, and extending over forty pages. All the standard as well as very recent publications of worth are to be found enumerated therein. Amongst the latter are "A Record of the Progress of Modern Engineering," by W. Humber, C.E. We may have more to say about it.

PRESENTATION.—On last Friday evening Mr. John Douglas, assistant engineer to the Hibernian Gas Company, was presented (on the occasion of his removal to Portsmouth) with a magnificent epergne by his friends, in the Presbyterian Church, Sandymount, as a token of their affection and high esteem.

BALLYCROSS LEAD WORKS.—The net profit from working of this concern has been £1,399 5s. 7d., a moiety of which has been transferred, as usual, to the "Improvement Fund." During the past half year the sweepings of the new flue have been fully realized, and have yielded a sum of £399 6s. 8d., in addition to the £1,000 placed to credit of this account last half year, making a total of £1,399 6s. 8d., realized from the flue for the year ended 30th May, 1862.

THE BALLAST BOARD.—The late Lord Mayor (Alderman Moylan) and Aldermen John Reynolds and Martin are the three members of the Town Council elected to serve on the Ballast Board during the present year.

NEW ENGLISH CHURCH AT NICE.—The new English church at Nice, was consecrated on Monday last by the Lord Bishop of Gibraltar. It has been built entirely by voluntary contributions, at a cost of £6,400 (including £560 for a temporary church used during its construction), and is both exteriorly and interiorly thoroughly ecclesiastical in design, the architecture being that of the 14th century. It is the most complete English church on the Continent, and is certainly the most so of any in France; it has accommodation for 700 persons, including the organ gallery, and it is built on the site of the old church, thereby securing protection to the burial ground, which will be closed at no very distant period. Funds are also greatly needed for the purchase of an organ, and for an iron railing, to replace a very unsightly wall which was built when the English were required by the authorities to conceal their "temple," and not to allow any Italian to enter its precincts. Subscriptions are received in London by Messrs. Ransom, Bouverie, and Co., and by Messrs. Barclay, Bevan and Co.

SALARY OF THE SURVEYOR OF THE KING'S COUNTY.—The salary of John Hill, Esq., surveyor of this county, has been increased by £100 per annum, the presentment having been sanctioned by the grand jury, and unanimously passed by the justices and ratepayers constituting the presentment sessions court.

NEW USE FOR GUTTA PERCHA.—One of the most ingenious applications recently made of gutta percha is that of forming artificial hoofs for horses' feet. Many skilful devices have been resorted to to attain this result, but the adoption of gutta percha will, doubtless, supersede all others as soon as its efficiency becomes recognised. What is required is a substance possessing the consistence of horn, to retain the nails of the shoe, that will readily soften by heat, so as to mould itself into the required form; that it be indissoluble in water, seeing that the horse's hoof is generally in contact with moisture; and that it be capable of uniting perfectly with the hoof. The gutta percha is first cut into nut-size fragments, and softened in hot water; the pieces are then mixed with half their weight of powdered sal ammoniac, and melted together in a tinned saucepan over a gentle fire, keeping the mass well stirred. The mixture should assume a chocolate colour.—*Cincinnati Gazette*.

THE STEAMSTOWN AND CLARA BRANCH RAILWAY.—This railway is progressing rapidly towards completion, under the skilled and experienced superintendence of Mr. John Bagnall, the contractor, whose reputation has been long since established. This branch line is one of considerable importance, not only from the accommodation it will afford to the districts through which it passes, but generally so as

regards the entire of Ireland; it will bring the north and south into direct railway communication.

PRESERVING PICTURES.—Many valuable oil paintings suffer premature decay from attacks of microscopic insects. The best way to prevent this species of decay is to add a few drops of creosote to the paste or glue that is used to line the pictures; and also to add some creosote to the picture varnish. Paintings should be kept in a pure dry atmosphere. Many valuable paintings that are hung against solid walls of masonry in churches and other buildings, are subjected to a damp atmosphere, and the canvas becomes mouldy. Old pictures which have become blackened, are restored by washing them with deutoxide of hydrogen, diluted in eight times its weight of water. The parts thus touched must be afterward wiped with a clean sponge and water.—*Scientific American*.

NEW MARKET, CORK.—A new and very handsome vegetable and fowl market has recently been opened in this city. The cost was about £2,000, but there are two houses attached, which, it is expected, will bring in about £70 a year each, which, with the rents of the market, will make a very adequate return to the Corporation for their expenditure. The design is very tasteful, while admirably adapted for the purposes intended, and reflects the greatest credit on Sir John Benson, the city architect, who designed and carried out the work.

FUNERAL OF THE LATE PROFESSOR SEIGFRIED.—Yesterday the remains of the late Professor Seigfried were conveyed from his residence, No. 12, Upper Camden-street, to Mount Jerome Cemetery, where the interment took place. The large attendance proved the respect in which the high talents, thorough scholarship, and estimable private character of the lamented gentleman was held.

IRISH CATHEDRALS.—A cathedral is to be built at Belfast, for the diocese of Connor. The Cathedral of Tuam is to be rebuilt, but by the demolition of the present church, a good fourteenth-century building, with some richly-traceried windows. The Dean and Chapter of St. Patrick's, Dublin, have purchased from the authorities of St. Nicholas' parish the north transept of their own cathedral, which has been for a long time used as a parish church: this is to be rebuilt, and again added to the cathedral, now being restored under the direction of Mr. B. L. Guinness, the eminent brewer, who is said to have expended already £80,000 on the work, being his own architect.—*Athenæum*.

A NEW CATHEDRAL.—Another building, soon to be erected in Cork, is the Protestant Cathedral of St. Finbar's. The competing designs for this structure, nearly seventy in number, have for some time past been exhibited in the Athenæum. Some of them are of surpassing beauty. The aspirations of competitors were somewhat confined by the condition that the cost was not to exceed £15,000, but I anticipate that this limit will not be too strictly adhered to either in the design or the erection of the Cathedral.

WESTMINSTER BRIDGE.—By a recent return of the expenses incurred in erecting Westminster Bridge, the outlay is given as £393,189, of which £145,057 went to contractors, and £248,132 to other parties. The approaches cost £109,054. It is worthy of note, that long before Labeyrie's bridge was erected the place of crossing was known as Westminster Bridge.

LORD ROSSE'S TELESCOPE TO BE EXCELLED.—A new company is projected for the construction of a telescope of much larger dimensions than that at Parsonstown Castle. Where—does not yet appear.

## TO CORRESPONDENTS.

J. F. (personally in course of current month).—F. L. (attended to).—T. J. (shall be glad to have photographs, of desirable subjects, as suggested).—A Subscriber, Sligo (we purpose giving it consideration shortly).—J. S. Bruff (proposed Irish price-book in preparation, and due notice of publication shall be given).—S. M. N. (submit the paper, and we will write you if we accept or decline; we cannot anticipate its merits).—"Clerk of Works" (send short notice).—W. R. P. (not just now).—Old Subscriber, Dublin (it does not follow as a necessary consequence that we should illustrate a building because the work of "an Old Subscriber;" let us examine its merits, and you shall hear).

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Mr. Lyons also holds commissions for supply of Caen, Glasgow, Bath, Forest of Dean, and Welsh building stones.

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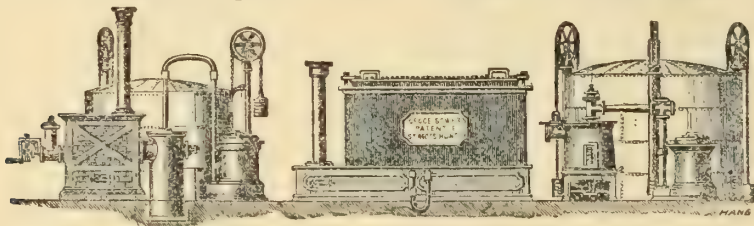
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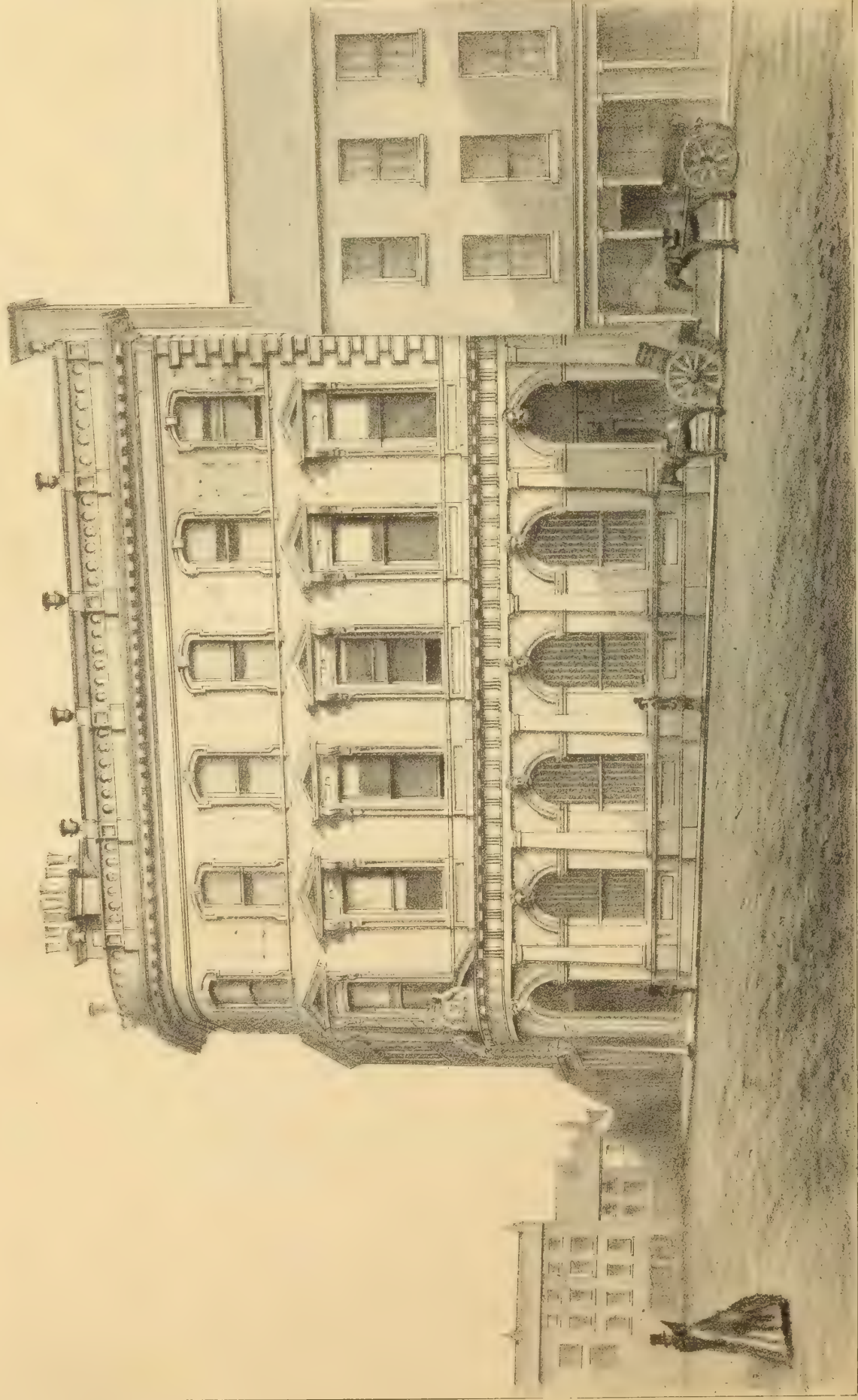
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VOL. V.—No. 75.

## ART EDUCATION.

**W**HEN some years ago a gradual change took place in architectural taste, and some leading men, looking back to the glorious works of the middle ages, studying their grand proportions and beautiful details in mouldings, statuary, and ornamental carving, were led to adopt them as their models, rather than the miserable styles then prevalent, great difficulties had to be overcome. There were no workmen competent to carry out Gothic mouldings and carvings with truth, or to express properly their feeling. It had taken three hundred years to forget an art which spoke to men's better feelings—an art which was a language, expressing great and sublime ideas, telling how its masters thought, and by what noble principles they were influenced. To learn and understand it was to learn a dead language—the difficulties were so great, the application required so intense. To translate, or even to speak accurately, a foreign tongue may be acquired with diligence; but it takes years to be able to make that language our own, so as to think in it. At first the revival of Mediæval architecture was simply imitative; all sorts of expedients were used for the reproduction of mouldings, tracery and ornament—cast iron mullions, plaster crockets—shams of all kinds were adopted. But the new light had dawned, and was presently to shine forth in its ancient brightness. As when truth takes the place of long existing error, its voice is first feeble, but in the end, being great, it must prevail. The early architects of the revival were as children: they saw and admired with child-like simplicity and joy! As children sit gazing in a parent's face to learn the workings of his inward feelings, so did they, from contemplation of the works of ancient masters, get a glimpse into the principles which produced such noble results. The work was slow—they first learned their alphabet (so to speak), then their grammar, and at last acquired thoroughly that language which for ages had spoken of high things, religion and patriotism, with the exercise of the virtues peculiar to each.

In France, Germany, and in England, has sprung up a race of men who, having learnt the principles of ancient art, are now applying them to the altered state of circumstances and the wants of modern times. Not to speak of the various developments which have arisen, or to criticise any particular school, let us briefly trace the method by which men were trained to think aright, and to carry their thoughts into execution. In Germany, art had a royal patron, and King Louis of Bavaria was the fostering father of the revival. Not contented with spending money, he gave his personal attention, treating with kindness and consideration those artists who gave themselves to the work. Painting and sculpture have, under his care, made marvellous strides; and Munich, Spire, and other cities in Bavaria, can show large works, which prove that the spirit of the ancient masters lives again. The German artists are an humble race of men, who work for love of their art, not altogether for worldly gain and rank. In their studios, surrounded by their pupils, who look up to them with respect and veneration, they are as fathers in the midst of children, imparting freely that instruction they are so capable of giving. Nor are they content with being simply painters and sculptors, they love literature, knowing well that all information renders the mind capable of entertaining large ideas on any subject. So have they reading societies, where they meet in the evening, one reading out for the benefit of all; subjects are freely discussed, and generally from such points of view as to bring them to bear on their profession. The Munich life, with its innocent enjoyments, is, perhaps, the most congenial to the formation of a school

of art; and whatever may be the differences of opinion as to the style adopted by that school, all must confess that we are indebted to it for the vast improvement wrought in the knowledge and taste of the public. Munich, Dusseldorf, and Ratisbonne, have sent forth into the world good and cheap engravings of ancient and modern works, whether religious or profane, which have been and are of great assistance to the student. In France, Peré Martin has published works, illustrating from ancient examples metal work, carvings in stone, ivory, and wood, as well as faithful copies of some of the best existing stained glass. In that country the revival of art, of a school different from the German, more severe in its principles, and adhering more closely to the ancient examples, has been great and rapid, though side by side with it exists still a style of modern growth, which it is to be hoped will in time be overcome by the spread of better principles. Here, as in Germany, the revival has been brought about by a study of ancient monuments, whether in painting, sculpture, or architecture, and by the student learning from old examples, till he had mastered the ancient ideas of his branch of art; and then, by applying those ideas according to true principles, but in new forms and to meet new wants. In all countries the method of education has been the same. It has been, and must be mainly self education. The information gained, the principles enunciated by the first masters of the revival may be taught, and communicated, but without individual study and observation—without a constant reference to ancient examples, no real excellence can be attained. The boy who at school learns his Greek and Latin grammar, his Euclid, his geometry, is not educated; he has but learnt those rudiments by which in after life he educates himself. Education is the application of information or knowledge—it is not the acquisition of them.

This application which teaches the mind to think and reason, and the powers, over which the mind exercises control, to act, commences, under a good school-master, very early; but whatever degree of excellence may be attained rests entirely with the pupil himself. Nor is the education of an artist different from that of a mathematician or a classical scholar. The same principles govern both. There is one difference, however:—The artist has to add to his mental work, manual dexterity. This does not in any way interfere with the principle for which we are contending. It was Raphael's *mind* which made Raphael great. His proficiency in the mere mechanical part of his art was, perhaps, not greater than that of many painters of far less talent and distinction. We do not, by these remarks, wish it to be understood that we undervalue the mechanical part of any art. What we wish to enforce is, that high mental culture, *education*, is the source of everything great in art—that without it all productions are tame and lifeless. A photograph is an exact copy of nature; but does a photograph represent the human being as truly to us as a portrait well painted by a clever painter? In the one you have the actual lines and shadows, the perfect form; in the other, you have the mind, the immaterial part of the man, represented in what is termed the expression—to give which often involves, in some way, a departure from the real. A good painting is not a *copy* of nature. In illustrating, say, a passage from Shakespeare, what does the artist aim at?—To convey the *spirit* of the author. He will make everything subserv to this end. Having pigments which do not, and cannot, truly represent the colours of nature, or light and shade, he is obliged by contrasts to produce an effect *similar* to nature; he must, as really as an actor does, understand and feel the passions he depicts, and his composition, when finished, is a grand rendering of the workings of the human feelings, not simply a copy of human forms. It is the creation of an educated mind, not the work of a skilful copyist.

The same landscape may be painted by two men; both paintings may be equally accurate, both equally well painted as regards the mechanical part—the one will be cold and uninteresting, the other full of truth and beauty; the one will tell only of man's impressions, the other will show forth, as it were, the glory of the Creator, apprehended by that high and divine

principle which He has implanted in man, and by which man holds communion with Him through his works. The gentle breeze will be felt, but who can paint the wind? The genial warmth of spring will cheer the spectator, but who can paint heat or cold? Yet all are there. What is the difference between these two paintings? The one is the result of knowledge, the other of education.

Considerations such as these lead us to reflect on the best method of educating those who are employed in any business for the carrying out of which art is required. Stone carvers, plasterers, painters, should all have a knowledge of art applicable to their peculiar trade. The Royal Institute of Irish Architects is about to re-commence its sittings. We look to it to assist in the advancement of so important a work. In Dublin there are stone carvers who can handle their tools with great dexterity; there are many who have reached a high state of proficiency. For the education of their class much could be done, which at present is wanting; the same remarks apply to plasterers and painters. The plasterer should be a modeller, and to be this he must educate himself by studying ancient examples in the various styles of ornament. Should house painters be mere mechanics to lay on paint? Is not the true and pleasing arrangements of tints and colours one of the most pleasing branches of art? Whatever is worth doing, is worth doing well. Grainers and marblers can attain a wonderful degree of excellence, as may be seen by specimens in the Museum of Irish Industry. Glass painters too, decorators—all require to have their minds developed by education, their information extended by observation. The Society of British Architects has a museum of ancient casts of figures and ornaments, drawings from Mediæval glass, &c., and to this museum or school any one can obtain access to study and copy. Why cannot such a school be opened by the Irish Architectural Institute? Why cannot papers be read by competent persons on the various subjects required for the adornments of buildings, whether religious or secular? We once before, briefly treating of this matter, stated that it was one which we hoped would be taken up by the noble promoters of the Exhibition building. We shall recur to it again, feeling so deeply its great importance to the advancement of art, to the benefits of workmen, and to the gratification of the public.

## ABANDONMENT OF THE STEPHEN'S-GREEN "PARK" PROJECT.

THE opposition of a section of the philanthropic and enlightened (?) inhabitants of Stephen's-Green to the admitting of their hallowed territory as a public park, has so far triumphed, that on Saturday, the 24th ult., the committee for that purpose were compelled, at a special meeting, to announce the abandonment of the project, and directed the treasurer to refund to the contributors the respective amounts forwarded. The commissioners of the Green, having *politely* "declined a conference" with the Lord Chancellor, the Lord Mayor, the Right Hon. Joseph Napier, Judge Fitzgerald, Mr. Guinness, &c., &c., received a written proposal from the committee who offered "to cause the Green tax finally to cease; to pay off the debenture debt of £2,400; to relieve the commissioners from liability of rent of £276 18s. 6d. annually—the terms to be ratified by an act of Parliament. The answer to this was "that the commissioners decline to throw open the Green to the public." Concurrently with this project was that of the "*Albert Memorial*," and the Committee have wisely, and with good taste, determined that "the memory of the Prince Consort should not be associated with any project that would cause disunion or dissatisfaction amongst any portion of the public. The Albert Memorial Committee must now, therefore, look *elsewhere* for a site for the proposed structure, plans for which will shortly be sought. Will they accept the offer of the Royal Dublin Society? Might it not be worth their consideration instead of *returning the money* subscribed towards the opening of the Green, to seek permission for its appropriation to the *formation* of a park in some site contiguous to the city, where ground may be had at a moderate rate; for instance, the waste space between Annesley and Ballybough Bridges, which might be reclaimed without heavy outlay and enclosed in? This area, now totally unprofitable, and likely to remain so, would form a spacious and conveniently situated park for the North side.

The Committee have about £5,000 at their disposal, and we doubt not that a greater sum is obtainable.

## THE RESTORATION OF ST. PATRICK'S.

WE (*Freeman*) perceive by the last issue of the *DUBLIN BUILDER* that Mr. J. J. McCarthy has taken exception to certain comments made by us in an article which was recently published in our columns on the "Restoration of St. Patrick's Cathedral." We almost feel pained that any person connected with the city of Dublin should have felt himself called upon—even in support of his own peculiar views, which were not assailed—to condemn works undertaken in such a spirit, and to declare "that works of the last three centuries have been religiously restored in all their hideous deformity." Assertions such as these certainly do not speak "a candid and unbiassed spirit." We would ask the writer of the letter to which we refer was there in all the works at St. Patrick's nothing meriting praise—not the masonry, the simple mechanical part? Mr. McCarthy, we observe, has no word of laudation—all is bad. "A question might," he says, "arise as to what a restoration really is—whether it means a reproduction of every feature, good, bad, or nondescript, or a judicious eclecticism which would eliminate all decidedly bad and incongruous details, and replace them by others in harmony with the more perfect parts of the building." A "restoration" is not simply a repairing, still less is it eclectic. A "restoration" is the reproduction of what once existed—not the bringing in of new elements. Once admit the eclectic view, and there is an end to "restoration," properly so called. Such restoration represents the peculiar views of one man or a party of men, and these parties in the "ecclesiological school." Suppose an architect were called upon to restore, for instance, Peterborough Cathedral, if he belonged to the "severe school," and public opinion were not against him, he might propose the removal of the grand west front as not being in keeping with the other parts, which are Norman. He might also wish to remove the late tracery from the windows. His eclecticism might lead him to this, and if the eclectic principle be admitted who could find fault with him? Why, then, blame the reproduction of the "Tudor" pinnacles of St. Patrick's? They have existed for a long time. The Tudor style is an admitted style, though not admired by some ecclesiologists. If, however, these pinnacles had been removed what should have replaced them? One ecclesiologist would select one style of finish, another another. Would any two Dublin architects left to themselves select the same? And who is to choose between them? Where is the authority? The Tudor pinnacles were there, and Mr. Guinness rightly had them restored. Had he wished to build a new St. Patrick's on the site of the old one, he would, doubtless, have employed an architect to give him plans; but this not being his intention, he thought himself capable, as he is, to see what in the building belonged to any acknowledged style of pointed architecture restored and put in good repair. On the whole, St. Patrick's is beginning again to look what we can assume it was four centuries ago. The nave is restored almost exactly as Mr. Carpenter proposed, the only exception being that he omitted the triforium. And this leads us to a criticism, the notice of which will be sufficient to show the reliance to be placed on the statements and dicta of Mr. McCarthy's letter. It was discovered that to build the groined roof of the nave in brick or stone would involve the necessity of pulling down and re-building the north side of the church. This, for obvious reasons, was not done, and the old groining was, therefore, produced in timber and plastered. Mr. McCarthy says, in the letter we notice:—

"There was another instance in which the assistance of an experienced architect of the ecclesiological school was needed. Some of the springs of the ancient joining of the nave remained attached to the clerestory walls. It was found that if the curves of these springs were continued they would cross the clerestory windows. The builder hit on the ingenious device of making the arches trefoiled, thus surmounting the (to him) apparent difficulty presented by the height of the window, but producing an unique style of groining, which, fortunately for its stability, is executed in lath and plaster, as it certainly would be an impossibility in stone. An architect of the ecclesiological school would have solved the difficulty (if any there really was) differently."

Now it should be remembered, that he, throughout his whole letter, speaks in the highest terms of the late Mr. Carpenter (who, no doubt, deserved his praise):—

"Those who have seen Mr. Carpenter's plans, and have compared them with the works at present in progress, must see how great has been the loss to St. Patrick's that the views of that gifted artist have not been realized."

He recognises in him a great leader of the ecclesiological school, as he decidedly was. Had St. Patrick's been rebuilt according to Mr. Carpenter's plans, it would be all that Mr. McCarthy could desire. Mr. McCarthy's commentary on the nave ceiling says:—"The builder hit on an ingenious device of making the arches trefoiled." We have seen Mr. Carpenter's plans, and we find that he proposed to restore the roof, as it has been restored, except that he would have attempted what Mr. McCarthy says would have

been an impossibility. He would have restored it in brick, a thing as difficult as to restore it in stone. The following is what Mr. Carpenter says on the groining of the nave roof:—

"The groining of the nave ceiling was very peculiar. I do not remember an example at all approaching it, except the nave of Lichfield Cathedral; even it differs very considerably from this. The wall arches formed trefoils round the heads of the clerestory windows, while the groin to cross springs were circular, as usual in buildings of this date."

Not to the builder's ingenuity, but to "poor Carpenter," are we indebted for this really "unique style of groining," and if the people of Dublin, of Ireland, have any gratitude they will thank him for preserving this beautiful peculiarity in their great national church. Had the work of "restoration" been committed to Mr. McCarthy, it is clear, from his own words, that we should have lost it for ever. The eulogist and the object of his eulogy do not agree. Who is right? Of what value, then, are the few other exceptions taken to the present restoration, when a "judicious eclecticism" would have departed from what really was the ancient style of roofing of the nave of St. Patrick's? No work is so perfect but that some will find fault with it. On the whole, let any unprejudiced man inspect the works at St. Patrick's. If he be not a partizan of some "ecclesiological school," he will, when he remembers what it formerly was, lift up his eyes in admiration, and give that just and righteous praise which is due, first to the generous acts of a gentleman of refined and enlightened taste; and afterwards to the practical talent and untiring energy of one who has falsified every prophecy in hitherto conducting the work of restoration so well, safely and without accident.

SIR—I was painfully amused at reading what you aptly term "the critical" letter of Mr. McCarthy on "the restoration of St. Patrick's," and at the wholesale condemnatory tone adopted by that gentleman towards anything and everything, and everybody connected with the works, as well as at the unmistakeable animus displayed throughout his verbose communication, as at the vapid and ostentatious line of argument adopted for the maintenance of "his own peculiar views," which seem to have been both hastily and erroneously acquired. Without constituting myself, in the same *sans froid* fashion of your learned critic, to be a "leader of the ecclesiological school," or without arrogating to myself a position to which my professional antecedents and success in rearing structures of unquestionable beauty—to which the unfriendly critic can fail to point a scornful finger—should properly entitle me, I beg, nevertheless, to offer a few remarks on the interesting question under discussion. Since Mr. McCarthy's letter appeared in your last issue (for the improved excellence of which permit me to offer you a passing word of congratulation), I revisited the cathedral, to make "assurance doubly sure," and succeeded in obtaining a first view of Mr. Carpenter's ("poor Carpenter's") plans for the restoration of the cathedral. In common sense may I ask, did such plans ever comprehend a restoration at all? Did not this *ne plus ultra* leader of the ecclesiological school contemplate by such design the total rebuilding of the exterior with features perfectly dissimilar from the then or the now existing structure? Has not even the first portion of this rebuilding been actually perpetrated at the east end, and with what success, either as regards design or execution, also let me ask you?

The question then is, is "restoration" a "rebuilding"—is "rebuilding" a "restoration"? were the old features of the ancient and venerable St. Patrick's to pale before the modernizing hand of "poor Carpenter," who, your critic says, "in 1848, caused most accurate admeasurements to be made of the structure as it then stood, after which, in some months, he furnished plans of exquisite beauty for the restorations? And this, too, under the auspices of a highly learned architectural committee of bishops, dukes, lords, deans, doctors, and amateur artists, ecclesiastic and civilian? Will Mr. McCarthy have the goodness, for the enlightenment of your readers and of your humble servant, to single out one individual from this committee, except the venerable antiquary, Dr. Petrie, who was competent to pronounce an opinion, much less to guide a great "restoration" work? And to what extent did this respected exception interfere by counsel or otherwise in the proceedings for the so-called "Carpenter restoration?" And what may now, perchance, be his opinions as to the subsequent works, and those now in progress? Will the learned Doctor, whose name has been very unenviably dragged into this discussion, say? In what did the points of "exquisite beauty for the restorations" on Mr. Carpenter's plans consist? I, for one, have failed to discover them, though I, too, am willing "to concede a technical objection,"—viz., that had his plans for rebuilding the Cathedral been carried out in their entirety, they would, doubtless, have ensured a more

uniform and a handsomer building, than that on which "the Catholic churchmen and architects of the 13th, 14th, and 15th centuries left their marks," as did also "the great Earl of Cork, Strafford, Cromwell, and many a Vandal destroyer." But would not this have been at the total sacrifice of that lofty principle of restoration only, which has actuated Mr. Guinness in this noble undertaking? Can there be a more conclusive evidence of the unambitious and pure spirit that prompted this work?

Would not the same argument apply to the employment of any other of our Mediæval architects as well as Carpenter, a McCarthy (himself), a Pugin, a Deane, an Ashlin, a Lynn, a Goldie, a Byrne, a Bourke, for instance, to direct the work of rebuilding? But this is wandering from the real question of restoration, for which your critic observes "there could be no more successful means of obtaining information than—firstly, photography; secondly, close and careful investigation."

Mr. McCarthy has been, however, admittedly unable to discover the application of the former art to the restorative works, "except in the foundations or a portion of them."

"Photograph foundations!"—"or a portion of them!" Will Mr. McCarthy tell us how this mysterious feat of the camera is assumed by him to have been accomplished; for, in truth, I am bewildered in contemplating the discovery? But the old adage, "that we are never too old to learn," comes in appropriately here, and I shall hope for some immediate information as to "the photography of foundations."

I am not altogether surprised that when your critic advocates "the exquisite beauty of 'poor Carpenter's' plans," he condemns everything that has been executed not thereon provided; but when he rails at the very features in the recent restorations which are thereon distinctly shown, but which in the profundity of his archaeological lore he pronounces only to be "an ingenious device of the builder" to get over a difficulty, I cease to follow the thread of his discourse.

Will Mr. McCarthy be pleased to refer again to Carpenter's plans, and I promise him that he shall see thereon the identical trefoil roof—not in lath and plaster, but in brick and stone—the construction of which he pronounces to be "an impossibility." Surely "poor Carpenter" must have been sadly at fault to attempt what his admirer and defender pronounces "an impossibility."

Did Mr. McCarthy ever visit the Cathedral previous to the commencement of the Guinness restoration? and if he did, did he notice the great overhanging of the south wall of the nave, the dangerous state of which was, I believe, the first suggestion towards this restoration? Did he visit it as the works progressed?

Did he notice the actual remains at the transept of the original trefoil stone roof, the outline of which was faithfully followed by Mr. Carpenter, and as faithfully carried out now in lath and plaster by the builders in charge of the works?

Where, then, is "the ingenious device?"

What served to push the original south wall so alarmingly out of the perpendicular but this very original trefoil stone roof, this impossible construction—fragments of which adhered to the walls, as stated above? and why is it not, under the "Guinness restoration," reproduced in brick and stone, as contemplated by Carpenter, and not in lath and plaster? The answer is simple: the total rebuilding of the north as well as the south wall (now rebuilt) would have been necessitated to sustain the thrust; and to incur this expenditure, I presume that Mr. Guinness felt disinclined; but further than that, I see not a particle of impossibility in its construction in the heavier and more permanent material, a question I submit fearlessly to any member of my profession, or to any practical man.

And what has become of "the ancient rood-screen?" quoth Mr. McCarthy? The "ancient rood-screen,"—that venerable and interesting relic of undoubted antiquity—east of which, "during many long years, the services were very comfortably conducted."

Surely Mr. McCarthy cannot seriously refer to the unsightly modern structure through which access was obtained to the organ loft, and on whose walls the organ rested as "the ancient rood-screen"—as a "venerable and interesting relic of undoubted antiquity?" If so, will he be startled to learn that its antiquity does not date back farther than the 16th century, and that of the existence of any "ancient rood-screen" whatever, there is not a single record in the annals of the cathedral. If not, to what other structure does he refer?

Did Mr. McCarthy, in the profundity of his archaeological lore, ever know a rood-screen to include a transept with the choir, as this did? and if so, where?

Another cause—in your "critical" correspondent's opinion—for exception to the present works, is the irregularity of the springing shafts of the groined

ribs between the nave and north aisle, to which he alludes in the following terms:—

"There, as the *Ecclesiologist* observes, the pillars were doubtlessly plain octagons, and for this reason, by one of those *strange irregularities* so often observable in mediæval churches, the springing of the groined ribs of the nave ceiling did not come centrally with the piers between nave and aisles. The consequence is that the shafts, which would otherwise have sprung from the nave floor, spring from a corbel in the triforium stage. The south sides of the piers were thus left without those *slender shafts* observable in other parts of the cathedral, and, to give consistency of character to these piers, the second or under-order of arch mouldings were made to spring from corbel shafts. These corbel shafts were being removed when I visited the cathedral, and their places supplied by entire shafts of *gross proportions* and *coarse details*."

"The pillars were doubtlessly plain octagons"—what pillars?—piers, I presume, and the groined ribs of nave ceiling did not come *centrally* with piers between nave and aisles. Here is a sweeping assertion, and no mistake! Can Mr. McCarthy not conceive that the ruthless destruction by Vandal restorers and by "Catholic churchmen who left their marks" upon the building, was the certain cause of the piers showing plain octagon, and denuded of their graceful clustered shafts, traces of which, as you, Mr. Editor, say, "were found in a perfect state beneath the floor of the church?" and again is he unmindful that the cause of the groined ribs not descending *centrally* on the piers between nave and aisles, is palpably, that the westernmost portion of north wall of nave, to the extent of four bays, was rebuilt after the fire that took place in 1362; and by some "Vandal restorer" so *irregularly* and so *clumsily*—one bay being much larger than the others,—that when in "the Guinness restoration" the ceiling ribs came to be united with the vertical shafts, it was found necessary, as well as expedient, to drop the latter on corbels on the spandrels, in triforium stage, else in their continuation they would meet the ope, and *not* the pier, as originally. Strange irregularity, no doubt! but a simple matter of history withal, of the particulars of which Mr. McCarthy could have satisfied himself were he in an enquiring vein.

The "shafts of *gross proportions* and *coarse details*" referred to, happen to be a precise reproduction of "the *slender shafts* observable in other portions of the Cathedral," as may be ascertained by comparison of the sectional moulds!

Proof is challenged for "an authority for the sham ashlar of the wall plastering," and with some curiosity I sought it, and found on the east wall of the south transept ashlar courses identical therewith in the original stone work; a precedent, I must say, to my mind sufficiently conclusive for the builders to imitate throughout the remainder of the building.

Added as evidences of "this restoration are the pinnacles of the side buttresses—imitations, evidently, of the weakest, worst, and feeblest Tudor architecture, consisting of square masses with shallow panels, surmounted by pyramidal lumps of stone, unrelieved by *crocket* or *finial*."

Granted that they are *ugly, intensely ugly!* but was it Mr. Guinness' duty to remove them?

Will Mr. McCarthy hear now (for the first time, doubtless,) with surprise that one of these lumps "of hideous deformity" was actually restored under "the Carpenter restoration?" Why? we know not, but the fact is incontrovertible.

Where, may we claim permission to ask him, were "the crockets and finials" on the ancient buttresses, or even on those of the Carpenter restoration? How consistent would have been these *decorative* addenda to an early Gothic church!

On "the style" of the workmanship I must, before closing this (I fear too lengthy) communication, offer a remark. Mr. McCarthy assails it, in some respects, as *lifeless, coarse, and clumsy*, that "cunning hands" were not employed thereon, &c. It is very difficult to controvert a statement so positive, but I have failed to find in any one of Mr. McCarthy's *own* ecclesiastical buildings in Dublin,\* Irish town, Waterford, Wexford, Armagh, Derry, &c.—with all of which I am familiar—better, or *as good*, workmanship in my judgment; and I should be glad to earn—since Messrs. Murphy have not earned Mr. McCarthy's approbation as skilful builders—what that gentleman's definition of unexceptionable workmanship is, and where it is to be found in buildings of similar character—his *own* or otherwise?

I would refer to certain *awkwardnesses* in certain ecclesiastical structures, that, from time to time, have formed subject for comment—nay, *more*, but abstain from what might be construed into a personality. Perhaps, however, I may with propriety suggest a reference for the consideration of would-be caustic "critics" to the admonition transmitted to *all* mankind of *every* generation, and from no less an authentic source than *Holy Writ*, viz., "*Ille qui sine pecca-*

*tum est, primam lapidem jacet!*" (trans.—Let him that is without sin cast the first stone).

I shall not stop to inquire into the question of Mr. Guinness not having secured the services of "an experienced architect of the ecclesiological school, as, being a member of the profession myself," I could hardly pronounce "a candid and unbiassed" opinion thereupon; but, I apprehend, that had he departed from the course he adopted, he would have found much difficulty in satisfying the cravings of some extreme disciples of the ecclesiological school, ever ready to snatch from each other, as some of them are to be "critical" and captious, about everything, and everybody except themselves; and I doubt much that if even he had, the result would have been blameless in your correspondent's estimation, who, if rumour speaks correctly, has unwisely permitted himself to be the mouthpiece, on this occasion, of a jealous and prejudiced *coterie*.

#### AN ARCHITECT.

[The foregoing was in type before we received the following communication from the contractors for the works at the Cathedral, and several references in the two documents are strikingly coincidental, though proceeding from independent authorship.—ED. D. B.]

SIR,—A communication having appeared in the DUBLIN BUILDER, for 15th ult., signed "J. J. McCarthy," relative to the restoration works in progress at St. Patrick's Cathedral, we, in our position of contractors for same, being violently assailed, are personally concerned in the truth or falsehood of certain allegations contained in that document, and we feel assured that, in a spirit of fair play, you will permit us to offer some observations in reply. Engaged in the restoration of a national monument in which every enlightened person in the community must feel a deep interest, we are far from imagining that what we have done is not fairly open to legitimate criticism "conducted in a candid and unbiassed spirit," and "keeping truth and consistency ever in view." We propose to examine how far "truth and consistency" are kept in view in the communication referred to, and to ask those who feel so far interested as to follow our remarks to judge for themselves how far "a candid and unbiassed spirit" or a spirit of a much less creditable nature may have suggested the charges to which we are about to refer. Mr. McCarthy, in paying a well merited eulogium to Mr. Carpenter, laments "how great has been the loss to St. Patrick's that the views of that gifted artist have not been realized;" also, "that works of the last three centuries have been religiously restored in all their hideous deformity, while original and perfect works of the earlier and better period have been ruthlessly destroyed to make way for unauthorised and unnecessary features. If these charges were well founded—in fact if there were even a shadow of foundation for them, we should consider ourselves and all concerned open to the reproach of vulgar barbarism, alike disgraceful to the age and to the country. With an adherence to that "truth and consistency," which will be further illustrated, Mr. McCarthy conveniently avoids mentioning a solitary instance where "original and perfect works have been ruthlessly destroyed," or where "hideous abominations have been religiously restored," unless we accept as an example what he says of the "side buttresses, imitations of the weakest, worst, and feeblest Tudor architecture, &c." Now, in reply to these charges so deliberately and emphatically made, we must as deliberately and emphatically state that the plans for the restoration made by Mr. Carpenter, whom Mr. McCarthy lauds so highly, that every other person and thing included in his sweeping denunciation may appear blacker by the contrast, have not only been strictly adhered to, but these very buttresses referred to have been *built exactly* according to one finished under his (Mr. Carpenter's) own superintendence. So much for Mr. McCarthy's "consistency!" Let us now examine into his truth! Professing to give a few examples of "destructions," and referring to the arcade between the nave and north aisle, he says—"These corbel shafts were being removed when I visited the cathedral, and their places supplied by entire shafts of gross proportions and rude details." Here is, at least, a distinct charge which can be grappled with, and our reply is, that it is simply, absolutely, unequivocally untrue! We invite the inspection of any unbiassed person in order that in this case a judgment may be formed of how far Mr. McCarthy's unsupported assertions may be relied upon. Again he says—"Let us take another example of destruction—what has become of the ancient rood screen?" Passing by the ill-natured sneer which follows this question, we have to remark that Mr. McCarthy must (or ought to) know only too well that we found no "ancient rood screen" to destroy; the pile of rude masonry which separated the transepts and choir from the nave, and which supported the

organ, intercepting the view, was not only *not* a rood screen, but was not even in the position which a "rood screen" should occupy, as Mr. McCarthy should have known also. The only other really tangible objection we can discover in Mr. McCarthy's general denunciation of every thing is one which, if it had any foundation in fact, would be a very grave one indeed. This refers to the restoration of the nave ceiling with which you, sir, in your painstaking inspections and your periodical notices, have already so ably dealt, quoting Mr. Carpenter's own words in proof, that the present restoration is precisely what he intended, and we have further to add, that the present restoration is the *only one possible*, having regard to the ancient wall ribs, springers, and spandrels attached to the walls, and which absolutely determined the outline and form of the ancient groins. Mr. McCarthy says that an "architect of the ecclesiological school" was needed here to set matters right, and he then makes the following remarkable assertion:—"The groining, fortunately for its stability, is executed in lath and plaster, as it certainly would be an impossibility in stone;" and again that mysterious being, "the architect of the ecclesiological school," is appealed to. Now, sir, the astounding ignorance of the simplest principles of constructive architecture betrayed by Mr. McCarthy in this statement acquires an ominous significance when considered in connection with the history of certain unlucky structures, some of which we may remind him of, viz.—the Dominican Church of St. Saviour, whose columns crumbled with their own weight; that unhappy structure at Irish-town, "the Star of the Sea;" the still more unhappy chapel at Kilsyre, the new church in Derry, whose tower, according to the DUBLIN BUILDER,\* will not only not carry a spire, but must be itself taken down; or the convent chapel at Richmond, whose propped-up walls, held together with iron rods, mournfully illustrate the competency of their architect. It is unnecessary to add to the list. We must, in justice to Mr. McCarthy, admit that the "Vandal restorers" must plead guilty to one of his charges—they have been guilty of the Vandalism of terminating the gables of the venerable cathedral with the graceful, and still more venerable, *Irish cross*; but we can easily imagine that Mr. Guinness, whom we do not presume to champion, will await with equanimity the verdict which an enlightened public will pronounce upon the "Vandalism" that suggested the graceful homage to *national sentiment* contained in the elevation of the symbol of the ancient *national* faith on the renovated summits of our *national* cathedral. "Dulness and mediocrity" must bear the blame of this, whilst "genius" alone was capable of slavishly *copying* a cross from Brandon's book of examples, and placing it on the summit of St. Saviour's, in Dominick-street, or of decorating its gable with a poor window from St. Clotilde's, in Paris, or adorning its portal with a *horrid caricature* of the symbol of the Dominicans, when the passers-by were amused or disgusted for some days by the spectacle of two dogs in stone, with jaws desperately clenched on something like "mutton bones," while they grinned in ghastly unity from each side of the doorway. True, they were speedily removed, and many other similar "details" shared their fate, as the funds of the church can testify. Would the late Mr. Pugin, whose last work was the *design* of this church, have approved of the "judicious eclecticism" which has altered the features and proportions of what he, no doubt, left perfect? Having now disposed of everything like a tangible charge in Mr. McCarthy's long letter, let us group together a few of his expressions, supported solely by his own personal authority viz., "May it (the chapter house) long remain a reproach to the perpetrators of the deeds now being done in other parts of the cathedral. The present restorers of St. Patrick's are earning for themselves a pre-eminent place among the latter (Vandal restorers). It needs only to carry into effect the suggestions of your contemporary (the *Freeman's Journal*) to entitle them (the restorers) to the first place among the former (Vandal destroyers)," also "the lifeless, coarse, and clumsy treatment of these details." Now, after such a sweeping denunciation, we may be permitted to inquire what is the value of the opinions so dogmatically expressed? Is Mr. McCarthy a master whose *dicta* must be received as authority? Does he appear clothed with the authority with which structures built, faultless in proportions and construction, and elegant in detail, would reasonably endow him. Where shall we seek for the source of that authority? Shall we

\* "The Roman Catholic Cathedral, a spacious Gothic structure, is approaching completion, from designs, and under the superintendence of Mr. McCarthy, architect. We learn, however, that the original designs were prepared by a professional predecessor, and a large proportion of the shell erected under his directions; an explanation due to Mr. McCarthy, as grave errors in building the foundation seriously affect the stability of the structure—the tower especially, where the settlements are truly alarming; so much so that its sustaining itself for a lengthened period would almost seem questionable, not to speak of raising a lofty spire thereon—a certain physical impossibility."—From the DUBLIN BUILDER for April 15, 1862.

\* In Dublin, say St. Saviour's, and admit it as an honourable exception in point of workmanship, because of eminent English artists being engaged thereon; but who was the architect—Pugin or McCarthy? Did the latter ever *design* or *detail* a single feature of that work—*design*, I say, *virtually*, not *nominal*ly.

seek for it in the clumsy and absurd incongruities in the addition to the chapel in Whitefriar-street? Shall we seek for it in the "Star of the Sea," at Irishtown, where the architect, in making a reduced copy of St. George's in London, has, with marvellous ingenuity, absolutely succeeded in eliminating from the copy every vestige of the grace of the original? Shall we seek for it in the dismal details of the still more ghastly interior of this melancholy structure? Or rather shall we find it in the new Cathedral of Armagh, designed and almost erected by poor Duff, but since consigned to other hands, which have contrived in its completion with mournful success, to totally invert the order of architectural chronology, placing in juxtaposition the most jarring and incongruous features, and with a ruthless "eclecticism" for ever obliterating all traces of the harmony and fitness imparted to the original design by its unfortunate author? Or, finally, failing to discover anywhere a shadow of authority for this reckless and indiscriminate abuse, are we not justified in classing it with the logic, not of the "ecclesiologist" but of the "fish-fag" school? In conclusion, sir, as we must look to intelligence of a higher order than Mr. McCarthy possesses to understand and appreciate the risks we have encountered and the difficulties we have overcome in the discharge of the duties assigned to us, we shall calmly await the verdict of public opinion relative to the manner in which we have discharged these duties; we shall even invite the criticism of that exquisite creature, the "architect of the ecclesiologist school" when he makes his appearance amongst us, and we shall hail his advent with satisfaction if he shall only exhibit a moderate regard, not for consistency—that might be too much to expect—but for simple truth together with a little knowledge of the elementary principles of the art of which he may dub himself a "professor."

MURPHY & SON, Builders.]

SIR,—The only reply I am disposed to give to the *Freeman's* article of the 23rd inst., and Messrs. Murphy and Son's letter of yesterday, is my letter, which has been the occasion of both. The readers of the *Freeman's Journal* (and they are, necessarily, a more extensive class than the readers of the DUBLIN BUILDER) can, without my letter, know only one side of the question. I have, therefore, to request that the *Freeman*, in a spirit of fair play, will publish my letter to the editor of the DUBLIN BUILDER. I shall then be content to allow those who interest themselves in such matters to form their own opinions on the restorations in question.—I am, your obedient servant,

J. J. MCCARTHY.

[We (*Freeman*) publish the above extraordinary letter received from Mr. McCarthy last night, and must say that we never remember to have heard of such a proposed mode of replying to refutations of statements as the republication of the refuted statements. Had Mr. McCarthy adopted the usual course of sending his letter criticising our notice of the magnificent work undertaken by Mr. Guinness to this journal for publication, we would at once have published it. But, instead of this, Mr. McCarthy, without ever even intimating to us his intention of doing so, wrote a very uncandid and unsustainable letter to another journal, in which he undertook to criticise, but only succeeded in demonstrating that he was inspired rather by personal feeling than by a knowledge of true art. It would have afforded us much amusement to have published Mr. McCarthy's attack on the restorations of St. Patrick's, and experience of himself, had he sent it to us in the ordinary course; but really we must be excused if we decline to publish, not by way of reply to a refutation of his pretence to art knowledge, an attempt to set aside the facts by which his fallacies were overthrown, but the veritable antique epistle of over two columns in length, which we have already dissected, perhaps rather less tenderly than was agreeable either to its author or to ourselves. It is gratifying, however, to find that the only answer Mr. McCarthy could concoct is a mere repetition of his refuted pretensions—refuted, too, by the evidence of his own witnesses. If Mr. McCarthy has a reply to make to either our article or to Mr. Murphy's letter, we will cheerfully give space to his reply.—ED. F. J.]

SIR—My letter to the DUBLIN BUILDER was not sent to the *Freeman's Journal*, because the subjects of discussion were opinions expressed in the DUBLIN BUILDER in opposition to others expressed in the *Ecclesiologist*, a London architectural magazine of high repute. I merely referred incidentally to a proposition of the *Freeman* for the "material alteration or removal of the Lady Chapel," an idea which, I suppose, you have abandoned, as you have made no reference to it since my objections to the suggestion have appeared. The argument of my letter was briefly this—that as a committee composed of such gentlemen as the late Primate Beresford, the Duke of Leinster, Lord Dunraven, the Rev. Dr. Todd, and

Dr. Petrie, the first of Irish antiquaries, would not undertake the restoration of St. Patrick's without the advice of an architect, it seemed a rash and impossible undertaking for Mr. Guinness solely. I then referred to certain restorations of modern renovations of the building, to the destruction of some of its original features, and to entirely new works, for which there is no authority in the ancient Cathedral, in order to show that the professed scheme of restoration is not adhered to. I certainly should not have claimed a place for that letter in the *Freeman's Journal* had Messrs. Murphy's reply appeared in the DUBLIN BUILDER only. It is a strange idea of fair discussion, that of publishing an answer, and suppressing the arguments that called it forth. A bold, flat contradiction, or groundless statement, is no argument; and these are the staple of your and Messrs. Murphy's replies, with a considerable seasoning of abuse in the latter. Take as an example, "the pile of rude masonry which separated the transepts and choir from the nave, and which supported the organ, intercepting the view, was not only not a rood screen, but was not even in the position which a rood screen should occupy." Now, hear the committee, of which Dr. Petrie was a member, on the same subject—"The organ stands on the base of the ancient rood screen, which still remains, the old rood stair case leading to the present organ loft." (Vide the prospectus of the restoration by the committee.) We can form some idea of the intelligence of the present restorers of St. Patrick's, by their mistaking what a committee of learned men have unequivocally decided to be a rood screen for a "pile of rude masonry." Again, "these buttresses referred to have been built exactly according to one finished under Mr. Carpenter's superintendence." The buttress quoted was not restored under Mr. Carpenter's superintendence or direction. Those restored by Mr. Carpenter belong to the Lady Chapel and the east end of the choir. They afford a good example of his manner of restoration, contrasted with that of the present restorers. It is rather too much to expect the "concoction" of a letter in reply to "facts," and refutations of which the foregoing are examples, while the letter to which they profess to be answers is carefully suppressed. The question of the architectural merits of the restoration of St. Patrick's has now, however, been fairly raised, and is taken up by art journals, which habitually admit views and arguments on both sides of a question, provided they are unaccompanied by irrelevant and abusive personalities, and the imputation of unworthy and dishonourable motives.

January 28.

J. J. MCCARTHY.

[This letter was preceded by a quotation from Mr. McCarthy's letter to us, which it is unnecessary to reproduce.—ED. D. B.]

SIR—Taking the above for my text, because it is the promulgation of a doctrine that contains its own refutation, and furthermore, because it reflects obliquely, if not directly, on me and my fellow-workmen engaged in the restoration of St. Patrick's, I throw myself on your indulgence for a hearing in your journal. I know not whether I possess the "cunning hand" of an artist—that I do not is, perhaps, "painfully evident in the lifeless, coarse and clumsy details," that I and my fellow-workmen have been for some two years back working out. But in candour, I must admit that I am in blissful ignorance of what really constitutes "an experienced architect of the ecclesiologist school." Working as I have been since my boyhood in works of every order and style; doomed as I have been to submit myself through life to architects, and follow them through every vagary of their brain and pencil, it remained for me and my fellow-artists to learn in this year of grace, 1863, from the dicta of "an Irish professor of Gothic architecture," that the craftsman's artist should be the mere automaton of the architect. To this dogma I take leave to demur. If I have read history aright, I have learned that a Roman legion was composed of architects, sculptors, painters, and workmen, all bound together in a common bond of unity, that the craftsman was the architect, and the architect the craftsman by turns, and that in their journeys over Western Europe, they had left sufficient evidences of their ability in the stupendous tunnel, arch, and road, duct and dome, to attest their greatness. They had, unquestionably, a "leader," but "not of the ecclesiologist school." They were allowed "to follow their own sweet fancies under very slender guidance," and to this freedom of thought and this freedom of action may be attributed these marvels of their art that have stood the test of two thousand years, and which are still supplying inexhaustible matter for the Gothic designers and "photographing" copyists of the nineteenth century. Mr. McCarthy's sneer at native workmen (whom Mr. Guinness is doing his best to encourage and protect) is ungenerous and unjust. If there be "sermons in stones" there must also be deep philosophy imbedded under every quaint joint that the "cunning artists' hands once chiseled. Can Mr. McCarthy interpret the language of these

"stone records" that they have almost forgotten the name of their founders? Is he that profound Oedipus that can solve the riddle and interrogate the dumb, grim gargoyles and the angelic corbels of the past? Is he the Goliath *seer* of the Second Coming that can unfurl the long lost plan of the Great St. Patrick's, or exhibit it in all its pristine glory, and "pretend that such things belonged to the Cathedral in its original state?"

"Alas, we are fallen on gloomy days,

Star after star decays."

Allow me, sir, to tell the Irish public and Mr. McCarthy—whether he believes me or not—that all that human ingenuity could devise—all that the utmost caution could effect—all that the most painstaking and subtle manipulation could accomplish—has been done to my knowledge, and under my observation, and also under the direction and observation of one of the most clever and experienced foremen that ever conducted a public work. Done, I repeat, it has been by experienced and superior craftsmen in their line—done by Irishmen, who can challenge comparison in any description of work with those foreign workmen whom Mr. McCarthy is so fond of recommending to his Irish patrons. I refrain from entering into an analytical disquisition with a man whose status is now so far above mine. My name probably would add no weight to my remarks, but I cannot pass over Mr. McCarthy's triumph cut query—"Who ever saw, till this century, an Irish cross on a reduced scale surmounting a gable?" Not being sufficient of an antiquary, I will refer him to Dr. Petrie on this head, and by way of rejoinder I will ask him, who ever saw a Gothic church gable corbelled out on its apex three feet from the face of the wall to provide for the support of an overtopping belfry? Can the mediæval or any other period, or the "eclectisms" of the ecclesiologist school produce such another architectural anomaly? Of this Gothic example I believe Mr. McCarthy is the putative parent, but as to its site I will let it rest in the shade. I will bestow on it the charity of "my silence." It is sad, sir, indeed, that one Irishman should be found capable of depreciating the talent of his own countrymen and of their munificent patron. No other such instance of a princely benefactor like Mr. Guinness occurs in the annals of this country for many a long century, till we go back to Master John Le Decer, who was mayor of Dublin in the years 1308, 1309, and 1324, a remarkable man, whose princely munificence bears a striking analogy to that of Mr. Benjamin Lee Guinness. We should hail the appearance of a man like Mr. Guinness as a glorious phenomenon. If some imperfection might occur in the carrying out of his colossal undertaking in the restoration of St. Patrick's—obstructed as those works have been by many obstacles, retarded, perhaps, by difficulties—difficulties surmounted as quickly as they appear—there should be some allowances made; for, what earthly undertaking is perfection? In conclusion, let me remark, that I speak as an artist and a workman, not an architect; still of architectural details I will not plead ignorance. So long as the social condition and welfare of the workman is looked upon as a matter of secondary importance, so long will architecture as an art be deteriorating. John Ruskin, the great Gothic critic, has said some noble words on this pregnant and suggestive subject. In the words of another writer I would ask Mr. McCarthy how long must we still have occasion to exclaim—"The world dishonours its workmen, stones its prophets, crucifies its Saviours, and shouts till the welkin rings out, long live violence and fraud."

THOMAS READ,

Stonecutter and carver

(at present engaged on the restoration of St. Patrick's).

#### ENGINEERING NEWS.

Among the numerous schemes for improved communications in the English metropolis, is one for a railway, beginning near the Shadwell Station of the Blackwall line, to pass through the Thames Tunnel to Rotherhithe. It is proposed to connect the South Thames system of railroads by this means at the east end of London with those on the north; completing the circle now formed by recently-opened works of the same character.

At a meeting of the Institution of Civil Engineers of England, held on 13th ult., at London, a paper was read by Mr. Preece, "On railway telegraphs and the application of electricity to the signalling and working of trains." The advantages and disadvantages of the proposed system were very fully and scientifically discussed.

A letter from Florence states that a commission has just been formed, under the presidency of the mayor of that city, for establishing a national museum of the middle ages. The place fixed on for it is the Bargello Palace, formerly the state prison, and all the necessary arrangements have been already made.

## NOTES IN THE WESTERN PROVINCES.

**Ballinasloe.**—There has been little or no progress in this town since the occasion of our visit about ten months ago. The hotel at the station (at that time referred to as in progress of erection) is still incomplete, but the exterior is sufficiently finished to enable judgment to be formed of its merits. It is of Tudor Gothic character, showing two gabled wings with recessed and arched centre surmounted by a lucarne window. The walls and other portions are of local limestone, but yellow brick is introduced largely throughout in the dressings of opens, in chimney shafts, &c., besides being interspersed with red bricks at eave courses and elsewhere. When the tone of colour of these materials becomes softened by time, the effect will be improved, the contrast at present showing out too strong. The offices, in which similar materials are employed, are in course of erection. Mr. Kempster, C.E., county surveyor, is the architect. We doubt that, under the present prospects of the town—which are by no means cheering—this hotel will be in much demand, except during fair time, for an old established hotel has been lately closed, owing to paucity of customers, we believe. A new gateway of neat design has been built on the south side of Garbally, Lord Clancarty's mansion. It is said that a lodge will shortly be added. We regret to note that large districts surrounding this town are still under water—a consequence of the inundations of the Shannon, which have so long—and so unheeded by our considerate government—prevailed to an alarming extent. It is to be hoped that this town will share in the advantages (if any) to be reaped from the recent Bateman inquiry into this subject. The sewerage from the cellars in the town cannot have more than seven feet of a fall, and that only when the river is at its lowest level; sometimes its high-water line is about six feet above low-water line. In fact, the water of the Suick crawls round the town coiled up like a huge boa constrictor, leaving its poisonous saliva in the bottom of the back lanes inhabited by the poorer class, and clogging up the few outlets for night-soil that necessity has compelled the proprietors to make. Were it not for the weirs of two old mills in the town, and one about a mile below, the river would glide gently past. A branch of the river, running past the chapel, from a point above Cregg's Hotel down about one hundred yards below the Catholic chapel, might be filled up, and a covered drain made the whole way, into which the sewerage might fall, and be conveyed to a respectable distance from the town. Public conveniences could be built on top of said drain in proper districts.

The workhouse is conducted most efficiently, and the rates are moderate, all considered; the numbers not great, only 292, being 32 more than corresponding month last year. We give the returns:—

## State of the Poorhouse, January 19th, 1863:—

Remaining since last week	..	..	..	257
Admitted	..	..	..	31
Discharged	..	..	..	4
Born	..	..	..	0
Died	..	..	..	2
				292

Corresponding week, 1861.	Corresponding week, 1862.
In hospital .. 131	In hospital .. 99
Total in house .. 251	Total in house .. 260
In Hospital, January 19th, 1863	.. .. 103
Admitted .. ..	.. .. 19
Discharged .. ..	.. .. 17
Died .. ..	.. .. 1

The Lunatic Asylum is, however, nearly full, but is an establishment conducted on the most approved system. There are five first-rate limestone quarries in or about Ballinasloe, but very little doing at present; building is almost at a stand, and able tradesmen and labourers are going about idle.

Distress is deplorably prevalent amongst the operative classes, and there seems to be little chance of a gleam of sunshine for them. Might not the Town Commissioners profitably employ even a few of them in cleaning the town, which is in a wretched state of filth? Even assuming that as a corporate body, they have neither powers nor money (the latter we believe they have not), a moderate subscription from each householder (and there are very many could afford it well) would ensure cleanliness, and with it the invariable concomitant of health for themselves and families. The office of town surveyor seems to be a sinecure here. Why should it be so more than in other towns of equal importance? We hear, however, that the monotony of that functionary's duties will soon be relieved by the removal of a house at end of Upper Dunlo-street, whose nodding gable shows indications of inevitable and speedy downfall. In the neighbourhood of the above town we learn that at Lismany an addition to Mr. Pollok's residence is nearly finished, under Mr. Kempster's directions, Mr. Cody being the builder; that at Craige (some eighteen miles distant) a new Presbyterian church, of partly Gothic style, and capable of holding one hundred and ten people, was opened on 1st ult., the expenditure being £620; that at Dyls-

town a small saw-mill is being erected under Mr. Maxwell's directions, and a few trifling matters being proceeded with in various directions. A new church has been completed at Killinier (ten miles distant), from designs by the Ecclesiastical Commissioners' architects.

Maxwell's rain-gauge shows the following returns:

1862	..	..	..	39.2 inches.
1861	..	..	..	37.1 "
1860	..	..	..	34. "

The largest quantity of rain in one week was in those ending March 8, April 5, August 9, and November 15, 1862.

**Galway.**—On the 19th ult. we visited this town, and found with regret, that the previous accounts that had reached us of distress—of almost total absence of work and labour in the building line—were substantially but too true. There are, however, a few exceptions to be taken to the statement of our contemporary, the *Freeman*, which (quoted in our last number) informs the public that "there are no public or private works in progress or even in contemplation in the city of the Tribes." In our last notice (see DUBLIN BUILDER for April 1st, 1862), we referred to a projected church in connection with the new school-house on the main road to Salthill, and this has since been completed as regards the skeleton and the roof, both of which have been well executed by the contractors, Messrs. Semple and Nugent. This being done, however, a large number of masons, stonecutters, carpenters, slaters, labourers, &c., engaged thereon, were thrown out of employment, but there seems to be some prospect of work now for the plasterers and others to complete the interior. The design (previously described) is Gothic, showing a handsome gable, finely tracied window, with spacious doorway on entrance front; a neat spirelet surmounting the building at one side of the gable. Mr. Roberts, C.E., county surveyor, is the architect. At Kingsdown, there is an addition being made to the dwelling-house of Mr. Somerville, at an expenditure of about £600, for which Mr. Maxwell, of Ballinasloe, is acting as architect, and Mr. Brady, jun., is the builder. The Presbyterian church at Salthill has been completed, and for some time past open for service. A few trifling alterations are being made by the local builders to premises in the town. A movement is on foot for the commencement of the new water works, for some time in contemplation, and we are assured on good authority, that that desideratum will be secured in the ensuing spring. The parliamentary plans have been lodged. The projected "harbour works" must, of course, remain in abeyance till the Government answer is obtained relative to "the subsidy," and if that be favourable (as, since writing this notice, seems to be understood), the consummation of same must be regarded as a certainty. For both these latter Mr. Roberts will be the directing engineer. Mr. Roberts is also architect for a new club-house at Ballynahinch, to cost about £5,000. The style is Tudor Gothic, and the design handsome. The accommodation comprises on ground floor, coffee, reception, billiard rooms, bar, &c., &c., numerous bed, dressing, and bath rooms on first floor, and extensive culinary offices, &c., &c. Mr. Brady, jun., is the contractor. A glebe-house is also being erected at Ballycroy, Co. Mayo; Mr. Roberts, architect—Mr. Glanville the builder.

**Achill Island.**—There are three coastguard stations in course of erection here under the Board of Public Works, to contain dwelling accommodation for five, seven, and eight men respectively, together with inspecting commander's residence for the first named. Mr. Morris, of Dublin, is the builder.

**Sligo.**—A new railway-station is in progress of building, for which Mr. Wilkinson is the architect, and Messrs. Crowe Brothers, the builders (who are also contractors for eight other stations and goods-stores between Longford and Sligo). The station shed is 330 feet in the clear by 80 feet wide, and is being roofed in one span with an A roof of iron, somewhat similar to that at Harcourt-street terminus, Dublin. At the south-side is the station building, about 80 ft. by 30 ft., of plain and substantial character, with rough-hammered limestone walling; Portland cement being employed in the cornices and dressings. A massive retaining wall, with buttresses, has been built. There are also engine sheds, carpenters' shops, and smithy, just completed, besides an extensive goods depot, 800 feet in length. A manse is being added to the Independent Chapel in Stephen-street (a neat Gothic structure of recent date), Mr. Hunt, contractor. The large Model School, erecting under the Board of Public Works, is nearly completed, and will prove a decided acquisition to the town. Mr. Edward Brannick is the efficient clerk of works. The Ulster Banking Company are about erecting a new and handsome building in Stephen-street, near Victoria-bridge, Mr. James Hamilton, of Glasgow, being the architect, and Mr. Finlay, a Glasgow builder, the contractor; it is to be faced with Glasgow stone. [We reserve other particulars for our "Towns' Survey" series in due course.—Ed.]

## INFLUENCE OF A REGISTRATION SYSTEM IN PROMOTING SANITARY REFORM.

WHEN we recollect that nations are but aggregations of families, we can have little difficulty in understanding the "reason why," that excessive sickness which pauperizes the individual, may, if it be extended over an entire people, prove a serious obstacle to their national progress in wealth and civilization.

Viewed in this light, we must recognize as of paramount importance everything tending to lessen an excessive rate of disease and death, by informing us—in what part of the kingdom it exists, by what circumstances it is characterized, and how it is to be grappled with and removed, and the national strength be restored to the normal condition of health and vigour vouchsafed by Providence for working out the nation's destiny in its path of progress, upwards and onwards.

Now let us inquire how a good system of registration tends in this way. It is in force in England and in Scotland, but not in Ireland, and with these results:—1. In the English cities and large towns, no epidemic can make its appearance without instant detection through the registrar's weekly returns. In Ireland the epidemic has time to fully establish itself before its presence is generally known. 2. Under the English Public Health Act, the 11 and 12 Vic., cap. 63, a machinery is provided, for a governmental inspection and inquiry into the sanitary condition of any city, town, borough, parish, or place, where the mortality has been found by the registrar's returns to exceed 23 per 1000. In Ireland it is beyond doubt,\* that the prevailing rate of mortality is in many towns and places greatly in excess of the point justifying governmental interference in England, yet, in the absence of a registration system, although it may reach to 40 or 50 in the 1000, we have not only no machinery for inspecting and reporting upon it; we have not even the means for ascertaining and establishing the facts on which an inquiry could be demanded. 3. This Public Health Act, with the subsequent health statutes, especially the 21 and 22 Vic., cap. 98, or Local Government Act, establish a comprehensive and highly beneficial code for the protection of public health in England, which "was enacted because, through registration statistics, it was demonstrated that sanitary reform is a question of life and death to the inhabitants of every town."† Taking some of the salient points only, in this legislation, we find that under the 21 and 22 Vic., cap. 97, the Privy Council, acting as successors to the Board of Health, are empowered to appoint a medical officer at a salary of £1,500 per annum, to inspect and report to Parliament, on the condition of neglected towns. We find no such provision in Ireland. Next, the Home Secretary, under the 21 and 22 Vic., cap. 98, maintains a staff of inspectors, &c., who, like the medical officers of the privy council, are paid for by Parliament, to inspect and report on towns in England. But we find no such provision for the inspection of Irish towns. Again, under the machinery created by the last-mentioned statute, English towns can have—their boundaries altered, parishes or places annexed to or separated from the township. Deviations in water works permitted. The time for repayment of loans for public works extended; extension of borrowing powers allowed, and exemption of particular places from rating repealed, without their having the expense and annoyance of promoting private bills for these purposes, the Home Secretary obtaining the sanction of Parliament through public bills, "Local Government supplemental acts," passed into law by the Government at the public expense.‡ In Ireland all these things must be done at the expense and risk of the rate-payers, and by private bill traders. Lastly, the 16 and 17 Vic., cap. 40, enables towns in England to borrow for public works, at 3½ per cent. from the Public Works Commissioners. In Ireland, no power is given to lend to towns, at less than 6 per cent.

Ireland has never sought for the extension to her of any of these beneficial measures, because she has yet to learn their importance; but she can do only through the salutary teaching of a registration system. There is no other, no "royal road" provided, for the acquisition of that knowledge upon which is founded an earnest public opinion in favour of sanitary reform.

**SLIGO LITERARY AND POLYTECHNIC INSTITUTE.** On Wednesday evening week the first essay for the year 1863 was delivered by Mr. Alexander Bolton Clifford, in the hall of the above institute, to a large assembly of members. The subject was "The Advantages of Philosophy."

Mr. J. H. Foley, the sculptor, has been elected a member of the Belgian Academy of Fine Arts.

\* See Census Reports for 1841 and 1851, for the excessive mortality in the Dublin Liberties, and in the poorer parts of all our cities and towns.

† Report of the English Registrar General for 1859.

‡ See list of those acts passed in 1850, 1860, 1861, and 1862, with their provisions.

## THE ULSTER BANK, DERRY.

Our present illustration shows an external view of a very neat structure, erected by the Ulster Banking Company in "the Maiden City," and referred to in our general notice of Derry in April last. The site is particularly advantageous, the principal elevation facing a spacious and populous thoroughfare. A well-proportioned bow connects the front and flank, and the general design is a chaste and pleasing sample of the Italian style of architecture. Internally the arrangements embrace all the usual requirements of a bank. Mr. Thomas Jackson, of Belfast, was the architect, and Mr. McClelland, of Derry, the contractor, on both whom both the design and the execution of the work throughout reflect the highest credit.

## THE MANCHESTER ARCHITECTURAL ASSOCIATION.

A CONVERSAZIONE of the members of this association and their friends was held in the Library of the Athenæum, at the junction of Bond-street with George-street, Manchester, on Thursday evening last. The apartment, which is admirably adapted for this purpose, and about 120 feet by 50 feet in extent, was handsomely decorated and brilliantly lighted for the occasion. The Athenæum building is one of the late Sir Charles Barry's earliest—and, we must add, best—productions, bearing a striking similarity to the Reform Club in London. About seven o'clock the company commenced to assemble, and amongst those present were—Alderman Goadsby, (ex-Mayor of Manchester), Messrs. Laurence Booth (Vice-Pres.), J. Shaw (Treasurer), O. J. Showell (Hon. Sec.), T. Showell, Darbyshire, Freeman, Tissue, Kelly, Fisher, Aitken, Webster, Blackwell, Oakden, &c. (members of the association), and J. J. Lyons (proprietor and editor of the DUBLIN BUILDER), &c., &c. There was a very considerable sprinkling of the "fair sex" likewise. After some time being spent in inspecting the varied and valuable collection of works of art displayed on the walls, and on a series of long tables, comprising contributions of pottery, goldsmiths' work, &c., by Mr. Oakden; a charming collection of photographs, by Bedford, Thompson and others; architectural drawings, including views of the new Assize Courts, lent by Mr. Waterhouse; mediæval metal work of immense value and beauty, by Skidmore and Hardman respectively; books of stained glass designs, by Messrs. Edmundson and Son, of New Wakefield-street; lighting conductors, &c., by Mr. Hibbert, of Granby-row; various models, including one of Showell's patent glass roofs (of which we shall speak hereafter), &c., &c. Mr. Booth, Vice-President, in the absence of the President, the Vicar of Whalley, delivered an address, in the course of which he said—

"It was felt by the architectural practitioners in Manchester to be a sort of reproach that they had no association for the special furtherance of the interests of their art, and the sense thereof was not lessened, but rather intensified, by the consciousness of the existence of all the necessary elements for the formation of such association. The brilliant prospects too, opened out for the development of their art in a wealthy city like Manchester (whose merchant princes and others have for some years rivalled those of "ancient Venice" in their liberal patronage) made it incumbent on those charged with interests to make themselves worthy of the name of "architects." . . .

The Vice-President then proceeded to review the circumstances that led to the establishment of the Association in December, 1860—its past history and present state, which showed fifty members' names on the roll—all of which had been accomplished without a considerable amount of exertion on the part of those who undertook it. He then said—

"The other architectural associations, acting in the spirit which animates the individual members of our own, have in the most generous manner extended to us the right hand of fellowship, and with many of them we are at present in close alliance."

After referring to some opposition from certain quarters in which it was least expected (we believe meaning that some few of the senior members had held back their support for the present), and thanking the company for the favour of their presence, the Vice-President concluded by saying that if "their enjoyment be at all commensurate with the wishes of the Association, they (the Association) would all look back with pleasure on the 1863 conversation of the Manchester Architectural Association."

Alderman Goadsby (Ex-Mayor) then addressed the assembly in a very comprehensive, homely, and sensible speech, observing that he recollected Manchester when there was only one architect practising in it; that if they wanted a building designed they had to send to Chester for a professional man. He was himself an admirer of art, and believed that every man's duty, first after attending to the commands of his Creator, and to the requirements of his family, was to advance art by every means in his power. The worthy alderman then passed a most

merited eulogium on the design for the Assize Courts, and its talented author, and concluded amidst much applause.

Mr. Booth, the vice-president, then rose and said—Ladies and gentlemen, however grateful I must feel to each of you for the favour of your company this evening, I nevertheless consider myself bound to suggest that there is one gentleman present who is specially entitled to the thanks of our association, inasmuch as that he has come a long distance to be present at this *conversazione*. I allude to Mr. Lyons, a Dublin architect (the proprietor and editor of the DUBLIN BUILDER), who, in the kindest manner, and no doubt at inconvenience to himself, responded to our invitation. I am happy to find so good a feeling exhibited by our brethren in Ireland, and especially so as Mr. Lyons is officially associated with the Institute of Architects in that country, to which I passingly alluded in my address. I am confident that you will all give him a hearty reception, and I should be anxious to hear him say a few words on this occasion.

Mr. J. J. Lyons (who was most warmly greeted on rising, said—Mr. Vice-President, ladies and gentlemen, had I the slightest anticipation that I, as a mere stranger and ordinary visitor, should have been called upon to address this assembly on so important and auspicious an occasion, I should in all likelihood have collected my thoughts so as to place them before you in a presentable form; but I trust that the unexpectedness of the call will plead my apology for the consequent brevity I must observe, and for the feebleness of my language. Independent of the gratification which your flattering reception affords me individually; I must also, on behalf of the body with which your vice-president has associated my name in flattering terms, tender you my acknowledgments for what I am sure each member of it will esteem a high compliment. Indeed, I may say that I felt it a duty incumbent on me, on receipt of your invitation to this *conversazione*, to accept it, for the better cementing of a friendly feeling between the architectural brethren at this and the other side of the channel, even at inconvenience, which, however, is not such as your vice-president has considerably referred to, as my mission requires me to be rather ubiquitous. I may, perhaps—keeping in view the object of your association—appropriately here explain to this assembly collectively, what I have done to many of the members of the association individually, that some few years ago there existed in Ireland an association of similar purpose, entitled "The Royal Institute of Architects in Ireland." However, owing to some shortcomings—which I need not dilate upon,—but without any ostensible cause, it ceased to hold its meetings; and this is the more to be regretted as the funds were not in an unhealthy state, and as that institute, of all others in the kingdom—except the institute of British Architects in London—was the only body enjoying the privileges of a charter. However, I have now the pleasure to inform you that there are symptoms of its immediate revival on an improved basis, arising out of a circumstance which—being suggestive of something in which all our professional brethren must feel an interest, I may also relate to you. Recently a project for the establishment of "an Exhibition Palace and Winter Garden" was set on foot in Dublin, and was very favourably supported. The directors announced their desire to receive designs in unlimited competition, and offered prizes of £150 and £75 respectively. Some 26 gentlemen competed, and from the designs submitted, the directors selected six sets for final consideration; but ultimately decided on not awarding the premiums to any of the six, having selected therefrom *one set*, which they say "came nearest to their requirements," and having directed the author thereof to prepare amended drawings. Both the competing architects, and the general members of the profession in Ireland, were so indignant at the alleged injustice of this proceeding, that an aggregate meeting was held on the 3rd inst., and amongst a series of resolutions passed, one was unanimously adopted, that "a committee be appointed for the re-organization of the Institute of Architects of Ireland;" and as the Honorary Secretary of that committee I appear before you. I feel quite confident that I only express the sentiments of the gentlemen comprising it, as well as of those who are friendly to the project, when I say that the revived Institute shall only be too happy to reciprocate any spirit of co-operation that you may be disposed to extend towards them; and I am of opinion that there may be much good effected between us by the mutual interchange of courtesies, and by an occasional friendly correspondence. The other existing institutes and associations have signified their will to co-operate, and I am sure that the Manchester Architectural Association will not be behind hand. When the re-establishment of the Institute of Architects in Ireland is *un fait*

*accompli*, I hope to see representatives of the Manchester Architectural Association present at the inauguration, which (if my humble efforts shall prove availing) will be attended with some becoming eclat. Permit me now, in conclusion, to express my admiration of the successful character of your proceedings this evening, and the pleasure I have been afforded in being present; and again to return you all, ladies and gentlemen—my acknowledgments for the most flattering reception that you have accorded to me.

## IRISH ECCLESIOLOGICAL ART.

GREAT advancement in ecclesiastical art has been made during the last ten years in this country; not but that before, works of the highest class adorned some of our churches. The great Hogan, of European fame, has immortalized his name by the magnificent statue in Carlow Cathedral of the late excellent Dr. Doyle, and by the beautiful and truthful figure of our Blessed Lord entombed, in the chapel, Clarendon-street. To a family of most accomplished artists are we indebted for many works which equal in merit those of the greatest sculptors of our age, and which adorn our ecclesiastical buildings. Mr. Farrell, of Gloucester-street, and his sons, so long known in this city, and whose fame is so justly deserved, hold the highest place as sculptors. The statue of the late Dr. Murray, in Marlborough-street church; the figure of the Blessed Virgin in the Chapel, Upper Gardiner-street, the statues in the Convent chapel, Harold's-cross, and their many other works throughout the churches of Ireland, prove that we may proudly glory in the excellence of native talent. Mural decorations are of later introduction. The painting of the ceiling of the Metropolitan church, marks a new era in the ecclesiastical art of this country, which has gone on progressing rapidly, and has extended itself in all quarters. The last work of this kind was completed last week. The church of St. Paul's, Arran-quay, has been painted and decorated; the portion selected for decoration was that immediately behind and about the three altars, works beautifully executed in statuary marble. The high altar we believe was carved by the Messrs. Farrell. An altar-piece of large dimensions fills the space behind the principal altar, and produces a pleasing effect, in that it gives apparent length to the building. The end of the church seems open, and the scene represented, not within, but without the building. The painting is historical; its dimensions are 25 feet long by 20 feet high, the figures are larger than life. The subject, the conversion of St. Paul, represents the moment when he is struck from his horse on the road to Damascus. The fear depicted in the countenances of his attendants is well expressed, the very attitude of the horses conveys this same sentiment; and above, is represented a vision of our Lord, full of calm dignity, and expressing love for the object of His grace.

Paintings for galleries and rooms are not suited for altar-pieces; they are painted in a manner which renders them only fit for close inspection. Strong effects of light and shade, beautiful in themselves, interfere with their distinctness when viewed from a distance. Monumental painting should be bold, the drawing well defined, the treatment simple, and the colouring harmonious and quiet. Fresco, encaustic, or Silicious painting is best suited for wall work, on account of the absence of glaze, and the quality of the colours which alone can be used. Paintings in these materials require a different method altogether from oil paintings. It would be impossible to produce a perfect copy of one of Rembrandt's pictures in fresco; the depth of shadow could not be obtained: this in its degree applies to the works of other great masters. Again, on account of the cross lights in a building, it is necessary that the artist should paint his picture where it is to remain. This must be obvious to all who have any knowledge of pictures. But to resume our subject: there are two other paintings over the small altars in Arran-quay church, which deserve a few remarks. Raphael and other great artists frequently represented our Lord or his mother in heaven, and saints (who lived in different ages) on earth, in the same picture. Here the artist has followed these precedents: our Lord is represented as in heaven, exposing his loving heart; beneath are St. Dymphna, an Irish saint, and St. Francis, of Sales, who lived many centuries after her.

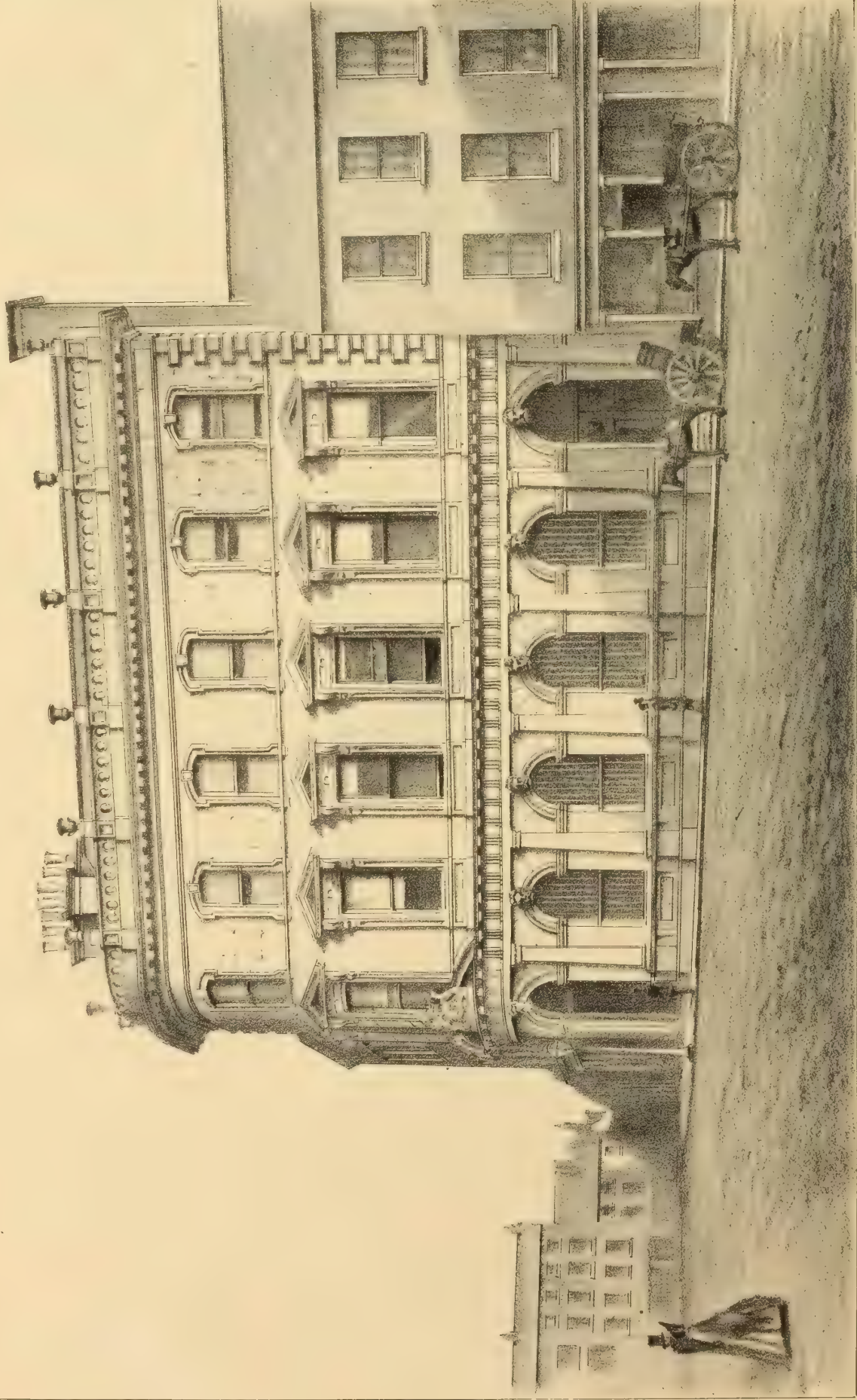
The drawing in both pictures is good; perhaps that in the painting of the Immaculate Conception, which is the subject of the Lady altar-piece, is best. The figures here represented, at the feet of the principal figure, are St. Patrick and St. Bridget. The face of St. Patrick is a beautiful study. Space will not permit us to extend our remarks further. The decorative work is Italian in style—it is simple, effective, and in good keeping. Messrs. Barff & Co., of Dublin, are the artists to whom the work was entrusted. The substantive parts of the church have been cared for as well as the ornamental. Mr. G. Fegan has conducted the repairs and painting.

• Illustrated in the DUBLIN BUILDER for April 1, 1862.

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The Dublin Builder

Feb<sup>y</sup> 1<sup>st</sup> 1863  
Vol. V. New Series.



MR. THOMAS JACKSON, OF BELFAST, ARCHITECT.

THE ULSTER BANK, LONDONDERRY.

J. Henry Irish 29, Dame St. Dublin.

## SANITARY INSTRUCTION OF THE LABOURING CLASSES.\*

MANY unprejudiced descriptions of the localities occupied by the poor emigrants from Ireland, who have settled in Edinburgh, Glasgow, Liverpool, and Manchester, as well as in the metropolis, and some other parts of England, might be quoted to prove that a well-known designation, "The Irish Quarter," is accurately interpreted as implying a degree of misery and wretchedness below that in which the poor of England and Scotland are ordinarily found. How far this state of things is justly chargeable to an utter want of training in habits of cleanliness and order, is a serious subject for inquiry, as it greatly affects large masses of the poor in other countries, where the example given in this respect has been very injurious. A benevolent physician in Edinburgh, Dr. Foulis, who has devoted much time to this subject, when describing the state of "old houses" in that city, and the effects of a large influx of Irish poor, thus wrote:—"We affirm, and that advisedly, that these people are not fit to live in ordinary houses; and instead of appreciating a good one, in the course of a short time they turn it into a filthy den. These statements may appear harsh, but we do not make them without being able to substantiate them by a most conclusive practical illustration. Some few years ago, the large tenement in Burt's Close, 'the Hatter's Land,' was occupied by the respectable workmen of a neighbouring manufactory, and more comfortable houses could not have been desired. Unfortunately for the houses and the health of the town, the Irish were allowed to tenant it, until, from top to bottom, with the exception of two families, it was altogether filled with them. What was the result? In the course of a short time it was converted into a hotbed of fever and filth."

I shrink from the invidious task of selecting such testimony, which it may be right, however, to say, is fully borne out by many other credible witnesses, and, in some degree, by my own observations in London. At the same time, it is just to notice that the author of "London Labour, and the London Poor," observes, in regard to the street Irish whom he had visited, that he "found traces of household care and neatness he little expected to have seen, which gave them an air of comfort that strongly disagreed with the reports for the cabins in 'ould Ireland.'" The writer last quoted says, what it is to our purpose here to notice, that "the ignorance of the women in regard to household work (a description of work totally unknown in their wretched cabins in many parts of Ireland) incapacitates them in a great measure for such employments as charring, washing and ironing, as well as from regular domestic employment." He adds—"Very few of these women (nor indeed of the men, though rather more of them than of the women) can read, and they are mostly all wretchedly poor."

In the very remarkable address by Sir James Emerson Tennent, delivered at our Glasgow meeting, in 1860, much valuable information was given in reference to Irish immigration, and numerous facts were quoted from the evidence given before a Government Commission appointed in 1835. After an allusion to the influence which this immigration is known to exert over the gains and economies of labour among the working classes of Great Britain, its injurious moral effect is thus alluded to:—"The process of deterioration must, more or less, affect the moral atmosphere of the locality, the native population of which is liable to have their tastes and opinions, in regard to what is necessary for decent subsistence, vitiated and lowered by the contaminating influence of example, and by intercourse with those who are content to live in destitution and misery."

The large addition made to the Irish population in London between 1846 and 1851, within which period it is believed to have been doubled, will, in no small degree, account for the increased crowding and consequent wretchedness of the lowest class of dwellings. To this cause is the same evil attributable, in no inconsiderable measure, not only in many towns in England and Scotland, but also in the United States of America, of which, if it were necessary, abundant evidence might be adduced; and I can state from my own knowledge that, such were the filthy habits of the people crowded into one of the courts taken by a society in London, and put into a good sanitary condition, that it was thought necessary to eject a considerable portion of the old tenants, who were mainly Irish, and deemed incurable. Not, perhaps, that they would have proved to be so in reality, had the change been effected more gradually, and with greater consideration for their circumstances. The superintendent of the works thus wrote to me at the time, in 1855, when I was abroad:—"We have retained

about twenty of the old tenants, and it is most gratifying to see how some of them appreciate the comforts provided, and how one little comfort creates a disposition and desire for another. My experience here convinces me more and more that the very lowest of the poor are capable of being improved, but it cannot be done as we are doing here; the change is too great in so short a space of time, and must of necessity drive the major part of the population away, who I believe to be susceptible of great improvement, had the change been spread over a space of two or three years. I have felt it a painful duty, especially with some of the tenants, to tell them they must leave the court, at the same time feeling convinced they would make good and orderly tenants were time given them to reconstitute their habits, for such would have to be done. Many of them expressed their willingness to conform to any rules we might impose—at all events, they would try their best to do so; but to keep them in the court would certainly prevent the more respectable class of labourers and mechanics coming." Such practical observations may be of use in other cases, and for this reason I have given the quotation.

On the subject under consideration higher authority could not be adduced in the city of London than that of its able medical officer, Dr. Letheby, who, in his last report, dated April 18, 1862, thus writes:—"That which aggravates the conditions of a city life is the dense overcrowding of the population; the living in houses which are unfit for human habitation; the close and ill-ventilated state of the courts and alleys; the systematic neglect of cleanliness among the poor, and their living continually in an atmosphere of decomposition. Much of this has received your attention, and has been the subject of sanitary improvement. But your efforts have been almost nullified by the passive resistance of landlords, and by the sullen indifference of the poor. Until, indeed, the latter can be made to feel the advantages of an improved social condition, and can be taught that human beings ought not to herd together like brute beasts, it will be hardly possible to lessen the death-rate of our large cities, or to keep down the unwholesome influences which are ever fostering endemic disease. This kind of teaching is fast becoming an obligation of society, for it is perceived that the evils of such ignorance are not confined to the poor alone. They spread among the rich, and largely affect the interests of all."

The disposition, however, to overcome obstacles in the way of social improvement is, apparently, much greater in the lower classes in England than it is amongst those from the sister kingdom. The late Dr. Hector Gavin, a physician who had many opportunities of studying the habits of the poor in London, has said:—"My own impression is, and I say it on due consideration, and with every possible regard for truth, the poor make very great sacrifices in the cause of cleanliness; they constantly aim at it, and constantly fail, because it is impossible." Since these lines were penned, much has been done by the Legislature, and by philanthropic associations, to remove some of the most formidable barriers to the success of such well-intentioned endeavours. A greatly improved water supply, as well as the provision of public baths and wash-houses in some parts of the metropolis, has placed the means of personal and household cleanliness within a comparatively easy reach of the very poorest.

With reference to legislation bearing on this subject, and applicable exclusively to Ireland, an act for promoting the building of dwelling-houses for the labouring classes was passed in 1856, and another to facilitate the buildings of cottages for labourers in 1859; and in 1860 two amendment acts were passed—one having reference to the tenure and improvement of land in Ireland, and the other to facilitate the buildings of cottages for labourers are to be deemed as included in the definition of improvements for which "limited owners" are entitled to compensation.

The necessity for affording every practicable facility for the building of improved cottages was rendered palpable by the census return for 1851, which showed that there were then in Ireland 135,589 single-roomed mud cabins, the proportions in each county being given as follows:—

Number of Fourth Class Houses (or Mud Cabins with One Room only) in Ireland, according to the Census of 1851.				Number of Houses, 4th Class.
Provinces and Counties.				
<b>LEINSTER:—</b>				
Carlow	..	..	..	1,318
Dublin	..	..	..	1,522

\* This act contains a valuable provision by which loans from the Treasury may be obtained for providing improved house accommodation for the labouring classes. Instructions on this subject may be procured from the Commissioners of Public Works, Custom House, Dublin.

Kildare	...	...	...	2,652
Kilkenny	...	...	...	2,628
King's	...	...	...	2,096
Longford	...	...	...	1,659
Louth (including Drogheda Town)	...	...	...	3,050
Meath	...	...	...	5,183
Queen's	...	...	...	2,888
Westmeath	...	...	...	2,584
Wexford	...	...	...	2,846
Wicklow	...	...	...	1,777

Total of Leinster ... 30,203

**MUNSTER:—**

Clare	...	...	...	5,169
Cork	...	...	...	16,215
Kerry	...	...	...	11,063
Limerick	...	...	...	7,529
Tipperary	...	...	...	8,201
Waterford	...	...	...	2,010

Total of Munster ... 50,187

**ULSTER:—**

Antrim (including Belfast and Carrickfergus towns)	...	...	...	1,600
Armagh	...	...	...	3,172
Cavan	...	...	...	3,595
Donegal	...	...	...	4,744
Down	...	...	...	2,114
Fermanagh	...	...	...	2,217
Londonderry	...	...	...	1,578
Monaghan	...	...	...	1,879
Tyrone	...	...	...	2,714

Total of Ulster ... 23,613

**CONNAUGHT:—**

Galway	...	...	...	9,610
Leitrim	...	...	...	3,011
Mayo	...	...	...	10,058
Roscommon	...	...	...	5,059
Sligo	...	...	...	3,843

Total of Connaught ... 31,586

Total of Ireland ... 135,589

Had the late Secretary for the Home Department acceded to the application which was made to him by the Council of this Association for such a return under the last census as would give corresponding statistical details with regard to house and cottage accommodation in England, it might have been confidently anticipated that the bill for "facilitating the building of improved cottages for labourers in England," similar in principle to two existing Acts of Parliament, passed in 1860, which are applicable exclusively to Scotland and to Ireland, would not be again rejected by the House of Lords, after passing the Commons with but little opposition, as was the case in the last session of Parliament, on a division of 16 to 13.

It must be obvious, however, that legislative enactments, necessary as they may be to effect general sanitary reform, and to facilitate the providing improved dwellings, cannot produce an entire change in what may be termed the "domiciliary habits" of the lower classes, or make them acquainted with the importance of personal and household cleanliness, the benefits resulting from a free admission of pure air, the evils resulting from defective drainage, or from damp in the floor, the walls, or the roof of their abode, in order that they may be led to think and act wisely, where they have the power of choosing or improving their dwellings.

The words which close the report of a well-known commission, that of Lord Devon, are strictly applicable to this subject:—"The best directed measures of Parliament will not be sufficient, unless aided by the active and steady exertions of the people of every rank and condition in their respective spheres; but much may be accomplished by the united and vigorous exertions of the Legislature and of individuals."

But it is mainly to those who come much in contact with the working and the poorer classes, when impairing either secular or religious instruction; to those who are their employers, or who administer in any direct way to their necessities, that this subject commends itself most urgently, and with the greatest prospect of a beneficial result, provided the instruction or advice they impart be given with sympathy, and not in a spirit of upbraiding reproach. The best feelings will be thereby drawn out, and obstacles may be gradually removed which now seriously impede, not only the moral and physical, but also the spiritual improvement of large masses of the community.

The instruction which is so greatly needed may, in many cases, be suitably conveyed in the form of simple and brief addresses or lectures, and if illustrated by diagrams, they will be rendered more attractive, and leave a more abiding impression on the

\* From a paper originally read by Henry Roberts, Esq., F.S.A., at last meeting of the National Association for the Promotion of Social Science, and since reprinted in a small pamphlet by its author.

memory. Much assistance in the carrying out of such efforts may be derived from the cheap publications of the Ladies' Sanitary Association,\* from the diagrams obtainable at the Working Men's Educational Union, as well as from the publications by Messrs. Jarrold and Sons, from some of the lectures by Dr. Lankester, and from the abridged edition, for the labouring classes, of Miss Nightingale's "Notes on Nursing."

The formation of classes such as have been adopted in England, under the designation of "Mothers' Meetings," so well described in the little work entitled "Ragged Homes, and How to Mend Them," is another valuable means of operating on the families of the poor, and one in entire harmony with the "domestic mission" connected with the circulation of the Holy Scriptures, which now numbers in the metropolis upwards of 170 female agents, who are thus engaged under the direction of ladies, designated superintendents.

The bestowment of premiums and rewards for household cleanliness greatly promotes those habits of sobriety and general good conduct which are so indispensable to the attainment of the object contemplated by a resolution, in the following terms, which was adopted unanimously, on my suggestion, by the representatives of twenty different countries, convened at the Congrès International de Bienfaisance, held in Brussels, in 1856:—

"The Congress declares that it is of public utility that the working classes be enlightened by all possible means in regard to the improvement and the keeping of their houses in good order. It declares that the instruction of the young in the labouring classes ought to comprise all which relates to the cleanliness of their persons, and of their dwellings, to the benefits resulting from good ventilation, and the evils resulting from humidity. Lastly, it thinks that the study of the science of preserving health is one which ought to be rendered accessible to all."

Amongst the many societies successfully engaged in promoting habits of neatness and order in cottagers' dwellings, may be named "The Windsor Royal Association," which has done, and is still doing, "immense good in the neighbourhood." It was established in 1850, in consequence of a special desire on the part of the lamented Prince Consort, to bestow some mark of favour on the cottagers in and around Windsor who were diligent in keeping their homes tidy. Besides that object, it now embraces several others calculated to stimulate and cherish the spirit of industry, and thereby to raise the social condition of the labouring classes. This society had the inestimable advantage of his late Royal Highness's constant attention up to the last, and rewards bestowed annually were, with one exception, distributed in person by the lamented Prince, which greatly increased their value to the recipients.

In order further to carry out the views of his late Royal Highness, "The Royal Society for Providing Better Domestic Accommodation for the Industrial Classes" was formed in 1852, by members of the Royal Association, and the committee, which is presided over by Major-General F. H. Seymour, has been successful in returning to the shareholders from 4 to 5 per cent. interest on the outlay in building forty-eight houses, and establishing two lodging-houses. The shares held in this society by his Royal Highness have, by his desire, been "transferred to trustees, in order that the annual income derived from them may be devoted to its purposes, and his Royal Highness's name be imperishably connected with its material progress."

I cannot on this occasion refrain from bearing my humble testimony to the numerous and widespread benefits which have resulted from the discriminating and practical encouragement given to this movement by the illustrious and lamented Prince, many of which I have had the opportunity of becoming personally acquainted with, not only in our own country, but also on the Continent.

Nor would I omit to recognize, in anticipation, the incalculable benefits which must result from a judicious administration of the munificent gift of £150,000, destined by Mr. Peabody "to ameliorate the condition and augment the comforts of the poor, who form a recognised portion of the population in London," accompanied as it is by the suggestion, "to apply the fund, or a portion of it, in the construction of such improved dwellings for the poor as may combine, in the utmost possible degree, the essentials of healthfulness, comfort, social enjoyment, and economy."

Having, in the course of the preceding remarks, had occasion to comment very unfavourably on the domiciliary habits of the Irish poor, it is with pleasure that, before concluding this paper, I refer to a report of the Registrar-General for Ireland, in order to show that "The Royal Agricultural Society"

has considered the providing improved house accommodation of so much importance as to have recently made it one of its "primary objects" to promote improvements in the dwellings and domestic condition of the agricultural population of Ireland; and has passed a resolution to the effect, that when £5 are contributed from any county, the society will add £5. A gold medal is then offered as a prize to the individual who has done most within the year to carry out this "primary object" in that particular county. And already several ladies have honoured the society by becoming associates, in order to promote the special object referred to.

#### TOWNS' SURVEY.—No. VI.

##### LONGFORD.

RESUMING, in accordance with a promise conveyed in last issue, my *personal* special survey of the *principal* provincial towns in Ireland, in order that the readers of the DUBLIN BUILDER may not only be made aware of the *mere building* improvements effected therein, but may, in the provinces as well as in the metropolis, be likewise supplied with a sketch of *general* characteristic features, of *sanitary* and *industrial* condition, &c.; as also that such notices may contribute to the enlargement of the sphere of usefulness of this journal, I propose to follow, as closely as possible, the programme laid out, and undertaken on my own individual observation and inquiry.

Like the majority of our Irish towns, Longford displays *one* spacious main thoroughfare, with lesser streets branching therefrom, or in connection; a portion of such thoroughfare (here of more than ordinarily ample dimensions) is styled Ballymahon-street, another the Main-street. In continuation of the former is also Earl-street, which is terminated by a two-span lattice girder viaduct, crossing the railway, adjoining which are neat and substantial station buildings, with spacious approach—and, immediately at the foot of the latter, are the cavalry and infantry barracks, around whose boundary walls Church-street returns at two sides of a quadrangle. The general aspect of this thoroughfare is pleasing; some of the commercial houses have neat fronts, while others are, of course, capable of improvement, but the greater number of them exhibit palpably rather a well-to-do position of their respective occupants. About midway in the Main-street is the Court-house, with elevation somewhat architecturally pretentious, and showing, in the tympanum of the pediment, the very useful appendage (when a truth-teller) of "a public clock." Internally the arrangements of this building, comprehending the usual Crown and Record Courts, grand jury, witnesses, &c., &c., rooms, are somewhat after an ancient type, but are, nevertheless (as I am informed), found to be commodious. A little modernizing would prove a desideratum.

Almost immediately opposite, a new bank for the Ulster Banking Co. is springing up from designs by Mr. J. Bell, jun., architect (county surveyor for the northern division of county Dublin), Mr. Walter Doolin being the contractor. It presents an unbroken and recessed Italian façade in limestone, with rusticated and pseudo arcaded ground floor, with corbelled belting course separating it from the first floor, which has segmental pedimented windows; a second floor has also curved headed windows with flat architraves; and a bold modillioned capping cornice, sustaining cantilever roofs, surmounts the whole. A screen wall, height of first storey, forms a dwarf wing at either side of frontage; space towards the street having undoubtedly been lost, but from what prudential considerations I am not disposed to enquire. The move, when effected (from the very shabby house opposite), will be decidedly for the better. The National Bank has been slightly, very slightly, touched up on the ground floor, and ought to have a better concern; will not the Bank of Ireland also lodge its representative in a more respectable house?

The most important matter in progress at present in the town, as far as architectural operations are concerned, is the construction of the steeple on St. Mel's cathedral (Roman Catholic). This notable building was originally designed by Mr. J. B. Keane, architect, but is still unfinished as regards its most important external features, its portico and campanile. The order is Grecian Ionic, and the original plans contemplated an octastyle pedimented portico on west front. This has not yet been touched, but the campanile is progressing. Mr. Keane's designs provided for the latter, being after the order of "the Temple of the Winds," in two columnar stages terminated by a cross, but Mr. John Bourke's (the present architect) plans, on which the contract has been formed and the works are proceeding, show a triple staged superstructure of octagon form; the first stage having

antæ surmounted with entablature; the second Ionic detached columns pedimented on each return face, and rising therefrom on the third are carved consoles connecting an oval-shaped domical roof superstructure, capped by an open lantern. The height from ground line is 210 ft. The building itself is cruciform on plan, with nave, aisles and transepts, 175 x 40 in clear of nave, and 20 feet aisles in addition at either side; the breadth across transepts is 65 feet. The nave is separated from aisles by a range of Ionic stone columns, from the caps of which spring arches connecting them with the soffit of the former intended entablature.

This feature was probably necessitated by the height of the columns falling so far short of the springing of the roof, which commences immediately over the cornice of the main entablature. The roof is waggon-shaped, deeply coffered, and pannelled. The east end shows a spacious apse, and the transept, forming the arms of a Latin cross, extends 165 feet across. The altar and pulpit are only temporary, but I learn that others of a suitable and handsome character will soon be prepared. This structure is of the most substantial character throughout, the entire outside being faced with ashlar dressed limestone; it is expected that before completion it will have cost £65,000, the present contract for the campanile being £3,500. Mr. John Mullins has been the builder from the commencement, and his work reflects the highest credit on his skill. Not far from this site a large block, about 200 feet square and three storeys in height, is in progress (also from the designs of Mr. Bourke, Messrs. Kelly, of Granard, being the contractors) for the Christian Brothers' School, and will show a rough cast exterior. The contract is about £5,500. In Church-street a neat structure for a Protestant hall is progressing towards completion; the interior being fully finished and in occupation. The hall has a raised platform at one end, and a gallery at the other, resting on slender columns; the roof is open timber work, which, with all the other woodwork, is stained and varnished with material furnished by Mr. Swinburn, of London. Mr. James Bell, jun., is the architect, and Mr. Mullins the builder.

I hear also of a contract in course of execution by Mr. Doolin, for a domestic residence near the town.

I regret to say that portions of this town are in a state of superlative uncleanness, and that the wretched inhabitants of such places as Bog-lane, Chapel-lane, Farrell's, McDonnell's, McLaughlin's yards, &c., &c., are in the last stage of destitution and misery. The first-named is the worst, and, indeed, I cannot compare it with anything, however bad, that I saw in Galway or elsewhere. It is about 8 feet in width, and presents a parallel range of hovels in ruins, the passage to which is choked up almost knee-deep with mud, manure, and offal, emitting an intolerable stench therefrom. And this lane connects the main (or Ballymahon) street with a coach road. I dare not picture the squalid, the baggard, the unearthly appearance of the wretched remnants of humanity there; for many of them are rapidly drifting to that "bourne whence no traveller returns," and welcome will undoubtedly be the call that relieves them from their sufferings. Oh! in this small compass what a field of study for philanthropists is presented. Anything more revolting I cannot conceive. The Town Commissioners are seeking to remedy the evil by opening up a central drain; but why should such accumulations of deleterious matter have ever been allowed to exist? They are quite sufficient to breed infection in the whole town and vicinity. This is but a sample of the others named.

Pursuing my inquiries amongst the poorer classes, I visited the workhouse—a spacious building of the usual design, situated on a gently sloping eminence, a little way out of the immediate town. At present date there are 428 persons receiving relief in this establishment, being a number considerably in excess of any previous years, and this is likely to be increased. I visited the several departments, in company with the obliging and intelligent master and matron, and found them cleanly, well ventilated, and otherwise arranged conduively to health. In the infirmary, however, there are 110 patients—which is double the average—afflicted with scrofulous and pulmonary diseases, &c. A gratifying fact is that there is not one patient in the fever ward, the arrangements of which are distinguished for their suitability.

It seems strange that so excellent a market-town as this cannot secure a more respectable market-house. There is a huge, unshapely, block for such purpose in the market square, and the upper portion is let for a corn store. I hope to hear of a better building being erected in its stead shortly, also that a Town-hall, so much wanting, may be secured in connection therewith, or independently.

The good people of Longford (the Town Commissioners especially) should be up and stirring about these and other matters to which I may refer hereafter.

JOHN J. LYONS, ARCHITECT.

\* The office of this society is 14A, Princes-street, Cavendish-square, London. In one of its published lectures, I have endeavoured to point out the essentials of a healthy dwelling, and the sanitary defects in the homes of the working classes.

## Earned Societies' Meetings.

### ROYAL DUBLIN SOCIETY.

On the evening of the 22nd ult., a general meeting of the Society was held, and there being much interest attached to the intended proceedings, which chiefly related to a great national industrial question, viz., "the Salmon Fisheries of Ireland," the attendance was uncommonly numerous.

The Rev. Professor HAUGHTON presided.

Mr. J. Emerson Reynolds first read a clever paper on "Wood Spirit and its Detection," which was highly approved of.

Mr. W. Andrews, M.R.I.A., then read his paper on "the Salmon Fisheries of Ireland," in the course of which he said:—

"There are but few subjects of the industrial resources of a country fraught with more interest, or of more importance, than its fisheries. From the earliest days their protection and encouragement were viewed as the surest means of promoting and of securing the mercantile position and the naval power of a maritime nation. Thus, whenever legislation directed attention to such, industry and prosperity marked their progress; while, on the other hand, neglect equally caused their decline. If we were to scan the histories of past reigns, we should find how seriously the objects of the fisheries have agitated our rulers; and bringing such views down to the present time, it may be justly asked in what manner those principles of our forefathers have been maintained? Such remarks embrace the fisheries generally; but the objects of my present paper will be wholly confined to those that are termed 'Inland Fisheries.' The salmon fisheries of Ireland may be said to be more valuable in their bearings and more available in their produce than those that exist in any similar extent of country of the United Kingdom. Circumstanced as they are—comprising such extensive privileges, far predominating over private rights, and yet so conflicting with numerous interests, ever combating to be established, that the most stringent enforcements are necessary for the due observance of such laws as may place all parties within the bounds of their legitimate claims. Hence it is imperative that not only those fisheries, but our sea fisheries, should be under necessary control, and be governed by proper legislation through a public department, vested with suitable powers. But there has been the difficulty. Commissions have been instituted, and committees have repeatedly sat, to investigate and to establish some sound basis, yet their efforts have hitherto been unavailing, and bills have almost annually been presented to Parliament, 'to consolidate and amend those laws, and assimilate them to those of England.'"

The author afterwards treated his subject under the following heads:—

"1st. The natural habits of the salmon; its spawning states; parr, and the gravelling.

"2nd. The seasons with regard to several of the rivers of Ireland.

"3rd. Remarks on weirs and fish engines."

The author concluded by saying that he did not understand the fisheries scientifically, but he had been practically engaged for many years; he was a practical man, but fully sensible of the importance of the study of natural history, and that science must promote practical knowledge. The aid of those who made practical science their study would be of great value in carrying out the work of public or official bodies.

A highly interesting and animated discussion ensued, the speakers being the Rev. Professor Haughton, Alderman Joynt (representing the Limerick fisheries), Mr. Theobald Purcell, barrister; Mr. Brady, one of the Commissioners of Fisheries in Ireland; Mr. Blake, M.P., Mr. James Haughton, &c.

### LIVERPOOL ARCHITECTURAL SOCIETY.

THE eighth meeting for present session of this society was held on Wednesday evening last—Mr. Weightman, the honorary secretary, presiding. Mr. Boulton communicated a curious fact respecting an incrustation of a kitchen boiler pipe, which, though only two years in use, closed the orifice totally. He exhibited the pipe, which is to be analyzed. Mr. Picton read first part of a paper entitled "Notes on Rome, and her edifices," for which a unanimous vote of thanks was accorded.

### THE GLASGOW ARCHITECTURAL SOCIETY ON THE SUBJECT OF COMPETITIONS.

WE find that at the last meeting of this society the following resolution relative to competitors was proposed by Mr. James Boucher:—

"That it is the duty of this society to watch over all public competitions which may take place in this city and neighbourhood, in order that the terms or conditions may be faithfully carried out, and any in-

fringement of the same by the competitors or promoters of such competition be brought under the notice of this society."

The following addendum was, however, deemed desirable to give the resolution a more practical shape:—"It is accordingly remitted to the Council to carry out the object in view."

### REVIVAL OF THE INSTITUTE.

PURSUANT to resolution number five, unanimously adopted at the general meeting of architects on the 3rd inst., and published, in connection with other particulars, in the last issue of the DUBLIN BUILDER, a committee meeting was held at the Ancient Concert Rooms on the 26th inst., at which Messrs. McCurdy, Welland, T. N. Deane, R. Carroll, Montgomery, and Lyons, were present—the first named presiding, and the last acting as honorary secretary *pro tem*. The proceedings being merely of a preliminary character towards the attainment of the object in view, it is unnecessary here to report them; but many of our readers will be interested to learn that it was the unanimous opinion of the Committee that it would be more expedient to revive the Royal Institute of Architects, and take advantage of the Charter granted to that body than to attempt the establishment of any other association of similar character.

### METROPOLITAN AND OTHER RAILWAY PROJECTS.

It is proposed to make a railway in Dublin to connect the Great Southern and Western with the Midland Great Western of Ireland, commencing by a junction with the Great Southern and Western Railway, at a point near the north-east corner of the goods depot at the King's-bridge terminus of that railway, in the parish of St. James, in the city of Dublin, and terminating by a junction with the Midland Great Western Railway of Ireland, at the point where the Liffey Branch diverges from the main line of that railway, in the townland of Tolka Park, in the parish of Grangegorman, in the county of Dublin, to be entitled "The Great Southern and Midland Junction Railway Company," with a capital of £75,000, and with power to borrow on mortgage, to the extent of £25,000.

The Dublin, Wicklow and Wexford Railway Co. seek for powers to enlarge and improve the stations or termini of their railway, in or near Harcourt-street, and of the Dublin and Kingstown Railway, in or near Westland-row, in the city of Dublin, respectively; in the latter case the company shall make and maintain an arch over Cumberland-street South, without lessening the present clear width of that street, including the footways, and the clear headway over the whole width of such street to be not less than twelve feet four inches in height. Same company proposes to construct a railway commencing from, and out of, and by a junction with, the authorized line in the townland of Killearra West, in the parish of Arklow, in the county of Wicklow, and terminating at or near Shillelagh flour mills, in the townland of Ballymultagh, in the parish of Mullinacuff, in the same county.

The railway to connect Wexford and Enniscorthy is proposed to commence at Slaney House Yard, in the parish of St. Selskars, in town of Wexford, passing through the parishes of St. John's, Carrick, Anlicantrick, Killurin, Ballyhope, Clonmore, and St. Mary's, Enniscorthy, and terminating in the townland and parish of Enniscorthy, in a field number 18 on the deposited plans of the Bagnalstown and Wexford Railway; and a tramway will commence at the terminus of the railway hereby authorized, passing through the parishes of St. Mary's, Enniscorthy, and Templeshannon, and terminating at the terminus of the Dublin, Wicklow, and Wexford railway in Templeshannon.

The following Bills are to be reported as complying with standing orders of the house:—Portadown, Dungannon, and Omagh Junction; Belfast, Holywood, and Bangor; and Letterkenny Railways. The Waterford and Passage Railway and Ferry Bill is unopposed. The object of the bill is to seek powers to enlarge the Waterford and Passage Railway Act of last year, so as to run the railway to Deep Water, at Passage, and to connect the counties of Waterford and Wexford by a ferry.

The petition for the Newry and Greenore Railway, Pier, and Wet Dock has been opposed on the part of the Newry and Armagh Navigation Company. It is expected that there will be a struggle before the House of Commons between the Newry and Greenore Company; and that the issue will decide whether much of the new traffic reaching Greenore can be diverted from the Enniskillen and Dundalk Railway. By the passing of the former scheme the principal allegations raised in the opponent's memorial were technical objections which Mr. Frere disallowed in each case. Mr. Hemans is the engineer of the line.

### EMPLOYMENT FOR THE DESTITUTE POOR.

The Rev. Mr. Moore, recently of Parteen, now Rector of Caherciveen, Kerry, has allocated a sum of money which the rev. gentleman is about to expend in the drainage of land and the employment of labourers, numbers of whom are in a pitiable condition.

The Rev. B. O'Connor, P.P., Miltown, Kerry, has twenty-five poor labourers employed in the drainage of land which he holds. Sir W. D. Godfrey, bart., by whose admirable lady liberal charities have been dispensed, proposes also to give employment in drainage.

The shareholders of the Ballina railway, in North Mayo, should memorial the directors to commence the works at this end as well as at Manulla. The necessity for its speedy construction must be apparent to all, for many and prudential reasons, but the reason why it should be begun here now is, that it would afford employment to the poor labourers who are at present without any, and would help to keep from the workhouse many who must seek its refuge shortly, if not otherwise provided with means of support. Colonel Gore's influence, if used for this object, would be all-important.—*Connaught Watchman*.

The foundation-stone of the new Convent-house for the Dominicans was laid at Godfrey-place, Tralee, on Wednesday week, by the Most Rev. Dr. Moriarty. The order have determined to expend something like £1,500 on the building, which will be a very seasonable relief for the unemployed poor at present in that town.

### DESTITUTION IN THE CITY—OVERCROWDING OF THE WORKHOUSE.

By the master's report of the South Dublin Union, read at the meeting of guardians on the 22nd ult.,

ALDERMAN BONSALL in the chair, it appeared that the house was full at both sides, male and female. The number in the house on the previous evening was 3,069.

The master stated that there was not a single vacancy; the women were lying two and three in a bed; there was accommodation for 3,094 in the house and sheds.

The chairman said they should advertise for premises, in case of an increase in pauperism.

Dr. Wall thought the guardians should extend the system of out-door relief.

Mr. Byrne said that it would be better for them to take even one side of Sackville-street than to give outdoor relief. He thought the present increase in pauperism was attributable to the want of proper supervision on the part of the admission board, as the numbers admitted during the past fortnight was disproportionate to the numbers obtaining relief in the North Union.

Mr. McCready moved that an advertisement be inserted in the public papers, inviting tenders for the letting of some spacious premises situate in the South City district, suitable for an auxiliary workhouse.

Agreed to.

### ABOUT SCULPTORS AND SCULPTURE.

Mr. J. H. Foley, the sculptor, has been elected a member of the Belgian Academy of Fine Arts.

Architectural students (says the *Athenaeum*) should not omit to avail themselves of the magnificent volume of photographs taken from details of the Cathedral of Amiens during the recent "restorations," and exhibiting the sculptures of that glorious gallery of art in many instances in their state ere any other "effacing finger" than that of Time had been laid upon them. Taken from various points of view, offered for this occasion only, by the erection of the scaffolds used during the work of restoration, these productions are unparalleled in interest. The man who does not know what Gothic sculpture was, or one who doubts its value, will do well to look at these; they are the work of MM. Davette and Romanet.

It is proposed to erect a monument, at Melbourne, to our renowned countryman (Galway), Burke, and his companion, Willis, who lost their lives some time ago in the unfortunate exploring expedition on the Australian continent, the particulars of which have been universally published, especially so in the *Athenaeum*. [Would not the Galwegians deem their old and gallant friend, Burke, a fitting subject for a local monument?]

We (*Clare Journal*) observe that the O'Connell monument in Ennis is now nearly completed. The circular stone which will top the column, and upon which the statue itself will stand, was carried from Mr. Carroll's quarry, on Saturday, and placed beside the monument. After some additional dressing it will be raised to its proper place.

It is said that Emperor of the French has given orders that the portraits of the four celebrated painters of the Vernet family shall be placed in the museum of Versailles.

## NEW PATENTS.

**LETTERS PATENT**, which have passed the Great Seal since the 13th January, 1863. Byrne and Lambert, Agents; Office for Patents, 4, Lower Ormond-quay, Dublin.

G. Faucus, for "Improvements in building boats."

A. Couvieux, for "An improved centrifugal apparatus for breaking stones."

R. A. Brooman, for "Improvements in generating heat in furnaces and fire-places."

H. L. Corlett, for "Improvements in the construction of tuyeres."

T. H. Saunders, for "Improvements in the manufacture of paper."

E. Bargin, for "An improved electric railway carriage signal."

W. E. Gedge, for "An improved excavating or boring apparatus."

R. Grogan, for "Improvements in screw propellers of steam vessels, and in the arrangement thereof."

Robert Bell, for "Improvements in the manufacture of bricks."

William Clarke, for "An improved apparatus for decanting wine."

J. Norris, for "Improvements in the arrangement or construction of ovens."

G. H. Birkbeck, for "Improvements in the means or processes employed for preserving timber from decay or destruction."

A copy of the specification of any patent, describing the nature of the invention, and the mode of carrying it into effect, can be had at the office for a sum not exceeding five shillings.

## Correspondence.

*[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]*

## MODEL COMPETITIONS.

## THE MARINERS' CHURCH (KINGSTOWN).

SIR,—I presume you noticed that the time for receiving designs for the Mariners' Church at Kingstown, was extended, by a note issued *three days* after the designs had been sent in, according to *FIRST* advertisement. Some interested party is at the bottom of this trick; and, I think, should be found out and exposed.

T SQUARE.

## DUBLIN EXHIBITION PALACE AND WINTER GARDEN (LIMITED).

## TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—With reference to the letter of Mr. Doolin, it occurs to me that it is not likely that the directors would adopt the course attributed to them in obtaining contracts. If they undertake to prepare an *ex-parte* measurement, they must, of course, guarantee its correctness and re-measurement, and perhaps litigation might hereafter follow their so doing. The more prudent, and more business-like, and natural course they will naturally adopt—viz., to participate with intending contractors in preparing the inventory or "bill of quantities" of the work and materials necessary to carry their designs into effect. Indeed it has been stated that they will follow the course pursued lately in London, as regards the Great Exhibition of 1862, as nearly as possible.

The two interests concerned, the buyer and the seller, agree each to appoint a measurer, to act in concert, and agree on how many tons weight of iron, and timber, and stone, lead, and so forth will be necessary; the competing builders all getting a printed list of settled quantities, and the competition between the builders being on prices only. No builder of any eminence could devote his own time to taking out quantities, let him be ever so competent for the task; and, at the same time, surveyors, who make it their profession, are more suitable, and more disinterested and reliable measurers. No one surveyor, as a rule, ever acts for both interests concerned, unless both parties have mutual faith in him, and appoint him to act as sole arbitrator in determining the weights and measurements of the articles required. As an exception to the rule, the reverse has been done in one or two instances, but these are now held as warnings, or specimens to be avoided, and not as precedents to be followed.

I think, sir, it is not at all likely that such men as compose the Building Committee of the Winter Garden, when looking for a brisk competition of contractors, will take any unusual or unwise course, that would tend to frustrate their views as to obtaining a good local contractor at a moderate price.

I enclose my card.

A LOOKER-ON.

## THE CITY HALL COMPETITION.

SIR,—Some six or eight months since No. 3 Committee of the Corporation advertised for "plans for the improvement of the entrance to the City Hall;" offering a premium of £20 for the one approved of. Some twenty-three sets of really beautiful designs were the response to the call. The Committee sat, and sat, and considered. But notwithstanding that they had the opinion of professional men, and the benefit of your able and judicious remarks at the time, they could not come to a decision on the plans, but let them hang neglected on the meagre walls of the Council chamber—a sad lesson to professional pride and aspiring genius!

Surely, now that there can be no possibility of the Corporation ever adopting any of the designs (since Exchange-court is, I understand, about to be added to the City Hall, thereby altering the front), it would be meet of them to come to a decision, and award the premium on one of the plans before them, and not let the competing architects blush as they behold the cobwebs growing over their designs.

In truth, Mr. Editor, the reorganization of the Institute of Architects is sadly required, and if it be, sir, the profession are indebted to your untiring energy in endeavouring to accomplish it.

A COMPETITOR.

## RAILWAY NEWS.

**THE METROPOLITAN RAILWAY.**—We, *Freeman*, learn, by a special telegram from London, stated last night, that the committee on standing orders have declared that the orders have been complied with in the case of this bill. The standing orders have, therefore been complied with in this case.

**WEXFORD AND ENNISCORTHY RAILWAY.**—The promoters of the above railway have made the necessary deposit of £6,800, required by Parliament, previous to the passing of the measure.

**NEW RAILWAY STATION AT MONAGHAN.**—The new station at Monaghan, in connexion with the Ulster Railway, was recently opened for both passengers and goods. The new building is somewhat nearer to the business part of the town than the old one, which was in a dilapidated condition.

**WEXFORD AND ENNISCORTHY RAILWAY.**—Application has been made to Parliament for a bill to construct a line of railway between the towns of Wexford and Enniscorthy—the length of the line being 14 miles 6 furlongs. The engineer to the company is Captain Moorsom, R.E., of George's-street, London. Mr. McKenzie, who has had much experience on the London and North Western Railway formerly, and latterly in Spain, has proposed to construct the line for £65,000. The line is to commence at Slaney-street, Wexford, and to keep at the west side of the river Slaney, and to terminate near the Poor-house in Enniscorthy. A line of tramway is then to be made, in order to cross the Slaney over the terminus of the Wicklow railway. The directors are—John Greene, J.P., Mayor of Wexford, and proprietor of the *Independent*; John E. Redmond, M.P.; Francis J. Connell, J.P.; William J. Marshall, and C. Wilson, Esqrs. The capital of the company is £90,000, in 9,000 shares of £10 each. The deposit money required by the standing orders (£6,800) has been lodged. The line will pass along a fine level country, except at Ferry Carrig, where there is to be a tunnel under the Crinean monument.—(*Communicated*)

## Varied Items.

The Crystal Palace Directors report relative to their picture gallery that their anticipations of increased sales in the past season have been realized, and it is gratifying to observe that the works sent for exhibition have been of a higher character, and that the popularity of the gallery has much advanced. Artists are informed that New Works will be received at the Hanover-square Rooms, on Monday and Tuesday, March 2 and 3.

The election for the Professorship of Ecclesiastical History in the University of Dublin was to have taken place on yesterday, the 31st ult.

At a special general meeting of the members of Royal Institution, held recently, the Prince of Wales was elected an honorary member and the vice-patron of the Institution.

A son of the late Monsieur Jullien, the popular monster orchestra leader, is amongst the candidates for popular favour in London in his father's profession.

At a meeting of the Society for the encouragement of the Fine Arts, held in London on the 15th ult., Mr. Hurlston, Pres. Brit. Artists, read a paper "On the Poetry of Spain," which referred to "Don Quixote," Cervantes, Lope de Vega, &c., &c.

Twenty-one candidates—viz., nineteen for proficiency and two for distinction—entered their names for examination at the voluntary examinations last month.

Mdlle. Titiens has been receiving an ovation in Naples, only equalled by that accorded to Madame Melibran.

The government of Tasmania have voted £3000 for the purpose of investigating the mineral and metalliferous resources of the Macquarie Harbour country. The investigation will be entrusted to Mr. Charles Gould, the government geologist, son of the eminent ornithologist.

Signor Mario, the eminent tenor, proceeds to Barcelona this month, having accepted an engagement there.

A scheme is on foot to establish a new park at the west end of Edinburgh; liberal support is offered, and the cost estimated at £30,000.

A new concert hall has been inaugurated in Paris.

The extensive pile of buildings at Plymouth, forming the Rouen Hotel Assembly Rooms and the theatre, has been destroyed by fire.

At the end of last year the Melbourne government had expended nearly £8,000,000 in railways. They are most substantially constructed, and promise to be of immense advantage.

The Italian government has just advertised for plans and tenders for the construction of docks at Leghorn, Ancona, and Messina. They are to be constructed on the model of the best now existing; must be in direct communication with the sea and the railway stations, and afford easy access to carriages and waggons drawn by horses. There are to be general and private warehouses, as well as full accommodation for the Customs' department.

The petitions for the Baggottrath and Donnybrook Improvement, and the Tramway Docks, have been declared to have complied with standing orders.

The French Permanent Exhibition at Auteuil is fast approaching completion. Six hundred workmen are employed at it by night as well as by day. In the absence of sunlight they work by the light which a gigantic electric apparatus emits.

Mr. W. P. Frith, R.A., well known as the painter of "The Derby Day" and other pictures, has received her Majesty's commands to take for the subject of a large work the approaching wedding of the Prince of Wales.

About £3,000,000 sterling was paid into the office of the Accountant-General of the Bank of England on the 14th ult., for parliamentary deposits on undertakings in conformity with the standing orders of the houses of Parliament.

Among Mr. Stanfield's contributions to the forthcoming Royal Academy Exhibition will be a picture representing the condition of some part of the fleets on the day after Trafalgar—a subject that has been in the mind of the artist for many years.—*Athenæum*.

## Miscellaneous.

## ST. FINN BARR'S NEW CATHEDRAL, CORK.

—The General Committee for the erection of the above cathedral met yesterday and adopted the design with motto, "*Non Mortuus sed Virescit*," as that deserving the first prize of £100, and as that which should be the one ultimately built. The drawing with the motto, "Let us Arise and Build," has won the second of £50 from many plans of exquisite taste. The delay in coming to a decision was caused by the anxiety of the committee to do full justice to the talents of the competitors by the exhibition of the plans to the public, from whose judgment they have derived much assistance in arriving at the above conclusion. "*Non Mortuus sed Virescit*" is the design of Mr. Burgess, of London; "Let us Arise and Build," that of Mr. Deane, of Dublin.

**CHALONER'S ANNUAL TIMBER TRADE CIRCULAR.**—Some instructive and interesting facts connected with the timber trade in the great commercial port of Liverpool, are presented in the annual circular just issued by Mr. Chaloner, the eminent wood-broker of East Side, Queen's Dock. It seems that the imports from Canada and America decreased during the year '62, whereas those from the Baltic—especially "fir logs"—have increased. In the aggregate, the imports of mahogany have been rather above those of preceding year, and are the heaviest ever received. Of ST. DOMINGO mahogany, the imports show a decrease of 28 per cent.; of CUBA, also less; of HONDURAS, an increase more than double—including cargoes from Carthagena; of MEXICAN, prices less, but importers procure from Tobasco, Laguna, and Santana, (yielding harder woods), in preference. CEDAR, less, and stock exhausted; SATINWOOD, from St. Domingo, double; ROSEWOOD increased, and good stock in hand; WALNUT freely from Italy, but moderate from Canada; BIRD-EYE MAPLE, considerable increase; PITCH PINE, no imports; stock only 3500 feet against 138,500 on 1st February last. (These woods are now sold by Queen's calliper—setting aside the customary usage of the port of string measure; which the circular states is most disadvantageous to the buyer.



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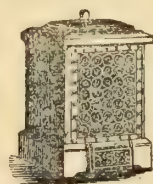
At the late meeting of the Royal Agricultural Society at Leeds, MUSGRAVE, BROS., received

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# The Dublin Builder.

VOL. V.—No. 76.

## OF WHAT ELEMENTS SHALL THE REVIVED INSTITUTE OF ARCHITECTS CONSIST?

 E doubt that precipitancy shall be imputed to us, if we anticipate, and dispassionately review, some important topics for consideration of the committee charged with "the re-organisation of the Institute of Architects of Ireland;"—a project which we have the extreme satisfaction to chronicle, is now on the eve of being an "accomplished fact."

We hail with very much pleasure the *unanimous* determination arrived at, to collect together the scattered fragments of the *effete* body, rather than attempt the formation of an independent establishment; and it must be admitted that we never believed the accomplishment of the task so undertaken to be an impracticability, or to be *sure* to be attended with any other *result* than success; provided that the basis were spread over a more comprehensive and liberal area than hitherto, and that the "elements" of the exhumed subject underwent a thorough and *judicious* modification.

As yet, the reorganisation committee have done, or *could* do nothing beyond mere formal preliminaries; for it would be ungracious for them to move definitely until the gentlemen previously holding office under the Institute—were communicated with. This, we know, *has* been done at the earliest opportunity, and the proceedings, of the committee, together with those of a recent meeting of the Council of the original Institute, are of a highly cheering character.

Before reviewing *them*, and other subjects in connection with the *new* Institute, let us digress a moment to take a passing retrospective glance at the *old* as it existed at the time of its last meeting, in the mid-summer of 1857. We find that it consisted of about *twenty-five* fellows and a *dozen* associates, whose joint subscriptions constituted an annual revenue (exclusive of life members' compositions of ten guineas each) of little over £60—*assuming* that all had paid up punctually. The fellows comprised architects of "good repute" and in established practice, exclusively; and among the associates were some civil engineers, practising as such, also a few county surveyors; besides *one* eminent sculptor, *one* highly respected organ builder, and some others whose avocations are not intelligibly defined.

*Builders, contractors, and building surveyors*, were excluded from admission.

It must be seen, therefore, that the resources of the *old* Institute commercially as regarded numbers—and consequently as regarded the annual income of the establishment—were very limited *indeed*; but this was not the greatest misfortune to be deplored, for, unhappily the sphere of operations was more limited *still*; the members (with few exceptions) seldom or ever honouring the meetings with their presence, much less contributing any *useful* communication that could be recorded in the transactions, or might elicit an interesting and instructive discussion.

Briefly, they were admitted delinquents in the non-performance of the several professions to which, on election, as members, they solemnly subscribed, viz., "to contribute to the advancement of civil architecture; to the promotion and facilitating of the acquirement of knowledge in the various arts and sciences connected therewith; to the foundation of a Library and Museum; to the establishment of a correspondence with scientific men in other countries; to enquiring and obtaining of information on said art; and to the maintenance of a uniformity and respectability of practice in the profession."

We now proceed to enquire, what is meant by this "broader basis" term (applied in the recent resolution of the old Council) to the revived and re-constituted Institute of Architects?

Is it that the restriction specially referred to shall be removed; that there shall be no more prejudiced exclusion from this assembly, of *honourable* men pursuing *honourable* occupations, akin to those of the architect himself, and forming an indispensably essential portion thereof?

We believe—*nay, we know*—that it *is*; we know that,—at least, as so far ascertained—the opinion is *general*, that the hitherto customary *professional* exclusiveness should, to an extent, be laid aside; that the *practical* man and the art workman, whose private character shall be unimpeachable, and whose skill may have earned for him a worthy position, *shall* be eligible for admission into the ranks of the Institute.

And this "element" we regard as one pre-eminently calculated to ensure complete success in the revival of the constitution, and to effect an increased comprehensiveness of its mission.

It is obvious, however, that the *nature* of the respective occupations of "Architect" and "Builder"—closely allied as they are in some respects, while widely differing in others—is such, that there must be, from prudential motives, and to avoid the possibility of calumnious aspersions by the public, some line of demarcation drawn *within*, as well as *without*, the walls of the Institute.

If we are to have an Institute of *Architects* in Ireland, Irish architects of *locus standi*, coupled with those not "of the soil," but who by associations have become naturalised thereto, *must* be the governing powers; as well as, should native builders be of their *own* "Builders' Association,"—which we should only be too happy to find prosperous and in good *working* order;—but it does not necessarily result that, either *one* or the *other* should selfishly exclude from participation in the interest and instruction to be derived from the proceedings of their body, those who are not directly connected therewith, but who are by character of avocation in *indirect* affiliation.

In connection with this head we may remark that, since the period above-named, although, of course, death has in some respects thinned the elder ranks of the profession, there has, on the other hand, been a very considerable acquisition of practitioners, who are quite eligible for membership of the *first* grade; and there are also numerous juniors and others in the pursuit of occupations more or less connected with architecture as an art and as a science, who would worthily fill their proper places in the proposed Institute.

The election of all *new* members—whether architects, as fellows or members, or builders, as associate members respectively, will, of course, be by ballot; and from our knowledge of many highly respectable builders, both local and provincial, we can reckon on there being an important draft of *associate members* who shall pass that ordeal, and whose presence will be an acquisition.

And, again, would not the Institute derive considerable advantage from the presence and the valuable assistance of those gentlemen now so well known as eminent building surveyors, and most intimately identified with almost every important public or private undertaking. We should likewise regard a *junior* class of membership for architects' pupils, draughtsmen, &c., as a very necessary "element."

We next come to consider the all-important, perhaps the most vital "element," viz., the proposed *official* management of the Institute.

There is no need of reminder to those acquainted with the constitution of scientific or artistic institutes generally of the paramount importance to be attached to the *judicious* selection of properly qualified and energetic officers, from the highest occupant of that object of ambitious dignity—the presidential chair—to the less, *nominal*—but not one whit less *virtually* important—Secretary. Recurring to the constitution of the old Institute, we find that her Majesty the Queen was patroness; that the president was a respected nobleman—a most noble marquess (Clanricarde)—who, as a matter of course, enjoyed the dignity of his position in an honorary manner to all intents and purposes; that in his invariable (but, no doubt, unavoidable) absence, one or other of the three vice-presidents was assumed to act as his deputy. Whether in the course of proceedings *that* was or was not the fact we are not disposed now to enquire.

Far be it from us to dictate a course of proceeding to the committee or the council, but we ask permission here to ventilate a suggestion, that a favourable opportunity of the architectural profession paying a graceful tribute to the merits, to the enlightened faculties, and the art-encouraging characteristics of the distinguished nobleman who vicereally presides

over this portion of her Majesty's dominions, is now afforded by respectfully tendering to his Excellency the Vice-Patronship of the revived Institute. We believe that his Excellency's exalted official position would preclude a nearer connection even with an Art Institute.

Who shall say that such "an element," if by courteous condescension it be procurable, will fail to prove a most invaluable acquisition?

Changes in both the offices of presidential and vice-presidential—must also, owing to vacancies by death, as a necessity take place. Who, then, shall be the new president? Who shall be elected vice-president in the room of the late Mr. Papworth?

To the former question we are disposed specially to supply the answer, that the President should be a *member* of the *profession* of architecture, and *not* an outsider, however noble in birth, "in intellect, or infinite in faculties." The office is one which every architect within the ranks may, with laudable ambition, aspire to fill in his turn. Why not then leave it open for the competition of those best qualified to occupy it? It might be invidious for us to particularise the gentleman whom we believe to be, by his high professional position, by his social status, by his educational attainments, by his demeanour, and, in a word, by his *toute ensemble*, a most eligible candidate for an honour which, we doubt not, if conferred, will be accepted and maintained with becoming dignity; so we refrain, and leave the choice completely to the good taste and the discrimination of the members themselves.

With reference to the *latter* question, we desire to address ourselves more specially and more individually. A few years since, and subsequent to any election of officers of the old Institute, an important change took place in the architectural department of a certain public board in Ireland, whereby a gentleman previously holding a *second* (or perhaps third) position therein was translated to a *first*, which he still worthily maintains with advantage to the public, and with the unanimous approbation of those with whom in the pursuit of most responsible duties, he is thrown in connection. This gentleman held the post of an Honorary secretary to the old Institute in conjunction with a professional brother—the extent of whose official responsibilities in the public service have also since been materially enhanced—but we apprehend that it will be admitted without a dissentient voice, that he is entitled to a higher position in the *new* Institute, and that the vacancy on the Vice-presidential list ought to be filled by *him*. If this be not strictly a *new* "element," we must submit that it is at least portion of "a judicious modification." Seven members of council will also have to be chosen according to the existing régime, but the extension of that number may form a subject for the future consideration of the members. The treasurership and auditorship will, we apprehend, remain as at present, and no more desirable appointments could be made.

Touching the office of "secretary," we find, on reference to the bye-laws of the old Institute, that that body was not *en regle* in having honorary secretaries at all. Section III. distinctly says that "the officers of the Royal Institute shall consist of a president, three vice-presidents, and one secretary, who, with seven other members, shall form a council for the direction and management of its affairs." Will this rule be altered to meet the terms of the resolution passed at council meeting on Friday last, deciding "that a *paid* assistant secretary be appointed who shall act under the direction of the *honorary* secretary?"

For what purpose are both an *honorary* and an *assistant* secretary required?

The office of secretary (be it honorary or otherwise) is a most essential "element" in the constitution of this body, and anything relating to the appointment merits most serious deliberation.

We are gratified in being able to announce that, by a mutually beneficial arrangement with kindred societies, (suggested by the present honorary secretary to the re-organization committee, and conductor of this journal,) a never-failing supply of "papers" or other communications of interest will most probably be ensured; and even already have some tangible steps to that much desired end—a modified "element" truly—been taken. Likewise towards the accomplishment of a library and museum has a *practical* beginning been made by the same gentleman, who, heads the list *himself*, by a donation of twelve valuable volumes, and earnestly solicits the profession and the trade to follow his example. We much mistake their character if the response will be other than *hearty* and *immediate*.

There are many topics connected with the elementary constitution of the revived Institute still remaining untreated, to which we desired to refer, but the space at our command forbids it at present. We shall, however, in carefully chronicling with each issue the progress of this movement, take occasion to express *our opinion* (at least) thereupon, and further the proceedings by every means in our power.

# THE ST. PATRICK'S CATHEDRAL RESTORATION CONTROVERSY.

CONVINCED that the duty of a journalist shall have been completely performed in spirit of *fair play* to all parties directly or indirectly interested in a controversy, when the pages of his publication have been thrown open, at *sufficient length*, to admit of a *thorough* argument on all salient points, we determine, with insertion of the following, to bring the questions involved under the above head to a close.

This controversy, as our readers are aware, originally arose by reason of a lengthened letter addressed to us by Mr. McCarthy, embodying a series of exceptions to our own editorial remarks on what we believed (and still believe to be) very hasty and ill-judged conclusions by the *Ecclesiologist*, as well as an unqualified attack on the restorer of the Cathedral, the builders and the workmen employed, as also on a morning contemporary's favourable view of the work quoted by us. Having given place to the one document, we conceived that we should in justice insert all rejoinders; and having now done so, we feel assured that our general readers will coincide with us, that to prolong the controversy would tend to no salutary purpose whatever.

As promised in the editor's programme for current series, early illustrations of the work, as executed under Mr. Guinness' direction, shall be given (being hitherto prevented by reason of the scaffolding and hoarding rendering the taking of a perfect photograph impracticable) but no reference thereto which can possibly re-open the controversy on the questions already treated will be admitted.—ED. D. B.

(From the *Ecclesiologist* for February.)

As might reasonably have been anticipated, the EXPRESSIONS of regret which we felt bound to EXPRESS\* at the licence which the munificent restorer of St. Patrick's Cathedral had given to the fancies of workmen, from his unwillingness to employ a competent architect, has given rise to a brisk controversy in the effervescent capital of the Irish nation. We find ourselves arraigned by the DUBLIN BUILDER, which came across our article (copied in the *Oxford Herald*, we suppose, without acknowledgment), and attacked us accordingly under that alias; while the work finds another warm defender in the *Freeman's Journal*, which shows its competency to deal with ecclesiological questions by emitting the extraordinary proposition, that—

"The general view to be obtained from the cemetery would be very fine were it not for the presence of the building which has been erected at the eastern end, on the site where the lady chapel stood. The material alteration of this building, if not its removal, would be most desirable. The apex of its roof interferes with the five-light window in the sanctuary. Other portions also interfere with the aisles, while its presence mars to some extent the general harmony of the exterior of the cathedral."

It is hardly necessary for us to explain that the "building" is architecturally the *veritable* Lady Chapel, most accurately restored by Carpenter, to serve as the chapel of the Order of St. Patrick, as well as chapter house.

Our defence has been taken up in the DUBLIN BUILDER by Mr. McCarthy, well known as the champion of ecclesiological principles in the Roman Catholic Church of Ireland, and the architect of the large church of St. Dominick, in Dublin, as well as the completion of the Roman Catholic cathedral of Armagh.

The DUBLIN BUILDER so thoroughly establishes—while it attempts to refute—our charge against the workmen, of having composed the capitals *ad libitum*, that we prefer giving its own *unadorned eloquence* to quoting Mr. McCarthy's exposure of the defence:—

"The next point of attack is directed not only against Mr. Guinness, but against the builders and their workmen, for the latter being allowed 'to follow their own fancies in the foliated capitals.' To that statement we (DUBLIN BUILDER) can reply, from personal knowledge, that where it was practicable to reproduce faithfully the original capitals, it was done, by the aid of photography (which was extensively employed in every department of these works), and where not so, the workmen were required to model the new caps in strict accordance with the style of the others throughout; although, of course, permitted to design the disposition of the foliage—a mode of proceeding adopted from time immemorial, and never more generally than it is at the present day."

If the consequent mischief were not so serious, we could afford a very hearty laugh at the grotesque confidence involved in turning loose a lot of stone-cutting workmen into an old cathedral, unchecked by any architect, with a "requirement" to be "strict," diluted with a "permission" to "design" all the points upon which hinged the difference between *good* work and *bad* work.

With regard to the work in general, we are com-

\* This is some of our learned contemporary's "unadorned eloquence;" express an expression! (vide Murray's Grammar on tautology.)

pelled, with much regret, to give in our adhesion to the strictures which Mr. McCarthy embodies in his letter to the DUBLIN BUILDER. The intelligence that the paroloes of Notre Dame are to be copied is new to us. No one who has come in the least degree under the influence of analytical architecture, and who knows the two buildings, can fail to realize the entire discrepancy in spirit between the purely Early French style of Notre Dame and the as purely *Hiberno-Anglican* feeling of St. Patrick's. Such an alliance must break down from incompatibility of temper.

[Here follows a long extract from Mr. McCarthy's letter in the DUBLIN BUILDER, unnecessary to reproduce.]

In conclusion we have but to reiterate *most truthfully and most earnestly our very deep regret* that we should have to speak in any terms but those of *unmeasured laudation* of so magnificently munificent a work as Mr. Guinness's restoration of St. Patrick's. Having to criticize it at all is about the most painful duty which our allegiance to ecclesiological and architectural principle has ever devolved upon us.

[Previously to announcing this conclusion we had been requested by Mr. McCarthy to state that, if the author of the letter in our last number, signed "An Architect," would favour him (Mr. McC.) with his name, a reply to the statements and mis-statements of the former would be given, but Mr. McCarthy declines to notice any anonymous writer. ED. D. B.]

Now hear what a *very eminent* ecclesiological architect, practising in the south of Ireland, an admitted "representative of his class," and one whose sympathies Mr. McCarthy doubtless expects would be fully enlisted on his views of the question, says:—

"With regard to St. Patrick's Cathedral, I ought to know something about it, inasmuch as that I made drawings of a greater portion of the building. I have a notion that *both parties are right*; I know "Poor Carpenter's so-called restoration of the Lady Chapel is BAD, TOTALLY UNLIKE WHAT IT WAS; the masonry and horrid little *brickly* dressings HAVE NOT A TRACE OF THE ORIGINAL, and the general drawings which I have carefully looked over, appeared to me a *design for a Yorkshire Church, from "Sharpe's Parallels," and CERTAINLY NOT A RESTORATION* of St. Patrick's."

A subsequent communication which we give hereunder was addressed to us by the same author.

SIR,—The restoration of the principal church in this country cannot be without interest to those who have any regard for its ancient time-marks. Often, in years gone by, have I admired this venerable pile, tottering, it is true, yet still in its *seve* old age, bear-unmistakeable evidences of its once manly beauty; but, alas! truly "the light of other days is faded, and all its glories past."

The original buildings at the east end have all been ruthlessly swept away, and the so-called "Poor Carpenter" restorations, that were at that time commenced, did not, most certainly, evince the slightest knowledge of the manner in which the work was originally executed. We have a reproduction of the class of work seen in those wretchedly-executed churches one often stumbles on in London, with small regular white brick-like dressings, and masonry to correspond, all having a most meagre and artificial appearance. Those who recollect the broad and free masonry of this murdered friend of our youth will agree with me, and not regret that the modernized restoration, designed by Mr. Carpenter, of the entire, was not at that time carried out. I then carefully examined the drawings for it, and they certainly appeared to me to show rather a design for a new church than a faithful restoration of St. Patrick's Cathedral, reminding one exceedingly of the old Yorkshire churches, as shown in "Sharpe's Parallels."

It is, indeed, not a pleasing task to say a single word in disparagement of the most munificent restoration now in progress. I have not had an opportunity of visiting the works since its commencement, but two things admitted by its advocates make me tremble,—one, not alone the restoration of those wretched pinnacles, but the actual defence of the fact—and the other, the blocking out of the interior walls to imitate ashlar work—two things for which an apprentice of one year's standing ought to be whipped. But I hope I am mistaken as to the general character of this so nobly conceived undertaking.

The grand mistake, no doubt, was, considering restoration as "a mere simple affair," not requiring the intervention of an architect.

From my previous remarks it will be said that this idea was not without reason, but for some years back ecclesiological knowledge, if it has not advanced, has become more sensible; and there are in this country architects who, having carefully studied the buildings of their own land, are far better capable of restoring them than some imported "architect of the ecclesiological school." The poor restoration of Limerick

cathedral will, I think, fully bear me out in this. Look at the eastern triplet, the melancholy reredos, and the woodwork of the most common-place description.

In conclusion let me even now respectfully suggest that some native architect, acquainted with the peculiarities of Irish ecclesiastical buildings, be consulted, were it only for a mere passing opinion.

Shanah Imrhen.

P. S.—I venture to hope that you, sir, in pursuing your Towns' Survey series, will, when in Limerick, step in and examine "the Slater restoration features" of the cathedral. A "Carpenter," at St. Patrick's, Dublin, and a "Slater," at St. Mary's, Limerick, appear to have been about equally successful. Both leaders of "the (Anglo) ecclesiological school," of course.

SIR,—The replies to Mr. McCarthy's letter relative to the restoration of St. Patrick's Cathedral, published in the last number of the DUBLIN BUILDER, are very far from being satisfactory; indeed they have rather tended to increase than to allay, the painful feeling of uncertainty entertained by many who take an interest in the preservation of what yet remains of our ancient buildings, as to the result of Mr. Guinness's munificent project.

Something more is surely required to refute Mr. McCarthy's statements than the oft-repeated assertion that "every means have been adopted" (photography included) to insure a faithful and accurate restoration of the building "to its original state." To test how far these confident assertions have been realized, perhaps you will allow me to refer consecutively to the works that Mr. McCarthy has taken exception to, and the counter statements in the replies to his letter.

The first objection was to the pinnacles of the side buttresses, and that they are "intensely ugly" is admitted by "An Architect," but it is pleaded in justification that they are in accordance with one finished under the superintendence of Mr. Carpenter. Even if this were so, and Mr. McCarthy subsequently states that it is incorrect (in which my own recollection bears him out), let me ask is it in conformity with the repeated promises that the restoration was to be based on careful examination of what remained of the original parts of the structure, yet it is confessed that an "intensely ugly" modern pinnacle has been copied with Chinese precision under the erroneous impression that it was designed by Mr. Carpenter.

The next objection is to the destruction of the corbel shafts at the north side of the nave, and the substitution of full length shafts to correspond with those added to the other piers. The reply of "An Architect" on this point is not at all clear, but he seems to admit what Mr. McCarthy condemns, and to defend it as necessary to remedy the irregularity of a former restoration. Messrs. Murphy, however, profess to grapple boldly with the objection, and it cannot, I think, be denied that they have done so, as they state that it is "simply, absolutely, unequivocally untrue!" yet, I fear we must rely on Mr. McCarthy's statement of what he witnessed, rather than upon such a sweeping, but "unsupported assertion."

The next point at issue is the rood screen. Mr. McCarthy asserts its undoubted antiquity; but in the replies to his letter it is described as "an unsightly modern structure," and as a "pile of rude masonry." The chief, if not the only reason, however, for the opinion that it was not a rood screen, was what was considered its unusual position. This is utterly untenable as a reference to Mr. Walcott's little work on Church and Conventual Arrangement will show that there is no position that it "should occupy"—in fact it stood nearer to the east or the west of different buildings, as circumstances dictated, so that in this point also, I think we may adopt Mr. McCarthy's opinions, backed by so eminent an authority as Mr. Petrie, and we must arrive at the conclusion that a venerable relic of antiquity has been wantonly destroyed, unless, indeed, that its removal was absolutely necessary, which does not appear to have been the case.

Mr. McCarthy's objection to the placing of way-side crosses on the gables may or may not be well founded. I do not think that the form is in itself objectionable, if they are in good proportion, and treated to suit their position. As, however, there is clearly no authority for them existing in St. Patrick's, or, indeed, any other building that I know of, may I ask who designed these crosses? or were they left to the fancy of the workman who wrought them, perhaps aided by photographs of existing church-yard crosses? I fear the photographs would, in many cases, be as puzzling to the workmen as that of the foundations of the south porch appears to have been to "An Architect," as he treats Mr. McCarthy's ironical allusion with amusing gravity, when he declares that "in truth he is bewildered in contemplating it;" but, seriously, why is it not stated who designed the porch, or was it also left to the fancy of the workmen who built it?

"An Architect" has, I think, entirely misconceived

Mr. McCarthy's objection to the sham ashlar of the plastering. What was condemned was not the kind of ashlar imitated, but the imitation of any kind, which was correctly described as a sham.

As to the lath and plaster vaulting, Mr. McCarthy's objection to the trefoil form introduced has been met by the statement that Mr. Carpenter intended to have used it, and that, in fact, what remained of the original vaulting admitted of no other mode of treatment, even if this were admitted to be correct, did not so novel a feature require the supervision of some one who had well studied so complex a subject. Mr. McCarthy may after all be quite right in suggesting that there were other ways of overcoming the difficulty that presented itself besides the one adopted.

We must all feel indebted to Mr. McCarthy for having called attention to the suggested "destruction or material alteration" of the Lady chapel in time to prevent the perpetration of such a ruthless act of Vandalism, if indeed it were seriously contemplated. If it were not, surely your correspondents should have reassured the public mind by a simple denial of the intention to carry out such a monstrous suggestion.

Having now gone through the principal points at issue, did I follow the bent of my inclination I would not further encroach on your space; but portions of the extraneous matter introduced, I think, illustrate pretty clearly the architectural qualifications as well as the good taste of the restorers of St. Patrick's; besides it may be well to bear in mind, who are the parties to the controversy?

Of Mr. McCarthy personally I know very little, and have not had the pleasure of meeting or communicating with him for a long time, but we all know that, unaided by any fortuitous circumstances, he has won his way to a foremost position in the branch of his profession to which he has chiefly devoted his attention. The churches that he has designed are spread over the land from north to south, some of them the very finest churches of their kind that have been erected in this country during the past twenty years, and all are correct and effective buildings. Now, who are his antagonists? The first in order is your contemporary, the *Freeman*. But, alas! whatever we may think of it otherwise, its architectural criticism cannot count for much. What building has it not belauded? from a bran-new Roman cement and plate glass tavern to a cathedral, at the inauguration of which its representative was present. Indeed it would be amusing, if not edifying, to look back to a file of the *Freeman* for some glowing descriptions of Mr. McCarthy's buildings at the time of their consecration.

While "An Architect" wears his visor down, his standing in the profession, whatever it may be, can add no force to his opinions beyond their apparent value.

Messrs. Murphy and Son bear a high character in the building trade. I believe they have been for many years lucratively employed by Mr. Guinness in the erection of work connected with his extensive establishment; but have they ever been engaged either in the erection or restoration of a Mediaeval building, whether civil or ecclesiastical? I think I am correct in saying that they have not. With the exception, perhaps, of some of the smaller (very Tudor) stations of the Great Southern and Western railway, in the county Kildare, indeed, I believe the restoration of St. Patrick's is the first extensive building operation of any kind that they have been connected with. I have no doubt that to the best of their ability they have endeavoured to carry out Mr. Guinness's wishes; and I am quite sure that the work has been substantially executed; but what reason is there for supposing that they are gifted with the knowledge of ecclesiastical architecture, to enable them to restore faithfully the half-obliterated features of the venerable fabric that they have been allowed to take down, and reconstruct without any apparent guidance or control? If we may form an opinion of their fitness for the onerous task they have undertaken, from the manner in which they describe Mr. McCarthy's buildings, it must be a very unfavourable one indeed. For instance, they say that the columns of his church in Dominick-street crumbled under their own weight. Is this a wilful perversion, or are they so ill-informed of what really did occur at such an important building in their own locality? The columns must have been of very unusual dimensions and material if the statement was correct; but although I believe some of the stones were crushed and had to be removed and replaced by others better selected and jointed, the columns not only carry their own weight now that the building is finished, but the clerestory walls and roof of perhaps the highest church in Dublin. Is there not, too, an inconsistency in saying that it was the late Mr. Pugin who designed the church referred to, and yet attributes to Mr. McCarthy the failure of the columns, and copying some of the features of the building?

These statements are indeed unworthy of notice, but they serve to show what value we should attach to "unsupported assertions" from those engaged at the restoration of St. Patrick's.

Messrs. Murphy's assertions that the church at

Irishtown is a reduced copy of St. George's church, Southwark, designed by Mr. Pugin, may be taken as a test of their knowledge of ecclesiastical architecture. I know both buildings very well, and I don't know a single point of resemblance save that they are both Gothic churches, and that they have triple roofs without clerestories—a feature by no means peculiar to them; so that if Mr. McCarthy adopted St. George's for his model, Messrs. Murphy are quite right in saying that he "eliminated every vestige of the original," from the foundation to the highest pinnacle. Their reference to the damage done to this church by a storm, during its erection, at the same time that the roof was blown off a church near Clontarf, would have some force if the building was not now completed according to the original plans.

The restorers of St. Patrick's must have felt that Mr. McCarthy's statements were unanswerable, or they would not have had recourse to the mode of reply adopted, in which they have not hesitated to put forward statements that exhibit—what they, with so much modesty and courtesy, attribute to Mr. McCarthy—"astounding ignorance."

Mr. Read's letter, I think, on the whole, contrasts favourably with the communication already referred to; and although it is very probable that Mr. McCarthy's opinion of the carving is correct, yet no one can object to Mr. Read's defending it, as, no doubt, it has been to him and to all his fellow workmen employed at the restoration of St. Patrick's, a labour of love. Would, indeed, that they had been guided and directed by some one qualified to realize Mr. Guinness' magnificent ideal of the time-honoured structure restored to its original state; then, indeed, there would be no cause to fear, that after all we may have only exchanged the old lamp for a new one, devoid alike of the vivifying spirit of the present and the reflected lustre of the past.

TRUTH.

SR.—I trust your sense of justice will induce you to give a hearing to one deeply interested in the present revival of Gothic architecture, and who, being quite unconnected with the architectural (or any other) profession, has no personal concern in the matter, and may therefore fairly claim the merit of impartiality.

Entertaining, as I do, the greatest respect for Mr. Guinness and the noble work he has undertaken, I must at the outset protest against our judgment being warped by our feelings. No amount of liberality should exempt Mr. Guinness' reparations from legitimate criticism; and though munificence like his must disarm captious objections, it should not be allowed to stifle fair and reasonable comment.

In this spirit I shall proceed to make some remarks on the works now in progress at St. Patrick's, and the letters on the subject which have lately appeared in your valuable journal; endeavouring at the same time to avoid the personalities and recriminations which form so large a portion of those letters.

I can by no means agree with "An Architect" in his denunciation of Mr. Carpenter's designs which have been carried out at the east end. These appear to deserve the praise almost universally bestowed upon them, as really good and correct restorations.

With respect to the alleged trefoil shape of the nave vaulting, I must say that I have failed to discover anything at all like it, either in the nave of Lichfield cathedral (where, indeed, it would have been impossible, from the fact that the clerestory windows are spherical triangles), or in any other vaulted church I know of, at home or abroad; and there are few with which I am unacquainted. May not this trefoiled wall-arch have been only a hood-mould over a triplet in the clerestory? It is no argument in favour of this form of vaulting that, if the curve of the springers had been continued, the vaulting would have cut off the heads of the clerestory windows; for something of this sort is to be found at Canterbury and Lincoln cathedrals. If the vault had ever been built of this form, even "An Architect" must admit the construction to have been faulty, for he asserts that "it served to push the original south wall alarmingly out of the perpendicular," and finally fell down altogether in the 16th century. But I must altogether question the propriety of imitating in plaster the ancient stone vault. Had an open timber roof been substituted, there would have been a gain in height of some 15ft., and the awkward appearance of the west window, as seen from the choir, would have been avoided. I know a case in point. Ripon minster is now being restored by unquestionably the first architect of the present day, Mr. G. G. Scott. The choir vault, which was destroyed many years ago by the fall of the central spire, had been replaced in plaster. Mr. Scott finding that the walls will not now bear a vault of stone, like the original, is about to remove the plaster ceiling, and substitute a roof of oak, as in the nave of Ely cathedral.

Messrs. Murphy boldly challenge anyone to point an example of "the ruthless destruction of earlier and better works," of which one of your correspondents accuses them, and they admit that "if these charges were well founded—in fact, if there were even a shadow of foundation for them," they "should consider

themselves open to the reproach of vulgar barbarism." This is an unfortunate admission, as I shall proceed to show.

The antiquity of part of the organ-screen (of which no one acquainted with the subject could entertain a doubt) is settled by the testimony of Dr. Petrie:—*This has been destroyed.*

I must express great surprise at "An Architect" asking such a question as "Did Mr. McCarthy ever know a rood-screen to include a transept with the choir, as this did? and if so, where?" Messrs. Murphy, too, assert that it was "not even in the position a rood-screen should occupy." I unhesitatingly refer both to Winchester cathedral and St. Alban's Abbey, where not only the transepts, but some bays of the nave, are included within the rood-screens, which remain in their original position. But, let me ask, what was the situation of the rood-screen at St. Patrick's, if not that it lately occupied? It never could have been to the east of the transepts, as, if there, it must have blocked up the two stone stalls, which are almost unique.

I must now turn to those unhappy flying buttresses with their so-called Tudor pinnacles. I wonder that none of your correspondents has noticed the "ruthless destruction" of a really ancient flying buttress on the north side of the choir. It was surmounted with a crocketed pinnacle and finial, and apparently (for it was much mutilated) belonged to the 14th century. This has been replaced within the past few months by a buttress like the others, the type of which was (as is well known) not a "design of Mr. Carpenter's, executed under his superintendence," but the work of a local builder some years ago. Why has the earlier type been discarded and destroyed to make way for the modern?

But there is another objection to these gigantic flying buttresses which has been as yet unnoticed. It is that, as they have no stone vault in the choir to support, they must in time *thrust in* the clerestory walls. This is no imaginary case, but one which actually occurred a few years ago at York Minster, and necessitated the removal of the flying buttresses from the nave. These, too, at St. Patrick's are quite twice the bulk of those which at Lincoln carry a stone vault of 40 feet span at a height of 80 feet.

But even supposing these "Tudor" pinnacles to be quite correct in their place on the buttresses, where, I ask, is there the slightest precedent for placing similar "Tudor" pinnacles to flank the new Early English south porch? I have been told that this was a copy of the glorious north porch of Salisbury! which is simply absurd.

But none of your correspondents has as yet noticed the grossest and most inexcusable instance of "ruthless destruction" which has yet occurred. The four western arches of the nave on the north side are "late decorated" (A.D. 1362). The clerestory windows here were clearly original; of two lights, surrounded externally with a row of "ball-flower" ornament, examples of which are rare in this country. These windows have been wilfully destroyed, and replaced with plain lancets like the others in the nave—thus (to use Messrs. Murphy's own words) "totally inverting the order of architectural chronology," by placing a clerestory in the style of the early part of the thirteenth century, over arches belonging to the latter half of the fourteenth.

I cannot quite agree with those who condemn the stone carving, which seems to me highly creditable to the native workmen employed. It is decidedly unfair to compare this "conventional" foliage with the "natural" foliage, at St. Saviour's, for instance. But even Mr. Read must admit that his carving is far behind what remains of the thirteenth century sculptor's work in the choir of St. Patrick's, or the nave of Christ Church. It is, in a great measure, not Mr. Read who is to blame for this shortcoming; the responsibility rests with the builders, who seem to have expected him to produce the deeply undercut Early English foliage from a piece of stone only large enough for a plain moulded capital, like those in the south transept.

It is no business of mine to defend Mr. McCarthy, of whom I know nothing, but in reply to Mr. Read's triumphant question, "Who ever saw a Gothic church gable corbelled out on its apex (*sic*) three feet from the face of the wall, to provide for the support of an overtopping belfry?" let me remark that examples of this are not wanting.

It is enough to mention two cases well known and easily accessible, viz., the churches of St. Helen and St. Michael-le-Belfry at York, both dating from the end of the fourteenth century.

I am compelled to leave several points of the restoration, internal and external, unnoticed, to avoid further trespass on your valuable space.

"ÆDIFICATIO."

We quote the following views of our contemporary the *Irish Times*:—

The proverb "that two of a trade never agree," is just now receiving a painful illustration of its truth

on a question of architecture. The jealousy of professional architects, in England, is notorious, but we hoped, and had reason to believe that there was one work, the glory of our age and nation, whose munificence as well as its success, would have shamed into silence the most envious, or the most irascible.

He who stands for a moment in the garden of St. Patrick's Deanery, must be entranced by the singular loveliness of the edifice, rescued from ruin, which rises before him. We have seen the most celebrated of the English Cathedrals—including the marvellous York Minister, the gorgeous shrine of Salisbury, and the castellated towers of Durham. What visitor has not gazed with delight upon those wondrous emanations of the skill as well as of the piety of an ancient age? To have seen one of those grand cathedrals by moonlight, is an eternal memory. Yet we question whether there is any ecclesiastical structure in England which can equal in graceful attractiveness the South Close of St. Patrick's Cathedral, as restored by Benjamin Lee Guinness. The sunlight and the shadow playing on the buttresses, flying arches, and pinnacles, produce effects which once seen can never be forgotten, and yet the eye of the spectator would rest on them for ever. He who now stands at the third arch of the north side of the name and looks down the long vista of clustered columns, and of arches receding into arches, and guiding the eye to other arches still, in labyrinthian mazes, must depart with the idea that they were giants with fairy hands who wrought in the days of our ancient builders. The Cathedral of St. Patrick's was in old days the pride of this metropolis: as restored, it is the glory of our nation.

Few have any idea of the vast amount already expended by Mr. Guinness in his labour of love. On last Saturday night (the 24th ult.) the cost of the restoration had reached £95,000. We are informed that when the entire works contemplated are completed, the cost will not be one shilling under £150,000. To have a man amongst us born of our soil, able to bestow this sum, and willing to spend it in restoring what may well be termed the Cathedral Church of Ireland, ought to cause a feeling of pride in every Irishman. England has within her some of the most generous of mankind; but we say that within the seas which encompass the British islands, there is but one man who would have the courage, the inclination, and the means for undertaking so gigantic and costly a work as the restoration of St. Patrick's. Happily the work is approaching completion, and not a man engaged has received a hurt. As if the workmen were guarded at their work, not an accident of any kind has caused a tear from child or woman. Yet the enterprise in some parts was dangerous, the loosening of a single stone might have brought down toppling a mountain of ruin upon all engaged, but such great, and, we will add, such expensive precautions were adopted, that up to this hour not even a scratch has been received by a single man among the multitude employed.

Prejudice and jealousy, to this hour, perform the part of fell demons, and try to hide the Beautiful and the True. And so through the arches of the old fane, passion and prejudice flit like bats, and for a moment supply the place of those hideous forms of the grotesque and devilish, which English and French stone-cutters have left behind them to this day. One man requires that some ancient piece of deformity, itself an innovation, should be restored; another complains that all has not been done with the rigid barbarity of the *Præ Raphaelites*; a third exclaims that the roof spoils the symmetry of the great window erected by the late Dean Dawson; a fourth cannot appreciate the lovely Chapter House, the work of the present Dean; a fifth is indignant because the cunning workman was supposed to have taste and feeling, and was allowed to put his heart in the work, inasmuch as he was untrammelled. Away with this! it is unworthy of us. Why should the workman be a mere machine? The ancient builders let the artisans work their own conceptions out in stone, and lo! what beautiful creations they have left behind them! When the great *duomo* of Cologne was being raised, one workman leaned over the parapet, fixed and immovable, all the long day, while another carved the features of his comrade on the stone, and each helped the other, trusting in the Great Architect. When the University of Dublin was engaged in the erection of the Museum building, the details of the stone carving were left to the artisans themselves, and where is there of modern creation such a wonderful result of genius and of skill? If you cramp the hand, and bind the intellect with petty restrictions on happy invention, you destroy both. The work will have all the rigidity and stiffness of a corpse; for it was devoid of the spark of living genius. It represents the narrowness of that man's mind, which cribs, coffins, and confines the workman's heart: it is not the embodiment of the pious aspirations of humanity, but the dwarfed reflection of a little mind.

Away with minute quencilousness respecting this orbel or that cornice, upon this finial or that panel.

The work is done, and done nobly—done with a pious and reverential hand—done after the most careful investigation and the most anxious research. Differences of opinion there will be while men are men. The only perfect Temple is one none of us have yet seen, for it is in heaven. Let us not judge of St. Patrick's Cathedral by rules of criticism, which are themselves unsettled and disputed, but let us form our rules from the beautiful structure we now possess. In centuries to come this cathedral will be the test of art, and the canon of the architecture of its period. The age of its restoration is connected for ever with the name of its Restorer, and future generations must think well of the nation which produced such a structure, and a man to raise it in honour of the Great Builder.

#### THE CORK CATHEDRAL COMPETITION.

In our last issue we announced that the first prize offered to architects competing for the new Cathedral of St. Finbar had been awarded to Mr. Burges, of London (of Constantinople Memorial Church celebrity), and the second to Mr. Thomas N. Deane. Subsequent to the result being officially communicated, the following letters were addressed to a local paper, and insertion requested by the authors in our pages. We reproduce them in substance:—

Sir,—The committee, by a published programme of instructions, and the offer of £100 and £50 prizes respectively to those architects who would most faithfully and ably comply with their requirements, induced the very large number of sixty-three architects to leave for a time their other avocations, and devote themselves, at a considerable expenditure of time, talent, and money, to fulfil their requirements. The designs were duly received, and a place appropriated for their exhibition. Feeling a deep interest in the undertaking, I gave a considerable portion of my time to the examination of the drawings, comparing one with another, and weighing the merits and demerits of each, to ascertain how near they came to the printed instructions. The decision is now before the public; and I regret to state that the finding is not in accordance with the engagements entered into with the gentlemen whose professional aid was sought, nor with the interests of the subscribers towards this important undertaking. I will show by incontrovertible facts, the selected design of Mr. Burges is not in accordance with the printed instructions.

1st. "Architects are invited to send in designs for the erection of a new cathedral at a cost not exceeding £15,000."

✓ The premiated one of Mr. Burges cannot be executed, in accordance with his drawings, under £30,000! This secret the committee will find out when they advertise for tenders.

✓ Had the other competitors conceived that the printed conditions were only a sham, and that such a *carte blanche* would have been allowed them, no doubt many or all of them would have produced far grander designs; but, naturally expecting the committee to keep faith with them, they kept faith with the committee, and for their honest pains are their works rejected in favour of one violating, to an immense extent, the primary condition of the competition.

2nd. The programme stipulated for a "Chapter Room," a very proper and indispensable adjunct, as every one knows, to a cathedral. Mr. Burges, in his plan, does not provide a chapter house. In a corner of the building, under the north-west tower, in a space of about 12½ feet square, divided by an open work screen from the nave, are marked the words "Consistory Court." I leave any candid mind to judge if this is a "chapter room" within the meaning of the instructions.

✓ Almost every one of the other designs exhibited a chapter house of suitable form and proper dimensions, having provision for lighting, heating, and the stowing away and care of the muniments of the chapter, and standing as an independent building, yet grouping with the whole.

3rd. The number of sittings stipulated for by the committee were 700.

✓ The premiated plan will not accommodate 500; that is, will not give pew room for 500 sittings, allowing the smallest space for each. The only available area—the nave and aisles, from the pulpit to the western towers and screen—will measure 56 feet; from aisle wall to aisle wall is 55 feet; if out of this we deduct 5 feet for the centre aisle, and 3½ feet for each of the side aisles, we will have an area for benches of 56 feet by 43 feet, out of which the area of the columns is to be deducted. These figures will give an actual area of about 2,330 square feet. Now if we allow the benches to be 2 feet 10 inches asunder, and allow 1 foot 9 inches in width for each sitting, or in round numbers 5 square feet to each, the 5 into 2,330 will give 466, the actual number of available sittings on the plan.

4th. There is a grave structural defect in the ar-

rangements for supporting the central tower. This feature of the design, including the spire, is about 230 feet high to the vane, and the tower about 36 feet square. This immense pile is supported upon four piers, of 6 feet 3 inches square each. Such a superstructure cannot be sustained upon four piers of these dimensions. The area of support is not half what it should be.

A centre tower is at all times a very dangerous and difficult affair in church architecture. The mass of masonry actually requisite in the piers for the safe support of the superstructure has always been an eyesore, as well as a serious obstruction to the comfortable use and enjoyment of the church, and every attempt to remedy these disadvantages by curtailing the area of support has invariably resulted in the failure of the building. Though the mediæval architects were seldom sparing of the scantling of their piers, instances of such failure on record are very numerous.

I have merely touched upon the question involved between the disappointed competitors and the committee, without entering into any critical examination of the design, or into ritualistic questions arising from the adoption of a plan so peculiar in its arrangements—upon which latter points I shall consider the prudence of addressing myself to the subscribers at large.

In these remarks (made upon public grounds) I should deeply regret to give any annoyance to Mr. Burges, whom I have not the honour of knowing, but through the very high reputation he so deservedly enjoys. That gentleman is not responsible for the acts of the committee. I feel it also due to myself to state that I was not a competitor, neither had I any interest in the success of one above another.

RICHARD BOLT BRASH.

Sir,—I find the design selected for the first prize is "*Non Mortuus sed Virescit*." I have seen all the designs exhibited at the Athenæum, and my opinion was that "*Non Mortuus sed Virescit*" was one of the best designs in the Exhibition, but it is impossible it can be erected for £15,000—indeed, if the design, as set forth in the drawings exhibited, can be erected for £25,000, I shall willingly give £20 towards it. If, therefore, the committee tied competitors down to £15,000 by their particularity, and select a design that will cost £25,000, has the delay been caused by the so stated anxious desire to do justice to competitors? With regard to "*Let us arise and Build*," I have nothing to say, as I do not find it in a list of twelve which I made after six days' careful study of all the designs. I do not say "*Let us arise and Build*" has no merit, only I detected none sufficiently striking to include it in my list of twelve. But, after all, opinions differ much, but the cost of a design is a fact which can be easily ascertained, and in the case of "*Non Mortuus sed Virescit*," the author of which I know well, if the building set forth in his design can be executed for £20,000, I think all parties may be satisfied. As far as I am myself concerned as a competitor, I have no fault to find, if the committee have really acted with a desire to do justice. W.

Sir,—Were it not for some remarks apparently semi-official, I would have hoped that the authors of the three letters in your publication of the 2nd inst., relative to the Cork Cathedral competition, were as ignorant of the conditions on which architects entered into it, as they seem to be of the best plan adapted for "Protestant Cathedral worship."

These conditions were carefully drawn up. The very first is:—

"It having been resolved to rebuild St. Finn Barr's Cathedral, architects are invited to furnish designs for the erection of a new cathedral, at a cost not exceeding £15,000."

Another is:—

"The drawings to be accompanied by an estimate, &c."

They are signed by names that ought to insure the strictest and most honourable fulfilment of the entire. Have the two quoted been adhered to? Can the selected design be executed at a cost not exceeding £15,000? Were the "drawings" (of it) "accompanied by an estimate?" The competitors have a right to demand an answer to these queries. If the latter were complied with, was it for more than £15,000? and if so, ought there to be a second opinion as to what was to be done with the design? Every one, even those entirely ignorant of architectural subjects, must be aware that the first condition is the very essence of the contract between the committee and the competitors; it was the one that above all should be kept constantly in view. "Lofty grandeur," "Western imposing spires," Triforia, Chevet (ambulatory at end), expensively-moulded windows,—all should yield to the inevitable £15,000. What must be the bitter disappointment, nay, the disgust of the competitors, to see, after more than three months' deliberation, a design adopted in which this vital condition has been totally disregarded? All that have seen it, competent to form any opinion, agree that it could not be carried out for double the sum specified. Thus,

the time, labour, and money, of sixty gentlemen, representing, at a moderate calculation, £4,000, has been entirely thrown away. Will they quietly submit?

As to the "model Cathedral of the 19th century," the committee seem to have notions on the subject, which, I thought, had not much weight in the Church of this country—a Church which, with humble thanks to Him who enabled her to do it, can clearly say that during trying periods her lamp has burned with no uncertain light. The plan in question is a miniature copy of a French cathedral of the 13th century, without one single change due to a reformed faith.

Those who are conversant with the designing of ecclesiastical buildings know how greatly the difficulties are lessened when the nave arches are many and narrow—a system of arrangement acknowledged everywhere, but by the Cork committee, to be highly unsuitable for the services of the Protestant Church, as, in these, hearing and seeing have hitherto been considered an essential.

Finally, let me add, that it is to be regretted that the committee did not, in their conditions, make known their predilection for towers, irrespective of cost, and I have no doubt the majority of the designs would have exhibited at least five.

HONORALIT ARTES.

SIR,—In the instructions issued to the architects competing for the new cathedral was the following clause:—

"It having been resolved to rebuild St. Finn Barr's Cathedral, architects are invited to furnish designs for the erection of a new cathedral at a cost not exceeding £15,000."

From the decision of the committee it would appear that architects ought to have read the £15,000 as meaning £25,000 or £30,000. Would it not have been more honest to have added the following to the instructions?

"Any architect conscientious enough to follow these instructions will only lose his labour, health, and money, for we are determined to have a 'Cathedral, not a Parish Church,' and, of course, that cannot be accomplished for the paltry sum of £15,000."

(WAVERLY) alias NAT. JACKSON.

[We understand that there is a movement on foot amongst the competitors to procure a subscription fund to defray the expenses of eminent counsel's opinion, and, if same be favourable, of instituting legal proceedings. Another *questio vexata* in the history of competition!—ED. D. B.]

SIR,—There are many subjects on which a difference of opinion exists between architects, but there is one on which I may safely say that the voice of the profession is *unanimous*—that each day reveals more clearly the necessity of some vigorous stand being made against the unsatisfactory manner in which competitions for the most part terminate. An opportunity now offers itself *for ever* to set the matter at rest.

The great injustice of the late decision in the Cork cathedral case has induced a body of the competitors to endeavour to bring the matter before a court of justice, for which purpose a carefully drawn up case has been laid before one of the most eminent counsel in the country, and it is requested that any of the competitors, or of the profession at large, who would wish to join in the matter, and cause their profession to be respected by the public, would kindly leave a note at the editor's office of the DUBLIN BUILDER, 26, Lower Gardiner-street, directed "Committee, St. Finn-Barr's," mentioning how far it would be their wish to support the matter.

JUSTITIA.

[The authorship of the above letter, and the request contained in it, to permit communications on the above subject to be committed to our care, proceeded from so respected a source that we can both guarantee the *bona fide* character of the proposal, and shall be happy to forward any letters so addressed to their destination.—ED. D. B.]

SIR,—Respecting a letter from Mr. R. R. Brash on my design for the Cathedral.

He could never have read the printed paper attached to my drawings. I will take his objections in order.

No. 1. No Cathedral, in the proper sense of the word, was ever known to be executed for £15,000 with towers and spires complete.

The programme did not say one word about towers and spires, nor was there anything to the effect that the building should be complete. However desirable, towers and spires are surely not *essential* to a cathedral, so that a church (otherwise a cathedral in character) ceases to be a cathedral when these are postponed, or even wholly wanting. It is obvious to remark that had the money been intended to include tower and spire, nothing could have been easier than to say so, and

in the absence of words to that effect, the fair meaning seemed to be, that the best solution of the question was left to the ingenuity of competitors. Undoubtedly my understanding of the programme was, that towers and spires were not meant to be necessarily included in the money. I therefore, as I stated in my printed paper, provided a cathedral with everything essential for carrying on Divine Service for £15,000, though I added to the drawings towers and spires that I plainly stated should be left to be done afterwards.

I should like to know something about the *real* cost of the other designs.

2. A chapter room, not house, was required. A small chapter house would have had a poor effect, and its cost would have been considerable. Where the funds are so short, it was surely better to submit to somewhat restricted size for the present. I, however, showed how, for a little more expense, a chapter room could be placed over the vestry.

3. I am ready to send the committee a drawing of the way in which 738 adults will be provided with sittings in the church. Mr. Brash omits the space in the transepts, &c., which in a church of this size and cost must surely be used.

4. In my printed notice I said that the piers of the central tower were shown too small on the drawings, and when the quantities were being taken out I arranged for their being made larger. The piers of old churches gave way because the materials were bad; as at Chichester. I took out those in my design as being executed in solid Portland stone. As to a central tower being a very difficult affair in church architecture, I entirely demur to Mr. Brash's opinion. As an architect, he ought to know that thousands of churches have them, and as a builder that the construction is by no means difficult when good materials are used. W. BURGESS.

SIR,—I think it will be found in this case that a fraud has been committed on the competitors, and the public deceived; for if the committee call upon architects for designs, stating that they *must not exceed* £15,000, and select a design that will cost £25,000, I will venture to say £30,000, is that not a fraud? Are the public not deceived? But there is another mode of deceiving the public, and Mr. Burgess will soon, I fear, begin to cry out to be saved from his friends, especially such friends as "Laicus." That Mr. Burgess is the son of one of the firm of Walker and Burgess, the Government engineers, is correct; but that Mr. Burgess was the successful competitor for Liege is utterly incorrect. I know the fact to be that the successful design for Liege was made in Mr. Clutton's office, London, under his superintendence, and with the assistance of Mr. Clutton's clerks, including Mr. Burgess, and the expenses paid for by Mr. Clutton's checks, and the design went in and was declared successful under the names of Messrs. Clutton and Burgess. Mr. Clutton is an architect of extensive ecclesiastical practice, while the fact is Mr. Burgess has never yet had the opportunity of erecting a single church. Nor has he ever been successful in any competition but that for the Constantinople church, which has not been carried out, on account of the expense; and now he is successful for Cork with a design that will cost, at lowest calculation, £25,000, the other competitors sending in designs for £15,000. This is a plain statement of facts which can easily be contradicted if incorrect.

✓ And now, sir, for another point. Your correspondent, "Honoralit Artes," in your paper of Feb. 2, states that "it is a very remarkable fact that the selection was made without a single dissenting voice from any member of the committee." Now, sir, I know for a fact that one member of the committee at least is disgusted with the whole proceeding, and refrained from attending when he saw how things were going on; but now, sir, allow me to state that the matter will not rest here. A committee of competitors is about being formed to try the matter at the approaching assizes (17th March), to which fund I give £30. We shall see if the time has not come to bring public opinion to bear on committees who commit acts in their corporate capacity to which no individual would consent. I hope you, as a public journalist, will not be backward in this public matter. W.

SIR,—If I read the letter of your correspondent of Saturday on the above subject rightly, its purport is: supposing the committee did what they have been accused of in the discussions on the subject, it is of "very secondary importance, provided we have got a good Cathedral." Your correspondent of course, knows full well what the accusation is, that they have not kept faith with the competitors, which has not been denied. If the Decalogue be ever emblazoned in the choir of the new edifice, your correspondent should endeavour to have an eleventh commandment added, "Thou shalt do no wrong unless a great gain be obtained thereby."

He proposes a case on the assumption that the committee were "Solomons." In my letter to which he refers, I have not insinuated anything of the kind; but, supposing *he* were one, allow me to recommend to him one of the precepts of his great original—*Better is a little with righteousness, than great revenues without right*,\* and I would also advise him, in the coming season, to try if the pure air of the Old Royal domain in France will not refresh his moral perceptions, and at the same time he will have an opportunity of rubbing up his architectural knowledge in examining the grand old churches so abundant in that district. Let him visit the cathedrals of Nolon, Soissons, Laon, N. D. Paris, the churches of d'Etampes S. Germer, S. Leu d'Esserent (in the department of Oise), and a host of others, and he may then find out whether "in style or date" they do not bear every "resemblance to the style and date" of the selected design. I am not, however, finding fault with the architect of it for choosing these as models—I merely answer a rather defiantly put question. But I certainly take exception to considering its plan as at all suitable for "Protestant Cathedral Worship," and ask your correspondent to point out what parts of the design are so "thoroughly original." His suggestion of "waiting for the working drawings" is, no doubt, a most practical one. If the original sum intended be at all taken into consideration, not alone the expensive window mouldings, but all the grand features so admired, must vanish under the relentless sway of the omnipotent Working Drawings. HONORS, &c.

#### COMMENCEMENT OF THE HARBOUR WORKS IN GALWAY.

IN confirmation of the statement contained in the last issue of this Journal, to the effect that there was an *immediate* prospect of relief by employment on public works for the poor operatives of Galway, we now announce with pleasure, and on authority, that, owing to the most praiseworthy exertions of the local "relief committee," upwards of three hundred able-bodied men, comprising masons, labourers, &c., &c., are employed at the harbour in preparing facilities for the Transatlantic packets, which will be placed on the line in a couple of months. This, at least, is a proof that there is *some* self-dependent spirit still existing in Ireland, and even in the district where *misery* has penetrated to the very core. New moorings are being laid down, and, in the absence of a complete pier and breakwater (yet to come, and for which admirable plans have been prepared by Mr. Roberts, C.E.), a very tolerable accommodation will be afforded for embarkation and disembarkation, for landing of mails, &c. We sincerely trust that Galway's bright sun has risen, that she will even yet become what she is justly entitled to be, and take her place amongst the most prosperous seaports in the kingdom. When present destitution and its unhappy causes shall have passed away, or even sensibly moderated, we shall revisit the City of the Tribes, and have a word or two to say to the local civic authorities about *sanitary matters*, now in a very lamentable condition, but to a certain extent excusable.

#### REGISTRATION OF BIRTHS AND DEATHS.

Sir Robert Peel moved in the House of Commons on Monday night, for leave to bring in a bill for the registration of births and deaths in Ireland. He briefly reviewed the English and Scotch systems, giving a decided opinion as to the superiority of the latter. The bill which he intended to propose would be different to that of last session, for he had given up the idea of making the police act as registrars, believing it to be impracticable. The chief points of the machinery were the size of the districts, and the object of the intended plan was to make the dispensary medical officers of the unions the registrars, and the clerks of the unions superintendent registrars, and the area of districts would therefore be the same as the poor law unions; the registrars would be paid out of the rates, the superintendent out of the Consolidated Fund, which would entail an expense of about £16,000 a year. The fee to the registrar would be 1s., to the superintendent 2s., and the Registrar-General would receive £1,000 a year.

Lord Naas objected to the proposed machinery, for the medical officers were the worst that could be selected, as many of them were already fully occupied, and it was unwise to restrict the choice of the guardians. He hoped the government would provide for the registration of marriages, which was wanted, and, in his opinion, could be effected without meddling with the most important question of the law of marriage.

After some conversation, in which Dr. Brady, Mr. Maguire, Mr. McMahon, Mr. George, and Sir G. Bowyer took part, and Sir Robert Peel replied and leave was given to bring in the bill.

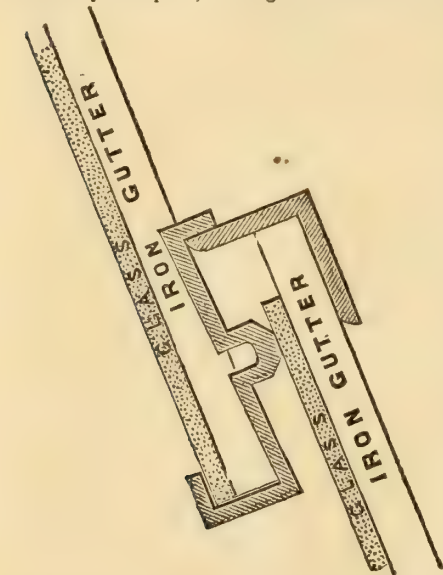
\* Proverbs xvi. 8.

## THE NEW ULSTER BANK, LONGFORD.

FOLLOWING up our notice of this building (referred to in our Towns' Survey series, No. VI., in last issue), we give herewith an illustration thereof. The particulars will be found by reference to page 26. We may repeat the architect is Mr. James Bell, jun., a young and rising member of the profession; and Mr. Walter Doolin is the builder engaged in the construction. Our readers will perceive that this is the second Bank house erected under the auspices of the highly enterprising Ulster Banking Company, illustrated by us since the commencement of our New Series. It is well to find a company prospering by Irish capital, and by its transactions with the Irish people spending money patriotically and liberally in Ireland, and not elsewhere, as others are perpetually doing.

## SHOWELL'S WATERPROOF GLASS ROOF.

THE difficulty of glazing roofs in a manner to render them really waterproof, has long been felt to be almost



insurmountable, on account of the expansion and contraction of the glass, and the consequent cracking of the putty. By the new sectional form of glass rolled for the patent of Messrs. Showell, of Manchester (to which we referred in our notice of the recent *conversazione* in that city), no putty is required; and instead of framing a light of sash bars, rolled iron gutters, about 1½ in. wide and ½ in. deep, are substituted. On the edge of the glass a rib is formed in the manufacture; the side edges of two pieces of glass come flush together, and any wet which may get through the flush joint is thrown off by the rib, and drips into the gutter. By a very ingenious contrivance, which is remarkable for its simplicity, efficiency, and the ease with which it is fixed, the glass is firmly secured to the gutters. It consists in a peculiarly shaped cast iron hook, about 1½ oz. in weight; two of them are at once secured, and secure the glass by a piece of wire passed through a slot in each, and under the gutter. Unlike most patents, we are enabled to state that this is remarkable for its cheapness. We should recommend those who are about to construct roof lights to consider this method before adopting any other. We understand that an agent is about to be appointed in this city.

The above diagrams will better illustrate the nature of the design.

## THE SOUTHERN SUBURBS.

As a natural consequence of the presence of *Winter*, building improvements either in the metropolis or the suburbs have not been for some months past as general as they doubtless will be in the ensuing milder and more genial seasons of *Spring* and *Summer*; still it is gratifying to observe that enterprise has not been altogether retarded, and that in our southern suburbs especially the works of improvement and extension have gone forward fairly. The immediate neighbourhood of Rathmines, which, even in our own recollection (and we rejoice not yet in the honourable append-

age of a hoary head) displayed an almost infinite amount of green fields and comparatively deserted roads, has been within the last decade or so pretty well overbuilt, and now seeks to relieve itself by sharing some of its patronage with the neighbouring localities. But a short time since we noticed to the almost complete metamorphosis of Harold's Cross (replete with historic memories in our annals) from "a deserted village" into a miniature town of thriving and picturesque aspect; but we now turn our attention towards other limbs of this prosperous and progressive township—towards Sandford, Clonskeagh, &c., &c. We pause to remind our readers that the previous non-architectural façade of the Episcopalian church, at Sandford, was some time since replaced by one of Byzantine character, after designs by Messrs. Lanyon, Lanyon, architects: displaying a bell turret at one side of a principal gable—to which we must remark that in confirmation of its intended purpose, as well as for the convenience of the congregation, it would be desirable to add "a bell" of sufficient capacity, and the sooner the better. Immediately opposite this structure is Bushfield-avenue, connecting by a transverse route the main road to Clonskeagh, Roebuck, Dundrum, &c., &c., with Upper Leeson-street, which is the direct thoroughfare from the populous suburb of Donnybrook to the metropolis, through the fashionable localities of Stephen's-green, Fitzwilliam and Merrion Squares, &c. Here, also in the vicinity are various most important intersecting thoroughfares of comparatively modern formation, and studded with all manner of first and second-rate dwellings, viz., Waterloo, Raglan, Pembroke Roads, &c. The advantages of such a site for suburban residences, as Sandford, &c., must therefore, be at once apparent, and though for the reasons above stated it was not eagerly snatched at at first, yet it is now sought after, and the marketable value of building ground has considerably increased of late.

In Bushfield-avenue we have already noticed in a recent number, that Mr. Thomas Connolly, of Rathmines, was somewhat extensively engaged in speculation on his own account, and that the houses he is rearing are remarkable for their solidity and generally good workmanship. Nearly opposite are two pair of semi-detached villas, with red brick fronts, cantilever roofs, double flighted spacious entrance steps, plate glass, windows, &c., in progress of completion, of which Mr. E. H. Carson is both proprietor and architect. These are an undoubted acquisition to the neighbourhood, and most commodious internally, as well as being admirably constructed. In the plot adjoining, Mr. William Geraty, a highly respectable builder, who has worked his way to prosperity by industry and integrity, is making preparation for two houses of similar class, which, we doubt not, will be speedily matured, and in good style too.

Mr. Carson having become likewise recently possessed of an extensive tract of building ground at the opposite side of the road, is about opening up a new and spacious approach to Leeson Park, and is letting out the space at either side in lots which he will dispose of to advantage. To Mr. Carson, the property owners and occupiers here are specially indebted for providing, at his own heavy expense, a main sewer, the entire length of Bushfield-avenue, which certainly is an unjust tax on one enterprising speculator, who has to pay for what numerous others equally share the advantage of. For small capitalists and others there are some highly desirable "cottage lots" on Mr. Carson's property, and as there is a great dearth about Dublin of desirable residences for parties of limited means, we are quite confident that after a very short time few of these will be vacant.

Quitting Bushfield, and turning towards Roebuck, we perceive a range of semi-detached houses of very superior character, recently erected for Mr. James Boswell, at a cost of £7,500; also an adjoining villa residence of handsome design for that gentleman, which cost an additional sum of £2,500. Mr. Carson was the architect for these likewise, and Mr. Tracey the builder.

It is gratifying to find our retired and other commercial men adopting the mutually beneficial course towards their fellow citizens and themselves, of expending their worthily earned gold in the improvement of the suburbs of their native city, while securing a profitable return to their families for their investments. We hope to record much more improvement of the southern suburbs as the season advances.

## PROPOSED ANNEXATION OF MONKSTOWN TO KINGSTOWN OR BLACKROCK TOWNSHIPS.

WHEN discussing this question at a meeting of Towns Commissioners of Kingstown, on the 6th inst., the chairman read a letter received from Mr. Hone, in which he said that the inhabitants of Monkstown wished to be annexed to Kingstown instead of to Blackrock; also simultaneously another letter from Messrs. Anderson and Lee, quoting minutes of a meet-

ing held by the residents of Monkstown, at which it seemed that two to one were in favour of Blackrock. Under these circumstances the chairman did not think it advisable that the commissioners should seek that addition to their township. Another consideration was, that they would require an act of Parliament for the purpose of annexation. It was determined that a copy of the foregoing resolution be forwarded to Mr. Hone, and that his attendance would be satisfactory to the board. The meeting then resolved itself into a committee of the whole house, the press being requested to withdraw, to hear the opinion of the solicitor on the matter.

## PRACTICAL ADVANTAGES OF THE "ARCHITECTURAL ALLIANCE."

THE conditions imposed on architects intending to compete for a new building at Plymouth, being deemed unsatisfactory by the profession generally, Mr. J. P. Pritchett, of Darlington, and hon. secretary to the Architectural Alliance, has addressed a circular to each of the societies in the kingdom who have joined the Alliance, requesting their members to desist from competing until said conditions are satisfactorily adjusted. A copy of the substance of the circular has been also transmitted by the respective honorary secretaries of each society to the members individually. As a natural consequence of this step—all members of the societies in alliance being bound not to submit designs in this competition—the committee will be precluded from the advantage of a vast amount of talented suggestions, which they would otherwise have obtained. A combination spirit of this kind, brought to bear to a reasonable extent, cannot fail to bring committees to their senses, and maintain the dignity and rights of professional practice.

The following is a copy of the letter addressed by the honorary secretary of "the Alliance" to the committee of the proposed building, insertion of which has been requested in the DUBLIN BUILDER:—

SIR,—I beg respectfully to call your attention to the conditions of the competition for a Wesleyan Chapel and Schools, which are in some respects unsatisfactory. I have the honour to be the honorary secretary of the Architectural Alliance, which includes Architectural Associations in every part of the United Kingdom, the great majority of architects being members; and as one of its principal objects is to discourage competitions of which the conditions are unsatisfactory, I am not incorrect in stating that, as the conditions now stand, few, if any, respectable architects will compete.

I assume that your committee wish to do only what is regular and fair, and that if informed as to the objectionable conditions, they will not object to alter them. The objectionable conditions are, first, that more drawings are required than is usual, or at all necessary, to clearly show a design. The necessary and usual drawings are,—ground and gallery, or upper floor plans, two sections (longitudinal and transverse) of each building, and two elevations (side and end) of each building. The plans of foundation and drainage, and large scale sections of roofs, &c., and two additional elevations, are quite unnecessary to show the design, and would give much extra labour to competitors without any advantage to either them or the committee.

Secondly, a full and explicit specification is quite unusual and unnecessary. Such a document can only be properly prepared after all contract and detail drawings are finished: A brief description of the building, mentioning the principal materials to be used, would be quite sufficient, and all that is usual.

Thirdly, the chief objection to the conditions is to the clause requiring the architect to whom the premium is awarded to furnish all requisite working drawings and specifications, &c., and conduct all correspondence for £50 additional. I cannot but think that this must be an error, as it is practically requiring the architect to superintend the carrying out of his design for one-fourth the proper commission. Assuming the premium of £50 to pay for the "design," the proper and usual charge for performing the services above mentioned, with an occasional journey (for which, of course, travelling expenses are allowed), is £200 additional to the premium, or 5 per cent. in full.

Fourthly, I would suggest that perspective drawings be allowed, if only in outline, and not in frames, as they show a design far better than any geometrical elevations can do.

Hoping that you will re-consider the above points, and issue fresh copies of the instructions, with the objectionable points erased, I am, Sir, very respectfully,  
J. P. PRITCHETT.

To John Hill, Esq., Plymouth.

[We have not as yet heard the result of this remonstrance.—ED. D. B.]

SKIDDAW SLATES.—The upper portion, consisting of purely sedimentary slates, is estimated at 8000 feet, and the lower part, of green slates and porphyries, at 10,000 feet more. The slates contain *Graptolites* and a crustacean (*Peltocaris*?). They have the same general strike as the metamorphic rocks of Scotland, and appear to have been all disturbed at the same time, viz., before the deposition of the upper part of the old red sand-stone. Mr. Salter considered these slates were of the age of the lower Llandello rocks in Wales and of the Quebec group in Canada. The various portions of it were characterised by particular species of *Graptolite*, which indicated a regular change of conditions from the lower to the upper part of the series. Sir R. Murchison had always considered the Skiddaw slates typically *Lower Silurian*; but Professor Ramsay was not at all sure whether they were of the age of the Llandello slates or the Caradoc sandstone.



MR. JAMES BELL, JUN., ARCHITECT.

NEW ULSTER BANK, LONGFORD.

THE LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

## THE LORD MAYOR'S INAUGURAL BANQUET.

THE inaugural banquet of the Right Hon. J. P. Vereker, Lord Mayor of the city of Dublin for the present year, came off on Thursday evening last. Amongst those invited to meet his Excellency the Lord Lieutenant were numerous lords, judges, law-officers, members of corporations, representatives of public bodies, besides a large number of miscellaneous guests, comprising in all about 350 persons. Without disparagement to any of the previous occupiers to the civic chair—who most worthily and liberally dispensed hospitality, and did the honours consequent on their exalted position—we must say that we were never present at a banquet more brilliant (though admittedly somewhat limited), more complete in every respect, or presided over with greater dignity and grace, than was this. Lord Mayor Vereker is eminently distinguished for his courteous and polished demeanour, as well as for what very few chief magistrates have the good fortune to possess, viz., the gift of eloquence and a telling voice, to communicate his sentiments to the most distant member of a vast auditory. His lordship was most apposite in the remarks that accompanied the announcements of all toasts in his programme. The Lord Lieutenant, in returning thanks for his health, spoke at considerable length, and though eloquently, yet rather with excessive diplomatic reserve, than with that genial sentiment which has generally characterised Lord Carlisle's official connexion with Ireland. His Excellency barely glanced at the all-important national question of the Galway subsidy, limiting his expression thereon to the following, viz.,—"would that we could waft this blessed olive-branch (tranquillity and peace) on the Galway line of packets to our warring and bleeding brethren in the other hemisphere."

Even less definite and satisfactory was his Excellency's reference to the much-desired local improvement—the widening of Carlisle-bridge, and to the infinitely more undesirable project of a metropolitan railway, as may be seen by the words used, hereafter reproduced verbatim. "It cannot, I think, be denied, that a very gratifying improvement must be acknowledged by all who walk the streets, to have taken place in the architectural appearance not only of the more ambitious buildings, such as museums and churches, but in the shop fronts and in private dwellings; and if we cannot get new bridges over our rivers, we are, at least, offered them over our streets." Amongst the other speakers were the Lord Chancellor, the venerable Recorder (apologising, as unfortunately compelled to do, for his infirmity, but logical and eloquent as usual, on political topics); Lords Clancarty and Gort; Mr. Whiteside, M.P. (on behalf of the House of Commons, from whose lips flowed words *ad libitum* sweet as nectar); General Maunsel (as representative of the army; Lieutenant De Roebuck (of the navy, in true British tar style); Sir Edward Grogan and Mr. Vance (as city members); Dr. Gray, (as chairman of the Waterworks, in a most lucid and comprehensive speech in which he reviewed impartially all the proceedings connected with the improved water supply, and modestly accorded to his friend and colleague Alderman Reynolds the full credit of the establishment of the efficient Fire Brigade); the Attorney-General (for the bar of Ireland, to which in the course of a most admirable speech, he referred, as having always had intimate relations with the people of Ireland, distinguished on the one side by loyal, faithful, and efficient service, and answered on the other, by trust and confidence); Mr. B. L. Guinness (on behalf of "the trade and commerce of Dublin," in a short but pithy speech, in which that most estimable gentleman said that whatever he had to offer his fellow-citizens was at their command). Captain Knox, (*Irish Times*), and Mr. A. M. Sullivan (*Morning News*), spoke in appropriate terms to the toast of "The Press"—an honour by custom on such occasions exclusively confined to the representatives of political organs, the agricultural, scientific and industrial interests—by far the most material—being altogether overlooked.

Throughout the evening the active surveillance over general arrangements, of his Lordship's excellent secretary, Mr. John Martin, T.C., contributed greatly to the enjoyment of the guests, at the sacrifice, however, of that gentleman's own, doubtless.

## THE WORKING MAN'S DIET AND LODGING.

NEXT to the grand question of dwelling-houses for the poor, there is really (says the *Times*) no social want of equal importance with this that has been so much neglected. Though it stands to reason that the quality of the air we breathe and of the food we eat every day of our lives must have a tenfold greater effect upon health than most of the remedies and precautions upon which doctors lay so much stress, yet,

until within living memory, no attempt was made to improve either the diet or the lodging of the working classes. No one warned the peasant that by sleeping in an atmosphere unfit for a human creature to inhale he was counteracting the good effects of an open-air life, and no one would have thought of connecting scrofula and low fever with such homely and preventible causes as close work-rooms and unwholesome nourishment. This last source of disease has yet to be investigated in all its consequences. It is an instructive fact that in Scotland, where the ordinary food of the people is coarser, and cookery still ruder than in England, a larger proportion of deaths is referred by the Registrar-General to disorders of digestion. Not only should materials of food, however plain, be carefully selected, and the utmost amount of nutriment be extracted from them by the processes of the kitchen, but they should be served up so as to make them palatable, and it will be all the better if the meal is eaten in a cheerful and well-lighted room. The field labourer, who breathes oxygen at least by day, may be able, as Horace tells us, to digest anything, but it is not so with the factory operative or the needlewoman. Such people often eat much less than they ought or would if they could get it well cooked, and derive much less nourishment from that little because it is spoiled in the dressing. There is a saying of Sidney Smith's that "old friendships are destroyed by toasted cheese, and hard salted meat has led men to suicide." It is a far more serious and demonstrative truth that a higher level of health and strength would prevail among a large class of the population if they never swallowed beef and mutton that was either tough or tainted, could get their vegetables properly boiled, and were not tempted to buy trash, and wash it down with spirits, from the dearth of solid and nourishing viands.

## THE ARCHITECTURAL ASSOCIATION OF LONDON.

THE following is the, as yet, unfinished portion of the programme for session 1862-63 of this very active and now (we are happy to add) *prosperous* body.

Is there not a lesson to be learned therefrom by our "Institute of Architects in Ireland," in the preparation of *their* programme.

- Feb. 20. Ventilation. Illustrated by Models. By G. B. New.  
27. Class of Design—Organ.  
Mar. 6. The Architecture of Napoleon III. By R. Phene Spiers, A.I.B.A. Illustrated by Drawings.  
13. Class of Design—Oriel Window or Bay Window with Shutters.  
20. Gothic Woodwork. By R. O. Harris.  
27. Class of Design—Chalice Flagon and Paten.  
April 10. Class of Design—Market Buildings for a small Town.  
17. Conversation and Presentation of Prizes.  
24. Class of Design—Dairy.  
May 1. Special Business Meeting. A. W. Blomfield, M.A., will read a Paper.  
8. Class of Design—Choir or Chancel Screen.  
15. Second part of Paper on "Metal Work." By F. A. Skidmore. Illustrated by Diagrams.  
22. Class of Design—Metal Finial and Cresting.  
29. On Building Materials and their Adaptation. By Arthur Allon, A.I.B.A.  
June 6. Class of Design—Public Memorial.  
13. "Nomination of Officers." Rochester and its Cathedral. By C. North. Illustrated by Drawings.  
20. Class of Design—Cemetery Monument.  
27. "Election of Officers." Summer Sketching. By T. R. Smith, A.I.B.A.

Prizes will be given for the Best Essay on "Vaulting and Groining," and for Best and Second Best series of "Sketches contributed to the Class of Design."

A Prize of £5 will be given by W. Tite, Esq., M.P.—£3 for the best design for a "Country Mansion," and £2 for the second best.

A Prize of £1 10s. 6d., contributed by A. B., for the best line perspective "Sketch of a Porch."

These Prizes will be awarded on the 17th of April.

The Modelling Class will be continued as before.

## Learned Societies' Meetings.

## INSTITUTION OF CIVIL ENGINEERS, LONDON.—3rd Inst.

J. HAWKSHAW, Esq., president, in the chair. At the monthly ballot the following candidates were elected: Messrs. E. Filliter and A. S. Ormsby, as members; Capt. J. Grantham, R.E., and Messrs. T. E. Dunn, J. R. Furniss, I. J. Holtzappel, S. L. Koe, A. S. Rake, L. R. Roberts, R. O. White, and H. Wilson, as associates. The paper read was, "On the woods used for sleepers on the Madras Railway," by Mr. B. M. Master.

## ROYAL IRISH ACADEMY.

A MEETING of this body was held on Monday evening. The Very Rev. Dean Graves in the chair. The Librarian read the minutes of the previous meeting.

Dr. Wilde, among many other presentations, handed in for Dr. Porter a collection of twenty-four government broad sheets, descriptive of the Irish rebellion, between the 24th of May and the 28th of September, 1798, consisting of public notices and letters from Generals Lake, Magill, Dundas, Duff, Johnston, Gosford, Needham, and other persons, to Lord Castlereagh. Dr. Wilde also explained the na-

ture of numerous donations from Lord Farnham, which had been laid on the table on the previous evening.

Mr. Du Noyer read a paper explaining drawings of numerous antiquities from various counties in Ireland, and presented the sketches to the Academy. Thanks were voted to the donors.

New members were elected.

## ROYAL DUBLIN SOCIETY.

THE fourth evening scientific meeting will take place on to-morrow evening. Refreshments at eight o'clock. Chair will be taken at half-past eight o'clock.

Communications: Professor Davy—On Mons. Marchand's easy and expeditious method of determining the amount of butter in any sample of milk. Robert Carey Reeves, LL.B., Cantab.—On the Irish salmon fisheries. For Exhibition: A new fire escape, by Mr. James Joseph Bromlow. Samples of embossed Berlin wool-work, wrought by a new method, the invention of Mr. John Toohey.

## GEOLOGICAL SOCIETY.

THE annual general meeting for the election of officers and council for the ensuing year was held at the Museum Building, Trinity College, on the evening of the 11th inst. The chair was taken at half-past eight o'clock. The anniversary dinner also took place at Jude's Hotel, Grafton-street.

## COLLEGE HISTORICAL SOCIETY.

THERE was a general meeting of this society in the Dining Hall, Trinity College, on same evening. The subject for debate was "That the political institutions of 1782 were adapted to promote the happiness and prosperity of Ireland." Speakers—Affirmative, Mr. Perry and Mr. M'Cutchan, secretary. Negative, Mr. Slattery, University student, and Mr. Chadwick, auditor. Chair was taken at eight o'clock (College time), by Master Fitzgibbon, vice-president.

## INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A GENERAL meeting was held in the Museum Building, Trinity College, on Wednesday evening the 11th inst. The chair was taken at half-past eight o'clock. The subjects for the evening were:—Stypp, G. H., member—On the influence of the inertia of the reciprocating parts of steam-engines, and its effects in connexion with the expansive action of steam. Price, J., exhibited his improved permanent way spikes.

## STATISTICAL AND SOCIAL INQUIRY SOCIETY.

THE fifth meeting of the sixteenth session was held same evening at 35, Molesworth-street, Sir Robert Kane, V.P., in the chair. Mr. W. Pollard-Urquhart, M.P., read a paper "On competitive examinations," and Dr. F. Shaw, F.T.C.D., also read a paper entitled "How to improve school education in Ireland."

## PARLIAMENTARY DEBATING AND LITERARY SOCIETY.—DUBLIN ATHENÆUM.

MET same evening at eight o'clock. Essay by Mr. G. A. Walker. Subject: "Plurality of Worlds."

## ARCHITECTURAL INSTITUTE OF SCOTLAND.

AT the annual general meeting of the Architectural Institute of Scotland, held in the Hall of the Institute, on Monday, the 2nd inst., letters were read from the secretary of the Architectural Alliance, and from the honorary secretary to the committee of the Institute of Architects in Ireland. The report of the council of management on the Bill of the Edinburgh Water Company, as affecting new buildings, was brought forward; and a paper by Mr. William Miller read, entitled "Some remarks on Edinburgh, and its improvement."

## EDINBURGH ARCHITECTURAL ASSOCIATION.

AT the last meeting of this society, Mr. R. Thornton Shiels, the president, in the chair, Mr. Connell read a paper on "Ventilation, and its influence on health." On the paper having been read, Mr. Brown made a few remarks on the subject of which it treated, and the meeting separated with a vote of thanks to the chairman.

## GLASGOW ARCHITECTURAL ASSOCIATION.

THE usual meeting of this association was held on the evening of the 27th ult., the president in the chair. After the minutes of the previous meeting had been read, the honorary secretary laid before the meeting communications from the Institute of British Architects, and from the Architectural Institute of Scotland, Edinburgh, in which they intimated their intention of presenting copies of their printed transactions to this association. A communication was also read from the honorary secretary to the committee for the re-organization of the Irish Institute of Architects. Mr. Melvin then read an essay on "Propriety of styles." A discussion followed.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

## THE ALBERT MEMORIAL.

SIR,—I quite coincide in your remarks respecting the newly proposed site for the above structure, which, as public property, should be accessible to the public, and which it never can be if shut up in the lawn of the Royal Dublin Society, "to be peeped at," as you say, "through a railing." The money in the hands of the committee would be ample to raise a memorial to the late Prince combining utility with ornament; and I would suggest as a suitable form a triple triumphal arch, on a much smaller and inexpensive scale, of course, after the model of "l'Arc de Triomphe de l'étoile" at Paris, and to be built at the city entrance to our glorious Phoenix Park.

## A SUBSCRIBER.

## CARLISLE BRIDGE.

DEAR SIR,—Many months ago I saw it advertised in the DUBLIN BUILDER that the Carlisle Bridge Committee had secured as arbitrators on the merits of the various designs submitted, certain gentlemen, who were to examine the drawings, and report their decision. Since that time, however, I have in vain looked for some further information in your pages, and as vainly sought it from the honorary secretary. May I now beg to ask if any conclusion whatever has been arrived at, if any inspection at all has taken place, or if the committee really mean to award the promised premiums?

## COMPETITOR.

[We have received many similar communications to the foregoing relative to this competition, which we abstained from inserting, in the daily expectation that the result of the arbitrators' examination of the designs would be announced. It certainly is much more than time that it should be so, and we must add that unless the committee will tacitly submit to writhe under imputations of very unworthy conduct, and misleading of the numerous gentlemen that competed, they will secure a decision, and pay the premiums at a very early date. In answer to "Competitor," we believe that the delay has been partly occasioned by the absence of some of the referees from town at the time the drawings were exhibited in the Institution in College-street, and partly by the subsequent removal of that building to make room for the new Provincial Bank, necessitating the storage elsewhere of the drawings until another apartment for their display was provided. Unless at heavy cost, to which the committee demur, it seems that as yet a suitable apartment could not be procured, but we are assured it will speedily, and that the decision will most probably take place before a fortnight.—ED. D. B.]

DEAR SIR,—In the paragraph in DUBLIN BUILDER for 1st inst., reviewing my annual circular, you have made a mistake respecting the measure customary to this port, in stating that all woods are now sold here by calliper. This change in measure only refers to teak and greenheart; on all other woods a liberal tare is allowed to the buyer, viz., on mahogany of 33 per cent., or one foot in every three; and on other woods (except teak and greenheart) a tare ranging from 4 to 22 per cent. The tare allowed to the buyer in this market is much greater than in any other port.

EDWARD CHALONER.

Liverpool, Feb. 4, 1863.

## THE PROPOSED METROPOLITAN RAILWAY.

SIR,—I by no means agree in the opinion that because the promoters of this affair have deposited the amount of £53,500, the scheme is substantially promoted by persons who will provide £650,000 for its construction. No doubt, if the bill becomes law, the money so deposited cannot be withdrawn without the promoters giving substantial security by bond that the railway will be made within the time limited. But, apart from this money question, I wish to apprise you, that nearly, if not all, the advantages likely to be afforded by the Metropolitan can be obtained at a comparatively moderate cost, and that, too, without in the least interfering with the beauty of the city or the navigation of its river, by the construction of two circular lines, which will not, probably, cost one-fifth of the sum required for the Metropolitan. One of these, about one and three-quarter miles in length, is

before Parliament this session, promoted by Messrs. Barrington, as solicitors, the engineers being Messrs. Hemans and Le Fanu. This line, commencing at the goods store of the G.S. & W. railway at King's-bridge, crosses the Liffey, tunnelling under Parkgate-street, Montpelier-hill, and the Circular-road, and joins the Midland Great Western Railway and Liffey branch (at the seventh lock, Royal Canal) without any interference with the levels of a single street or road, and without presenting any unsightly appearance, as it will be, for nearly its entire length, in a cutting, and below the level of the adjoining lands and houses. By this short branch, which will cost about £72,000, the G.S. & M. railways will become connected with the whole network of the northern lines, as well as with the Liffey at the North Wall. The other line is not before Parliament at present, but plans were deposited for it in the session of 1861, the engineer being Sir J. McNeill, and the solicitor Mr. J. Malley. Its length is 4½ miles. It also proposed to branch off the G.S. & W. railway near Kilmainham, joining the Grand Canal at the James's-street branch, from whence it proceeded along its north bank, effecting a junction (in its course to the south bank of the Liffey and docks) with the D. & W. & Kingstown railways. By this branch—estimated to cost £130,000—the chain of communication with all the metropolitan railways would have been effected, while a passenger, disembarking at the Carlisle Pier, Kingstown, might be conveyed to either Cork or Galway without change of carriages. It is a matter of regret that this second branch is not to be submitted to Parliament during the present session, as the two, forming as it were an almost complete iron circle, somewhat similar to the existing Circular-road, would have afforded abundant railway accommodation at a moderate cost, without defacing our present streets or seriously damaging the appearance of our quays and river. It has been publicly announced that the Corporation intend to give the metropolitan scheme the most determined opposition, but the citizens should not rely upon the profession of this distinguished body, as I am in a condition to prove that some of its most powerful "Corinthian pillars" are already bending under the pressure from without, and, probably, before long may deem it conducive to the public interest to read a recantation of their previous errors.

## A CITIZEN.

[We regard this project as a most wanton attempt to utterly destroy the symmetry of our metropolitan leading thoroughfares, and general architectural character—admittedly beautiful—without any necessity whatever, and without any corresponding advantage. We trust that the Corporation—as is its duty—will give it the most strenuous and immediate opposition, else the bill may be smuggled through. As yet the terminal arrangements are quite adequate to the traffic and public requirements.—ED. D. B.]

## HOGAN'S STATUE OF O'CONNELL AT LIMERICK.

SIR,—During a recent visit I made to the city of Limerick, I was gravely disappointed at finding Hogan's fine statue of O'Connell placed in the worst possible light, and in familiar and undignified contiguity—if not intrusive—with the dwelling houses on each side. The back of the figure is to the west, while the houses on the south side interpose to keep the sun off the front and profile.

Should the sculptor have consented to this situation for the site of his work, he must, indeed, have good-naturedly given way to the puerile idea at the time entertained, viz., that the gaze of O'Connell must be in the direction of the scene of his first triumph in Clare. This, I understand, was the motive for thus sacrificing the artistic merits of the statue.

But this circumstance, known or not to visitors, cannot compensate for the absence of sculptural beauty and sentiment, which can only be appreciated under the influence of proper light.

HENRY MACMANUS, R.H.A.

## Law Intelligence.

(The initial letters at the side of the following paragraphs denote the Courts in which the questions were tried.)

B.—*In re Peter Reilly*.—Important Contract Question.—The bankrupt had been an extensive contractor for works in Wexford, in reference to the harbour embankment, which was mainly the cause of his failure. He was also engaged on the contract for the Bagnalstown Railway. The bankrupt, on examination, stated that Mr. Redmond, M.P., who was interested in the works at Wexford, with a view to the improvement of the town had supplied him with a large quantity of timber cut down off his own lands, and also a quantity of iron supplied by parties in Liverpool to enable him to carry on the works. He also supplied him with the necessary plant for carrying out the works. He was also examined in reference to dealings with Mr. Redmond, and transfer of shares in the Wexford Harbour Embankment Company.

Mr. Redmond, M.P., was also examined in reference to the character of the contracts in which the bankrupt had been engaged with his sanction. He was cross-examined in detail by Mr. Barry, Q.C., with a view of showing that the bankrupt Reilly was the mere nominal contractor, and that Mr. Redmond had advanced the money and was the party really interested in the execution of the works at Wexford. He admitted he advanced the bankrupt considerable sums of money, and paid several thousands which he felt in honour bound to pay on foot of the contracts. He was examined as to whether he owed any profit out of a sum of £880, which was advanced by the Embankment Company to the bankrupt, and he stated he did not, with the exception of a very small portion of it. The bankrupt, when executing the railway works at Bagnalstown, would have been unable to proceed with them, but that he was supplied with materials by Mr. Redmond, who supplied him with the necessary number of sleepers, rails, &c. He continued the works, the men being regularly paid their wages, and the contract floated until it was taken up by Mr. Dargan, who completed it. A shilling a piece was allowed for the sleepers, and the regular engineering estimates for the works were subsequently given by Mr. Le Fanu, the company's engineer. Mr. Redmond stated that although he had been a director, he was refused access to the books of the company, even to inspect his own account, and had to get an order from the court to enable him to do so. In reference to the transfer of shares he admitted he got a transfer of 180 shares in consideration of a pre-existing debt. At the conclusion of the examination the case was adjourned for the production of further evidence. Mr. Barry, Q.C., said if Mr. Reilly was really the contractor, the creditors had a right to see what had become of his property.

R.C.—*Hamilton v. the Ulster Railway Company*.—Petition presented to restrain respondents from constructing a bridge over Durham-street, Belfast, by which the level of the present approaches to the terminus would be altered, and certain houses, the property of petitioner, injured. The company had obtained, in 1859, a special act empowering them to make the bridge in question, but the petitioner contended that the time within which they had power to execute the works had expired.

Respondents said there was nothing to prevent petitioner from obtaining compensation for the injury that might be done to his property by the formation of the bridge. If he served a claim he would receive adequate remuneration for any damage he might sustain. The work was one of great importance to the interests of Belfast, and it was intended to substitute a bridge for a level crossing. The works were now in progress, and to stop them, as sought by the petitioner, would cause irreparable injury to the town.

His Honour dismissed the petition with costs, and expressed his condemnation of the conduct of the petitioner in bringing such a cause before him.

E.—*Starr v. North*.—Action for recovery of a sum for work and labour done on the Bundoran Railway. Plaintiff (who is a railway contractor) claimed £27 10s. against defendant, but a portion of it was paid, and the only sum in dispute was £10; £12 had been paid by defendant, who stated it was the full value of the work done and the materials supplied. The details of the case were principally as regarded the measurement of the work.

The jury disagreed, and were discharged by consent.

C.P.—*Colville v. Hall and others*.—Action of ejectment on title, for recovery of premises at Ballybough-bridge, Dublin. The case turned chiefly on documents and points raised for defendant.

Chief Justice directed a verdict for defendant on those points, for all, or the unset portions of the premises, to be turned into a verdict for plaintiff if he should so direct.

Q.B.—*Halstead and Martin v. North*.—Action to recover £696 17s 11½d, balance alleged by defendant to be due for work done and materials supplied for the construction of the branch railway from Enniskillen to Londonderry. Defendant is the principal, and engaged plaintiffs as sub-contractors to perform the work. Defendant lodged £353 0s 6d in court, which he alleged was the entire sum due to plaintiffs.

It was agreed to refer the matter to the arbitration of the County Surveyor of Londonderry.

CAT TAIL PAPER.—Strong brown paper is now manufactured at the Salisbury mills, in Orange County, from "cat tails," the produce of the wild flag growing in low grounds all over the North. The proprietor, Mr. Oakley, is experimenting, with a view of making white paper from the same material.

It is proposed to erect in Canterbury Cathedral a monument to the memory of the late Archbishop Sumner. With this view it is intended to raise a sum of £1,000.

## Public and Private Works.

The Union Banking Company of Ireland have recently fitted up the house, No. 37, Capel-street, in a handsome and appropriate manner as a branch office. The same company have also established offices in Bray. For the works in both instances Mr. William G. Murray was the architect; Mr. John Nolan, of Meredyth-place being contractor for the former, and Messrs. Beardwood and Son for the latter.

A large mansion is being erected at Clooney, Quinn, Co. Clare, for Joseph Hall, Esq., together with farm offices, stabling, &c., and a gate entrance, at a cost of about £7,000. Mr. E. H. Carson of Dublin is the architect, and Mr. Carroll of Ennis the builder. At Crusheen, in same county, Walterstown house has just been erected at a cost of £1,800 for Nicholas Butler, Esq., J.P., from designs by the same architect, Mr. Tracey of Dublin being the contractor.

Extensive alterations and additions are being made to the residence of W. P. Lambert, Esq., at Castle Ellen, Athenry, and offices adjoining are also being built, under the directions of Mr. Carson, architect.

Various works are to be executed by the War Department at Cork harbour, viz., at Queenstown, Haulboulne, Rocky Island, Towers and Spike Island, &c.

Building operations at the new church of SS. Augustine and John are suspended from want of funds. [Would it not have been more prudent to have commenced less comprehensively?]

The new church of Gorey has been lighted with gas from works constructed by Mr. Holloway.

The workmen of Mr. Findlay, the contractor for the new Ulster Bank at Sligo, have commenced operations for its erection, and it is anticipated that the building will be finished some time in July. No expense will be spared in adapting it to the purposes for which it is designed, and when completed (says the *Sligo Independent*) it will unquestionably be a credit and an ornament to that part of the town in which it is situated.

The improvement of the west pier at Kingstown is now almost complete, a protecting wall running nearly the entire length of the upper promenade, which has itself been levelled and rendered suitable for pedestrians.

There is some talk about constructing a new floating dock in Cork.

The following is a return from the office of Public Works, showing the sums allocated during the past year, for improvements in which we are authorized to state that there is not more than 15 per cent. of the whole accounted for:—County Kerry—Gerard O'Callaghan, £300; James Crosbie, £450; Richard Mahony, £500; T. S. Dennis, £1,500; Meade C. Dennis, £1,000; The Knight of Kerry, £700; Mrs. Maria Drummond, £850; John Hurly, £250; Ditto, £200; Richard J. Marshall, £200; Richard R. Chute, £150; Richard M. Hickson, £500; The Rev. Richard Moore, £250; Sir Rowland Blennerhassett, £700; Thomas Sandes, £1,150; Edward Hussey, £1,000—£9,700.

Extensive additions and alterations are being made to Ballymena Diocesan school. Mr. Thomas Jackson, architect; Mr. McAuley, builder.

A new Bank has been designed and erected for the Northern Banking Company, at Ballymena, by Mr. Connor, of Belfast, builder. It is in the Italian style, with brick front, plastered architraves, and cut-stone base course and dressings round entrance doorway, &c.

A mansion and offices, in the Italian style of architecture is now in course of erection for J. Thomson Bryan, Esq., at Ballamore, near Ballymoney, county Antrim, from the designs and under the superintendence of Mr. FitzGibbon Louch, C.E., Sackville-street, Londonderry. Mr. Getty, is clerk of the works.

A residence of some importance is to be erected for Capt. Costello, at Edmondstown, near Ballaghaderreen, county Mayo. The style of the building is to be Italian Gothic of the 15th century; the estimated cost is from £4,000 to £5,000. Mr. J. McCurdy, architect, Matthew Gahan, contractor.

An Italian villa is being executed at Athenry, Co. Galway, for J. J. Lopdell, Esq., from the design and under the superintendence of Mr. S. U. Roberts, architect, Galway. The contractors for the works are Messrs. Glynn and Hollins, of Galway. The cost, when completed, will be about £1,000.

Improvements on an extensive scale are being carried on in the thriving town of Castlederg, county Tyrone, by J. G. Smyly, Esq., Q.C., who has considerably enlarged the hotel, built a range of labourers' dwellings, of a comfortable and healthful character. A court house and range of superior business houses are also about to be erected; also a market place and sundry alterations in the police barrack. Mr. J. McCurdy is the architect, and Mr. Mullin, Omagh, and Mr. W. Naught, Castlederg, the contractors. Messrs. Edmundson, of Dublin, have lighted the town with gas.

We understand that the question of dilapidations, which was likely to have occupied the attention of the gentlemen of the law, respecting the house No. 71, Middle Abbey-street, Dublin, will, in all probability, be left to the decision of two architects. We need not add that we think this a wise course, as such cases, going into court, generally serve but to perplex the bench, embarrass the jury, and fail to obtain the ends of justice.

Extensive alterations and additions are being made at St. Helen's, county Dublin, the seat of Lord Viscount Gough, which will add considerably to the comfort and accommodation of this beautiful and picturesque residence. Mr. J. McCurdy, architect; Messrs. M. Kennedy and Son, contractors.

A handsome and spacious gallery, with staircase approaching, has been added to the church at Balbriggan; the work is said to have been attended with much difficulty requiring constructive skill to surmount, and the result to have been highly satisfactory to all concerned. Messrs. Welland and Gillespie were the architects, and Messrs. J. and E. Barker, the contractors.

St. Luke's Church in this city has been reopened for Divine service after a lapse of five months, during which important alterations and refittings have been effected. It is so arranged now as to accommodate the two congregations of St. Nicholas (which formerly assembled in the north transept of St. Patrick's Cathedral) and its own likewise. The fittings of the former have been all re-used; and the portions requiring alterations, such as galleries, &c., have been remodelled at the expense partly of the munificent Benjamin Lee Guinness, Esq., and partly of the Ecclesiastical Commissioners, under the direction of their architects. Messrs. Barker were contractors for this work likewise.

## ENGINEERING.

The present year's course of lectures in the civil engineering class at the University College, London, includes the construction of "iron bridges" and other structures in that material.

The directors of the Cork and Bandon Railway Company report that, during the past half-year, the iron bridge at Innoshannon was finished by the Cork Steam-ship Company (a well-executed and creditable structure), the cost of which, including engineering, masonry, &c., amounts to the sum of £2,126 19s., out of which £941 has been already charged to revenue, the remainder, £1,185 19s., to capital, being the difference in cost between a wooden bridge and the iron one now constructed, and which, it is to be regretted, was not erected in the first instance. The engineer's report says:—Shortly after my last half-yearly report, the new iron superstructure of the Innoshannon Viaduct was finished, most satisfactorily, by the Cork Steam-ship Company; it is an excellent piece of work, and does them much credit. The arrangements at the Junction of the Kinsale Line, which is to be very shortly opened for public traffic, will soon be complete. The permanent way and works of your line have been maintained in good order.

The siding and other works at Roscrea station necessary to form the Junction of the Nenagh and Birdhill Extension with the G. S. and W. Railway have been nearly completed, and plans are being designed for the stations to be erected on that line, at Cloughjordan and Nenagh, in order that these stations may be available when the line is ready to be opened for traffic to the latter place.

The directors of the Carrickfergus and Larne Railway, considering the time had arrived when a second line should be laid down between these points (6½ miles distant), have, during the course of the past autumn, completed that portion of it between Belfast and Greencastle, and they will proceed with the remaining length so soon as the season warrants their engineer commencing the work.

Messrs. Hasland and Wolff, iron shipbuilders and engineers, of Belfast, addressed the electors of Harbour Commissioners lately in a lengthy letter with reference to the proposed new docks, in which they say:—Will you vote for those gentlemen who would place the floating dock on the Antrim and the graving dock on the Down side of the river? or will you vote for the two new candidates who would place both docks on the Antrim side, to the detriment of the iron shipbuilding? A graving dock yonder would prove almost a dead-letter; but place it anywhere near the iron shipbuilding yard you know that you have, without reference to what county it would be in, satisfied that it is in your own town, and you would then have the gratification of seeing it used, whilst others, encouraged by neighbours like us, would, no doubt, commence shipbuilding yards around it, and by this step *only* will you ever induce an extension of iron shipbuilding here. We have been asked if we would not come over to near the new dock if placed at Thomson's bank; but £25,000 of buildings, machinery, plant, tools, and materials are not so easily

removed. It has already required so much exertion to bring this new business here to what it is, that our only remove would be to a port like Liverpool, where the commissioners are so alive to the requirements of the trade that they construct graving docks in the very midst of iron shipbuilding yards, and where the trade meets with that support which is not yet accorded to it here. When others are giving their opinions on the question, we think that the voice of a firm should be heard which has built and launched in your port 20,000 tons in about four years, which is spending amongst you nearly a thousand pounds a week in wages, and which has developed a new phase of important and profitable industry. [This is very truthful, very independent, though very reasonably and admittedly interested.—Ed.]

Gas has been introduced into the carriages of the Ulster Railway Company, and with success. The machinery relating thereto is known as Neville's patent—the meter being in the guard's van. From the meter a tube is carried over the tops of the carriages, and by means of roper lengths of tubing the piping can be made of any required length, according to the size of the train.

Irish Railway Bills this Session will be few in number, owing, no doubt, to the late bad harvest. Notwithstanding, some will go forward, having lodged the deposit necessary under standing orders, among which will be the Metropolitan, Crookstown, and Pomeroy Junction, Sligo, and Ballyhaddereen railways. To these we most bid success, as employment is much wanting and no obstacle should be thrown in the way of passing them.

## COMPETITIONS.

*Co. Limerick Gaol.*—We are informed that the premium of £50, offered for the best plan for altering this building, has been awarded to Mr. William Atkins, of Cork, architect; who, it may be in the recollection of our readers, also gained the premium for the new markets in same city some years since. Numerous professional gentlemen from Dublin and elsewhere, submitted plans for the gaol. Mr. Atkins has worthily won very many competitions in both England and Ireland.

The object is to provide in the male prison separate cells for sixty prisoners, and in the female for thirty. As in each a central point, commanding a view of all its doors, was required, this was difficult of attainment in a prison constructed on the old model, which usually consists of small cells in detached blocks. Mr. McCurdy's plan was also highly approved of, and settled for final consideration.

*The Exhibition Palace and Winter Garden.*—Something more authoritative than mere rumour says, that affairs connected with the proposed building are far from being in a state of satisfactory solution according to the expectations of the committee. We forebode that the too limited amount of expenditure fixed on, would ALWAYS prove an insuperable difficulty. If the committee exceed the sum, viz., £35,000, all the competitors will then at least have just reason to complain of breach of faith.

## NEW PATENTS.

LETTERS PATENT, which have passed the Great Seal since the 13th January, 1863. Byrne and Lambert, Agents; Office for Patents, 4, Lower Ormond-quay, Dublin.

W. Clark, for an invention of "Improvements in the purification of water, and in apparatus employed therein."

W. G. Valentin, for an invention of "Improvements in the generation of combustible gases for lighting and heating purposes, and the mode of applying such gases to the manufacture of iron, glass, and other processes in the arts, where great heat is required."

F. H. M. C. D. Chevalier de Fenis de Lacombe, for an invention of "Improvements in the means of lighting towns or other localities, and of ventilating, warming, and providing the same with water."

George Sanders, for an invention of "Improvements in domestic fire escapes."

J. H. Johnson, for an invention of "Improvements in electro-magnetic time-keepers."

J. H. Johnson, for an invention of "Improvements in coating or covering metallic surfaces with copper."

M. Osborne, for an invention of "Improvements in the manufacture of cast iron fenders."

Sir J. T. Little, for an invention of "Improvements in carriage ways and footways."

J. Launcelott, for an invention of "Improvements in the manufacture of ornamental chains from sheet metal."

A. Delure, for an invention of "Improvements in compositions for preventing and removing incrustation in boilers."

C. M. Westmacott, for an invention of "Improvements in cements."

A copy of the specification of any patent, describing the nature of the invention, and the mode of carrying it into effect, can be had at the office for a sum not exceeding five shillings.

Alterations are being made to the Arcade Hotel, Suffolk-st. The house No. 3, adjoining, lately occupied by Mr. Glennan, is being added thereto, and suitably fitted up. Mr. J. J. Lyons, of Lr. Gardiner-st., is the architect; Mr. Meighan, the builder.

## General Items.

One M. Faget, of Bordeaux, proposes to convey letters, &c., between England and France, by erecting at a distance of about one thousand metres from the coasts of Calais and Dover, a strong edifice of masonry, containing a steam-engine of sufficient power, by means of which an immense wheel, 25 metres in diameter, is made to turn 40 times a minute. By this rotation a series of wires, forming a gigantic strap, extending across shannel, is coiled round the wheel at one end and uncoiled at the other, and conversely. To this strap india-rubber letter bags are to be attached, to be conveyed across channel at the rate of 3,000 metres per minute, so that within the space of twelve minutes the letters and dispatches from one country may be landed on the other. The length alone of the strap is sufficient to cause its submersion, and the transmission might be effected in any weather. *Galignani*, in commenting on the project says, "that the submersion of the strap mid-channel will be considerable enough to allow of ships sailing over it, but the submersion will be very shallow for a considerable space near the coasts, so that vessels would have to fetch a large circuit in order to steer clear of it." Our contemporary should be greatly astonished to learn that any attempt be made to carry the project into execution.

Some mural paintings have recently been discovered in Norwich cathedral, beneath a window in the south aisle, in the three central arches of the wall arcade. One of these bears the name St. Wulstan, the famous last Saxon Bishop of Worcester. It is presumed that these works date from the fourteenth century.

An American gentleman, Mr. J. L. Linton, has lately visited Paris for the purpose of submitting to the French Government his new method of generating steam. Instead of the ordinary fuel he uses petroleum oil, or, should that be wanting, ordinary coal oil; and as the machinery which he employs can be easily applied to the steam-engines in general use, he claims the merit of effecting a very considerable saving.

In the House of Commons, on Friday night, Col. Dickson moved for leave to introduce a bill for the amendment of the law relating to drainage of land in Ireland.

It is stated that a bill is to be brought forward in the next session of Parliament for the regulation of theatres. One of its principal objects is to compel managers to give the public quicker and better modes of quitting theatres at the conclusion of the performances than by the ordinary one door thrown open at present.

The charming picture of Marie Antoinette going to Execution, and painted by the great modern master Paul Delaroche, is through the enterprise of Mr. Lesage, artist's colourman, &c., on view at his capacious and well adapted exhibition gallery in Sackville-street.

During some works undertaken not long ago in Oxford Cathedral, a small crypt or subterranean chamber was discovered, which led to efforts to explain its function. This is situated immediately under the eastern end of the crossing, just as you enter the choir from the nave. It is lined with rough plaster upon rude stonework, and, among other guesses as to its origin, presumed to have been a portion of the original Saxon crypt, existing before the Norman minster was founded, and built in, as it were, with the new work. Such examples exist in several cathedrals. Or it may be the secret place wherein rested the true relics of the patron-saint of the structure; otherwise a treasure chamber to be used in time of need for concealment—which is known, says Mr. King, in the course of some ingenious remarks on the subject, to have existed here; because in the thirteenth century the University chest was deposited "in a secret place in the Monastery of St. Frideswide." The probabilities of its being a secret treasure-chamber are thus enhanced.

The site of a chamber, with a tessellated floor and some traces of fresco painting, has recently been found immediately beneath the façade of the India House, Leadenhall-street, London, at a depth of nearly 20 feet.

With reference to the utilisation of towns' sewage (a much-debated question), a suggestion has been thrown out which appears worth attention. We are told that the fertilising salts contained in the sewage are mixed with such an enormous quantity of water as to be comparatively valueless. But it is thought that the new chemical dialysis, discovered by the Master of the Mint, might be used on a great scale for the separation of the salts. The essential elements are there in the form of crystalloids and colloids, and it is for practical chemists to decide whether, by the application of dialysis, a question of so much importance can be settled.

Mr. Fishbourne, the arbitrator appointed by the Waterworks Committee, sat on the 10th inst., in one of the arbitration rooms, Four Courts, and resumed his inquiry in reference to parties seeking compensation for injuries likely to be done to their property in the execution of the new waterworks. The case of *Synge v. the Corporation* was the one under investigation. Mr. Smyth, law agent, attended on behalf of the Corporation.

The last stone upon which the O'Connell statue in Ennis is to rest was raised to its place on Saturday last, in the presence of a large number of people. The top of this stone is 67 feet from the ground, and when the statue is placed, the entire height of the monument will be 76 feet. The time for the inauguration of the monument is not definitely fixed.—*Clare Journal*.

We (*Irish Times*) are happy to learn that the distress so prevalent among the working classes of other districts has not pressed with any unusual severity upon Dalkey. Numerous buildings are being erected, and various improvements are being carried out in this pleasant watering place. We are informed that *no artisan resident in the neighbourhood, and able to work, need be without employment*. There is no increase in sickness in this healthy locality, which is chosen as a permanent residence by so many, not only for the salubrity of the air, but because of increased accommodation by rail and omnibus.

## Miscellaneous.

**A MODEST COMMITTEE.**—The committee for the new Wesleyan Chapel, Plymouth, ask for plans comprehending chapel and various accessory buildings, besides boundary arrangements; elaborate details of the former, and complete specification entering into minutiae of water supply, warming and ventilation, lighting, &c., &c., the designs obtaining premiums of £50 and £25 respectively, without the committee binding itself to employ any of the competitors to carry out the works, or to employ either of the architects whose design may be accepted.

**TUAM CATHEDRAL.**—Our contemporary, the *Tuam Herald*, in kindly according a favourable notice of this journal, says, "we trust before long to see a representation given of our own magnificent cathedral." We had anticipated our contemporary's wishes, for we presented an illustration of that structure in our number for Feb. 15, 1862. We have also respectfully to remind the *Herald* that it is not recently that we introduced "the interesting ingredient of illustration" into our pages, inasmuch as that the DUBLIN BUILDER has been an illustrated journal since the 1st of January, 1860.—[Ed. D.B.]

**TUAM.**—Trade in the town, which formerly was noted for a steady and safe business, is almost at a stand still, and of course when commerce declines among the shopkeepers, the humbler class are sufferers also. The various little resources which were open to the industrious a few years ago, when business was good, and enabled men to earn a support in the minor branches of trade, are now completely cut off. Agricultural labour also up to this has been nearly altogether suspended, as much from the inability of the farmers to give employment as from the wet and stormy weather which has prevailed for weeks past in this locality. With such poverty causing conditions existing for months past, is it any wonder that the mass of the poorer people, who, by a single week's interruption in their usual means of earning, are often placed in distress, should now be reduced to great straits, and obliged to endure severe privations? It may be stated with perfect truth, as the general condition of the humble people of the town, that a large proportion of them are in deep, many of them, indeed, in dire, distress, and that some are afflicted by want and misery in their very worst forms.—*Correspondent of Freeman*.

**LONGFORD.**—In our recent notice of this town, the building described as a "Christian Brothers' School" should have been a "Diocesan College," and the amount of contract referred to only includes the shell and roof, and not the entire of the structure, which will cost treble the amount stated before completion. We communicated the information as it was given to us on the spot, by what we believed to be good authority.—[Ed. D.B.]

**PRINCE'S-STREET MARKET, CORK.**—An exceedingly handsome fountain and gas pillar (says the *Constitution*) has just been erected in the centre of this market. It is partly composed of cut-stone and cast iron, the lower basin of the fountain being of the former material, while the pillar and ornaments are of the latter. It has three basins, and all the metal work is highly ornamented. Around the pillar are clustered representations of water-lily leaves, with a variety of those of other water plants. Underneath the second basin three water fowl are placed in different positions, and drooping under the upper basin are flowers of various kinds. Surmounting the pillar is a hexagonal lamp, which is both useful and orna-

mental. The basins are formed with "lips," from which the water falls. There is no jet from the fountain. The upper basin is supplied with water from an opening in the pipe that runs up through the pillar, and when it is full, the water flows over by the several "lips," and falls into the second basin, which is designed after the same style as the other. From this basin the water falls into the large stone one underneath, which is used by the stall holders in the market for washing vegetables. The fountain, with the lamp, is about 14 feet high. The metal portion of the fountain and the lamp have been erected by Mr. W. R. Harris, Great George's-street.

**HORACE VERNET.**—The recent demise of this great artist recalls to mind some particulars of his history. He was the descendant of a race of painters—Antoine, Joseph, and Carl Vernet having preceded him. Joseph was well known as a distinguished marine painter. Horace was born in 1789; as a youth pursued his probationary studies most diligently, earning a livelihood by designing for fashion books and booksellers; married at twenty, and commenced about that time his career as an artist in a studio of his own. Amongst his celebrated works are his "battle room," his "Smala," "the attack of the French on Rome when held by the Triumvirate," and others; he received numerous distinctions from crowned heads: Napoleon the First made him a chevalier; Charles the Tenth commissioned him, and in 1828 appointed him to the Directorship of the French Academy in Rome; Louis Philippe patronized him, but, with "the citizen king" the artist quarrelled, because the former required him to paint Louis Quatorze in a heroic position at Valenciennes, in which he was not. Vernet thereupon quitted Paris for St. Petersburg, where the Emperor Nicholas commissioned him to paint some subjects. He soon, however, returned, and continued on French soil his glorious career to its termination.

**LABOURERS' DWELLINGS.**—A few months since a prize of fifty guineas was offered by Henry Tucker, Esq., vice-president of the Farringdon Agricultural Library, for the best essay upon labourers' dwellings in rural districts. The essay was to trace the causes of the crowded and defective condition of such dwellings; to exhibit the moral and physical effects upon the inmates; and to suggest practical measures for lessening the evil. The prize has been adjudged to the Rev. W. Hickman Smith, of Penge, Surrey, and the essay is to be published immediately.

**LITERARY PIRACY.**—Mr. Rooney, publisher (of this city) has issued a catalogue, in which he bitterly complains of the difficulty of preserving his copyrights from infringement, observing that he is told that he can obtain legal redress, but, says he, "at the end of even a successful lawsuit I find the trouble and annoyance exceed the benefit." Mr. Rooney has, during twenty years of business, produced a series of translations of the Classics, which have won the applause of the authorities in the Dublin University.

## TO CORRESPONDENTS.

A. M'A., Ballymena (thanks; attended to).—W. A. (written to).—M. M. (do.)—COTTAGE BUILDER (we decline to point out a book for your purpose: consult an architect, and beware how you burn your fingers as an amateur; "a little knowledge is a dangerous thing."—J. M.C. (written to).—A. & Co. (do.)—COUNTRY ARCHITECT (we are not yet in a position to name either "the exact" or "the probable" date of first meeting of revived Institute; we hope, however, in course of the month).—CAUSTIC CRITIC (your letter about St. Patrick's is but a general expression of opinion on the discussion, and would not throw any new light thereon by insertion. We are not accountable for our correspondent's bad Latin).—F. T. (Although there was a special agreement, yet the work having been adopted by the party who employed you, although not pursuant to the agreement, you can recover the value of the work, but not upon the contract; but unless the work has been adopted, you cannot recover at all).—C. B. (the foregoing answer is applicable to your query also. If your contract was to finish the cottages by the 15th December, and that, although they were not completed until the 20th of January, the defendant then accepted them, you are clearly entitled to recover in your action for work, labour, and materials).—W. M., Derry (thanks for courtesy).

**BOOKS RECEIVED.**—In consequence of the extensive space occupied in present issue by the correspondence relative to St. Patrick's and St. Finbar's Cathedrals, we are compelled to hold over notices of several books under consideration.

**NOTICE TO PUBLISHERS AND AUTHORS.**—Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET. Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABOTT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET.

Mr. J. J. Lyons, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-sreet, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Mr. Lyons also holds commissions for supply of Caen, Glasgow, Bath, Forest of Dean, and Welsh building stones.

# The Dublin Builder.

VOL. V.—No. 77.

## PRACTICAL MECHANICAL ENGINEERING.

**T**HE profession of the *mechanical engineer*, compared with that of the *civil engineer*, is in many respects popularly regarded somewhat in the same ratio as that of the *builder* with the *architect*; and the æsthetic or theoretic portion of his education is for the most part neglected, or depends for its attainment on the doctrine of chance and on observation; whereas, on the contrary, his *civil engineering* brother has his curriculum marked out for him from his earliest noviciate, and he travels through it systematically, step by step, till he reaches that point of training which qualifies him both practically and theoretically for the pursuit of his profession. Indeed, we doubt if there be many exceptional cases in which a lad intended for the pursuit of "practical mechanical engineering" has been afforded opportunity, either by design or inadvertently, of graduating in those elementary branches of education best suited for his education; and, in most instances, we can certainly answer, that he is committed to the tender mercies of his future master, about as ignorant of the nature of his profession—whether chosen or forced on him, as the case may be—as if he were drafted into the studio of the philosopher, and told to solve the mysteries of complicated formula and calculations on abstruse questions of science, while a stranger even to the simplest elements of natural philosophy.

There is much for a practical engineer to learn besides "practice;" with him, as with most other professions, *theory* first, and practice afterwards, should be the rule. Unfortunately, however, it is the exception, and he is left to forage through his work as best he can.

We live, however, in an age of enlightenment, when men become sensibly awakened to *wants*, and when enterprise is speedily found to fill the vacancy. It is not enough for the youthful student of practical mechanical engineering to find himself at his forge, with his moulding and casting apparatus at his feet, and surrounded by the various mechanical implements of his craft—his steam hammer, his cutting tools, his drilling, slotting, punching, rivetting, &c. &c. machines; he must be prepared beforehand by education to understand the uses and characteristics of each scientifically, and all the principles involved in their construction and employment. A man may admittedly succeed in constructing, by aid of the above and other appliances, a locomotive or other engine of unexceptionable workmanship and efficiency, but without the groundwork of theoretical science in his brain, he resembles the mariner who, by observing the points of his compass, and avoiding contact with objects by ordinary directions to his helmsman, conducts his bark mechanically from shore to shore, but who may, nevertheless, be thoroughly ignorant of a single principle of navigation science.

We have said enough to show that the practical mechanical engineer *ought* to be educated to his occupation. We shall now proceed to enquire *what* that education is, and the various departments that it should embrace. To assist us in this consideration, we refer to the newly-published work\* quoted in our note at foot and now lying before us; and of which we may here opportunely remark that it comprehends, in one volume, nearly, if not all, the departments included in the profession.

"Metallurgy" may be said to form the fundamental basis of a mechanical engineer's operations; without an intimate acquaintance with the characteristics of his "ores," he is applying material, the success or failure of which he cannot predict; and, indeed, we doubt if this may not be the secret of the numerous accidents of breakage of pistons, axles, &c., attended with important consequences occasionally, and fully establishing the truth of the remark that "there is no

effect without a cause." On this subject, there is a very able and instructive treatise in the work referred to, including illustrative woodcuts of Bessemer's famous patent process for refining iron, of a furnace for copper manufacture, and a "round buddle" for cleansing copper ore.

Passing over the comparatively minor and manipulatory departments of *forging* and *moulding* and *casting* operations respectively, we come to examine "the physical basis of the steam engine,"—the crowning feature in the mechanical engineer's pursuit, that branch of education to which his mind is necessarily most directed. "Heat," as every one is aware, is the force on which the action of the steam engine depends, and Mr. Campin tells us that the manner in which heat may be conveyed from place to place may occur in three ways, viz., *radiation*, *conduction*, or *convection*. These terms each admit of special explanation, which is amply set forth.

In this portion of the subject are also involved considerations respecting the nature of "specific heat," "heat and motion," "the dynamic force of heat," "the pressure of steam," &c. From Mr. Campin's observations on the latter we quote the following:—

"When steam is used, the requisite pressure is casually obtained by generating steam from water contained in a close vessel, such steam accumulating until the required tension is obtained; and the amount of steam generated will be found to exceed the bulk of water evaporated to produce it in the ratio of about seven hundred volumes for one at the ordinary atmospheric pressure. At twice this pressure the volume will be reduced to about half; at four times the pressure to nearly a quarter, and so forth."

Relative to the actual working of the steam engine, there are stated to be two ways, viz., "expansive and non-expansive," and the engines are divided into two classes—"condensing and non-condensing;" the former, Mr. Campin says, is generally held to be the most economical; but he adds that experiments have been recently made on an American vessel, the result proving in favour of the latter system. Next in order for the study of the mechanical engineer are "the principles of construction," of which the lever in its various forms constitutes an essential element. Several rules and results of investigations into the laws of this all-important mechanical force are laid down in Mr. Campin's book, and after glancing at the other powers—the pulley and axle—the screw and inclined plane, for example—he proceeds to instance another means of concentrating power by *hydraulic pressure*. Accompanying diagrams of cylinders fitted with pistons, a pneumatic lift, respectively illustrate in the book the methods by which this may be accomplished.

The author passes on to consider the phenomena attendant upon "rotatory motion," the principle of "the coineal pendulum," and other questions properly included under statics and dynamics; and then elaborately treats "the general arrangement of the steam engine," the beam, the pillar, &c. In a subsequent chapter its details, its cylinders, valves, cranks, pistons, trunnions, and other component parts are scientifically elucidated, and rendered easy of comprehension by explanatory engravings; and there is likewise considerable space devoted to practical illustrations of pumping, marine, steam fire engines, &c., through which we are precluded from following the author.

Enough, however, has been said in this notice, both preliminary and in our observations regarding the character of the contents of this book, to show what the nature of a practical mechanical engineer's occupation is, and the necessity that exists for his educational training theoretically without, as well as practically within his workshop; and to those who purpose adopting it as a profession we would cordially recommend Mr. Campin's book as a valuable acquisition.

## ST. FINBAR'S, CORK.

THE correspondence already published in our pages, touching the recent memorable competition, of which a new cathedral in Cork was the subject, will have sufficiently explained the grounds for complaints against the committee without admission of further letters; but we give place, with great pleasure, to the pertinent and sensible remarks contained thereon in a leading article of the *Cork Examiner*.

"A question of some general interest has been in

agitation for some time in connection with the new Protestant Cathedral.

"In truth the matter is one that concerns architects chiefly, but them it does affect in a very important manner. An advertisement addressed to architects requested designs for the new Protestant Cathedral. A distinct provision was contained in the announcement that the expense of the building was not to exceed £15,000. This limit was thought small, but that has nothing to do with the matter. Our readers will remember that in response to this advertisement about sixty different designs were hung in the Athenæum. To the non-professional observer the production of one of those designs may seem to involve a certain amount of labour in drawing and no more. This would be a mistake. Each of those plans, in addition to the patient thought which may be required for the conception and perfection of a design in its artistic aspect, necessitates a multitude of intricate calculations, and an amount of mechanical reproduction, which involves not only trouble but serious expense to the architect. When a limit is put to expense it is quite clear that the process of producing a design becomes more difficult. Leave the architect to his own control as to expense, and he has nothing to do but to embody his pet fancy. Restrain him within a fixed cost, and he has to cut and pare, and add to his conception, so as to make the sum allowed him produce as splendid a result as possible. That all this expenditure of thought, labour, and money, may be in vain is a contingency to which, of course, he must look forward. It is a case of competition, and only one can be entirely successful, while perhaps one or two may possibly receive as much as saves them their outlay. This is one of the conditions of professional emulation to which architects must make up their minds. But they will naturally expect that the published conditions shall be adhered to, otherwise there is no inducement for them to enter into competition at all.

"Now, in the adjudication of the prize amongst the sixty designs for the Cathedral it is complained that the committee did not adhere to their published conditions. It is stated that the design selected cannot be executed under double the specified sum. True, the architect states that his church may be built for £15,000, if its three spires be knocked off; but this is mere special pleading. The advertisement contained no qualification, and it could be read no other way than that the design to be selected should be capable of being executed for £15,000. This selection, therefore, has given annoyance to architects who have kept their designs within the proposed limit. They, not unreasonably, consider that they were placed at great disadvantages in the competition. It is quite clear that a man who limits himself to a cost of £15,000 will find it hard to be as magnificent as one who does not confine himself within double the amount. They regard the judgment of the committee as unfair to them, and some of the architects are resolved, we understand, to try whether the committee are not liable at law to compensate them for their time and outlay.

"Upon the question of legal liability we are not, of course, going to offer any opinion. But we confess that we think architects very frequently have reason to complain of committees in respect to non-adhesion to conditions. In truth, an architect has always to consider whether he may not suffer from adhering to the conditions laid down for him, and the chances are that if he determines to cast them aside, he will be more fortunate than by conscientiously following them out. This is not only unfair to the profession, but in the end it tends to destroy the advantage of competition; for men naturally will not risk their time, trouble, and expense, in a concursus which is not really a competition but a scramble. Committees should in the first instance clearly understand what they want, and having ascertained that, prescribe the necessary conditions, and then stick to them."

**THERMÆ.**—Our contemporary the *Builder* has lately been instructing its readers with a very interesting article on the Thermæ of ancient Rome. Its writer is evidently well acquainted with the appearance of these remarkable buildings; but whether he really knows anything of their use is what we are about to question. His opening words are: "No monuments of Imperial Rome have been, till modern times . . . more absolutely forgotten than the Thermæ." If the writer had added, "more absolutely misunderstood," he would have risen to the level of the truth. How few of those who have examined the baths of Nero and of Agrippa, of Trajan and of Caracalla, really understand what is meant by the word Thermæ. Not many months ago, a statement appeared and was copied about the journals that a discovery had been made in the Thermæ of Caracalla of several "baths" of white alabaster, as if vessels or troughs were *baths* in the Roman sense of the word. The Roman did not fill a vessel with water, befool, dabble in it, and called it a bath. The process of the Thermæ was a very different one from that.—*Critic*.

\* Practical Mechanical Engineering, by Francis Campin, C.E. London, Atchley and Co., Great Russell-street, W.C.

AN ANALYSIS OF THE FINE ARTS  
GENERALLY.\*

NOTHING shows an advancing state of society so much as inquiry into the nature and use of the Fine Arts: no matter how humble the beginning, such an inquiry will result in a better understanding of their importance and ultimate success.

The consideration of this subject involves the loftiest notions of the power, greatness, and goodness of the Creator. The continual recurrence of the thought to its source cannot fail to delight and enlighten us as we proceed to secure our voluntary allegiance as willing subjects to the great Giver of all, who permits us, through these arts, to come nearer to His presence, and enjoy that mental happiness intended only for the thoughtful.

The quiet contemplation of this subject is in itself highly intellectual, and, in a matter so reconducive, it is of the gravest importance, during the investigation, to be guided by rational principles. To promote this desirable end, I have put together a few observations which, when understood, cannot fail to influence our choice and taste in the selection of works of this nature, whether we are brought to consider them as sources of pleasure or of profit.

Fine Art is a term given to the medium through which the soul manifests itself to our senses of seeing and hearing, the only two vehicles employed in transmitting its impressions. These senses are appealed to by several agents invented by the mind out of existing materials, to give expression to the workings of the soul within us.

The skilful and precise exercise of these invented means is recognised under the general name of Fine Arts. They apply themselves to both the senses; sometimes but to one. Fine Art having sound for its vehicle—such is music—only requires the sense of hearing, and that, having form and colour for its characteristics, requires but the sense of seeing; the fine arts of eloquence, acting, and literature, demand for their expression a union of both.

With the other senses, namely, feeling, taste, and smell, inasmuch as they minister to the body and its attendant instincts, the fine arts have nothing whatever to do, being wholly engaged with ministering to wants of the mind.

When an individual, in the exercise of any of these arts, gives birth, as it were, to a new idea, that is, creates something not known before, he must be considered a poet, or maker of a new thought or thing, for this combination of existing materials is so made that it constitutes an original image in the mind; and, as these are infinite and varied in their application, we recognise through them the inexhaustible condition of the soul. The individual mind is limited to a partial display of the fine arts, but the combined power of individuals gives us in their efforts all that the mind can express or enjoy.

The matter being the poet's part, as maker, he must show in his manner that he has that skill which implies practice; if he shows this, then, indeed, is he an artist.

If then, we glance at these relations of the inner and the outer world, we can see how it comes to pass, that one man puts his thoughts and passions into words—such is literature—and another into sounds, of mixed and measured duration, as music; whilst another makes his thoughts and passions find expression in words and action, that is eloquence,—by appealing to the fountain head of all that is good, just, and wise, eloquence overturns, without hesitation, every conventional abuse that would stand in the way of untrammelled freedom. The actor chooses to make his thoughts and passions subservient, and illustrate by dress and action the words which indicate certain situations in life; while some make form and colour in painting, sculpture, and architecture, take the impress of their thoughts and passions.

These several fine arts united give us all we can desire or appreciate; they form the Jacob's-ladder by which the heavenly messengers convey to us the eternal beauties of the higher sphere by our poets, whose mission seems to be the keeping open the outposts of communication between the beings of a material and a spiritual world.

The impressions which a partial education invariably make are detrimental to a right understanding of this subject, which embraces in its circle all the fine arts, and until these are defined, and the share of each in the whole clearly seen, we cannot expect correct criticism on any of them.

A bias may be given to our choice by the condition in which we find ourselves when we first become conscious of what we are in early life; our temperament and susceptibilities acted on by the opportunity of exercising them, leads us to choose

the means through which we would manifest our impressions; a naturally clear judgment will enable its possessor to decide exactly what to choose, but lacking this faculty, a vague desire to do something, will make us adopt the special art that best accords with our inclinations or circumstances.

Poetry does not exist in the thought or thing presented to our notice, neither is it within ourselves, but it is the result or feeling made by both, the one acting on the other; hence a third is evolved, which is poetry, taking its character from the condition of the mind so affected.

Two persons while regarding the same object will conceive different impressions, owing to the difference of their knowledge, habits, and associations. As these act upon temperament, we will have either the prosaic or extraordinary, in the circumstantial elaborate, or the suggestive dash—the management of both, when under control, in genius of the highest order. Poetry, to be good, must be natural, that is, it must find an echo in the human heart, peculiar conceptions with which we can't sympathise are worthless, as are also a confusion of right or natural ideas for want of proper arrangement; in like manner, to clothe our ideas in an inappropriate vehicle, mars their force and clearness.

Therefore, there is nothing in good poetry that may not be understood in it, the happy adaptation of the vehicle lends a charm to the thought; this is in itself a source of delight, as it exhibits the degree of invention in the author. Poetry of the learned kind is only for the learned, and though it may be excellent in its way, it will not last, because it cannot reach the affections nor touch the human heart. This poetry is local, whether of persons, usages, or things; it has no sympathy with our common nature and passions, therefore it is not universal and must die with its admirers, and the occasion that called it forth.

Nature is the operation of God's laws, not the laws themselves, but their manner of working; to these mysterious operations the poet's attention is continually awake, his powers of observation are increased by habit—his judgment in such matters seldom in error—his impressions, when expressed, are often startling to those who never question the artificial usages of society, he lives much in his own natural world, and is often found by the conventional world, so unlike themselves, that he is regarded with mingled pity and admiration as one fittingly tolerated, if permitted to exist on the savage skirts of civilization. His works, however, endure and find a responsive chord in the human breast, it is by his knowledge of nature that he affects the heart, he knows all its avenues and approaches, and makes such a work from the fervour of his imagination, that it seems like the working of nature itself.

Some makers, or poets, have a more lively appetite and greater capacity in accommodating and storing their observations than others; they have different modes of noting them too, some making memoranda, others, like quiet observing children, hoard their records in their own susceptible hearts from infancy upwards; some reason on them, others feel the pressure of their force with tears, which their feelings alone can estimate.

The poet's vocation frees him from the cavilling after rank and fortune—a condition which is the life of society. He takes and regards all sorts and conditions of men as objects of study, regardless of what they think of him or themselves. His entire sympathies lean to charity; he would promote the happiness of all; and from the intellectual wealth the poet has left behind him, we must say he does not set too high a value upon his labours; for what would the world be without them?

Genius is conscious power arising from observation and reflection on the progress of others in a particular direction, steadily noting the shortcomings or the misapplication of power. It goes farther, and shows the ability to remodel or correct these. Genius is the general or universal application of a principle. Ingenuity is a partial or limited display of cleverness in overcoming puzzling trifles. Genius sees what is possible; no amount or kind of labour can dishearten it; temporary failure but provokes to further exertion. Persecution or derision have no terrors for the man of genius. He is incessantly at work with his own mind, in a world of its own making. His religious delight is to see around him a beautiful world mysteriously peopled by a power so great and beneficent that he feels himself as nothing; humility and admiration take possession of his soul, and leads him to closer application to study. Genius never descends, but always aspires to be great; nothing that is possible is too great for its accomplishment. Genius makes new combinations, and selects the most fitting means to express its power. Genius rejects what is conventional, and will not be bound by rules; it respects principles and confirms their usefulness; it also adds to the common stock by discovering new principles.

Genius is modest and industrious, yet feels life too short for the achievement of its varied conceptions.

Taste is judgment, or that choice which implies an exercise of judgment in selection. Should the taste be bad, it has not been cultivated; if naturally good, it indicates refined sensibility, which will go far to mature a correct taste; when exercised, a sensibility, or a consciousness of our own demerits, and a consequent tenderness for the feelings of others, lends, like good manners, an additional charm to a cultivated judgment in matters of taste.

Matters of taste and of law or principle are often confounded, the one with the other. Of matters of law and of principle there can be no doubt, for a work cannot be correct where these are violated; but in matters of taste every individual has a perfect right to judge for himself without doing wrong. Taste is sometimes mistaken for an aptitude to exercise the arts.

In speaking of the fine arts it is necessary to a correct understanding of them to use the several general terms exactly as they are meant to express the qualities of a work; we should then derive much more gratification from its perusal. A reckless use or abuse of proper terms for qualities confuse, tire, and disgust us in the pursuit; our best intentions are thus led into an inextricable labyrinth of tortuous passages, from which we may never find our way out.

Taste may be exquisite and refined, or, if in the current fashion, it rarely escapes the vulgar element. Works in good taste offend no one, but generally please all. Good taste is not incompatible with works of grandeur and sublimity. Good taste indicates a refined mind at the least. Taste or judgment will exhibit itself in the natural and becoming arrangement of the parts of a work, as much as in the choice of the subject. Good taste belongs to no class by birthright; it is as often found with the lowly-born as with the prince.

The exhibition of bad taste in the wealthier classes is a reproach to their understanding and opportunities.

Beauty, as such, being an abstract idea, can never be the subject of individual representation. Of all created things man alone is conscious of the beautiful, and the fine arts supply him with the means of conveying these impressions to others.

Proportion is an element of the beautiful, meaning by this the parts in proportion with each other; for symmetry, though an element of the sublime, is not so in the picturesque or beautiful.

Beauty demands variety, and becomes more effective by contrast and opposition in its accessories; the quantities in gradation of parts happily disposed in agreeable succession, returning and repeating with a difference in masses sombre or gay, strikingly bright or scarcely perceptible; subordination in the parts and unity in the whole so fascinates the understanding with those pleasurable graces, which are ever found attendant on the beautiful, overwhelms us with its charms, and takes possession of the mind, as a distinct and exclusive quality, doubtless meant to play an important part in the conduct of human affairs, and in the fine arts its exponent. For beauty is an essential element of the fine arts; its presence invites our attention and wins our approval; it enhances our notions of the greatness of the Creator, who is the Source of the Beautiful; and those varied means for making us acquainted with it are in themselves so marvellous that any one of them, when rendered in perfection, is as much of Divine glory as our feeble frame can bear.

To experience the whole of this idea of beauty, which is beyond our comprehension, but which exists in the combined fine arts, would be to pay for the gratification with our life. We may not thus see our Maker face to face and live.

But the amount of beauty to be enjoyed through the fine arts varies with the degree of susceptibility an individual may enjoy. This is often so slight that some may be said to have no sense of the beautiful whatever.

Invention is the application of means to the end in view. These are found within and around us, to make an original idea, which shall be recognised by those already in existence, and so to add to the common stock. A library, a collection of pictures, a temple, an orchestra, and a free people, suggest each and all a world or worlds of ideas, which being thus preserved and enshrined, as it were, in human estimation, becomes the hoarded treasures of man's progress from the beginning. To add to these is the birthright of man, who only proves himself rational when he tries to do so. Invention is improved by knowing what is already done in the special art under consideration, for originality is immensely aided by general knowledge. Invention must seek and find the means to aid in giving unequivocal effect to the story or theme. Invention must do more; it must reject everything, no matter how alluring, which may present itself to the imagination, if it does not give force to the subject in

\* A Lecture delivered by Professor Macmanus, at the Royal Hibernian Academy, on the 21st ult.

## DUBLIN METROPOLITAN RAILWAY BILL.

## MEETING AT THE MANSION HOUSE.

A NUMEROUS and most respectable meeting was held on the 20th ult. in the Round Room, Mansion House, for the purpose of adopting measures to oppose the projected Metropolitan Railway Bill.

The chair was taken by the Right Hon. the Lord Mayor.

Alderman Mackay and Mr. Kinahan were appointed secretaries to the meeting, and the Messrs. Fry, of Westmoreland-street, hon. treasurers.

The Lord Mayor said,—Gentlemen, I received a requisition to call a meeting of the citizens of Dublin on as early a day as possible, to take measures to prevent the proposed Metropolitan Railway Bill from being passed into law. That resolution or requisition was signed by Arthur Guinness and Son; Ferrier, Pollock, and Co.; David Charles Latouche; and, in fact, I may say, a large proportion of the wealth and industry of Dublin. Having received that requisition I immediately convened this meeting, which I proposed to hold in the Oak Room, but which, from its number, I had to adjourn to this, the Round Room. I feel that you will not be as comfortable as you ought to be, but, on the other hand, that you will be disposed to dispense with that comfort when you consider the object for which we have assembled. You are aware that the object of this scheme is to connect all the various railway termini in Dublin, so as to enable one railway terminus to communicate directly with another by railway. It is true that the measure will, to a certain extent, damage the city, because instead of people arriving by one railway, stopping, perhaps, in town that night, and spending their money in seeing the beauties of the city, and returning or proceeding on their journey the following day, the existence of this metropolitan railway will give rise to such regularity in respect to the various trains, that they will be so timid that on the arrival of one train from Galway or elsewhere, another train will start a few moments afterwards. The railway will go through by the branch from one terminus to another, so that not one minute will be spent nor a penny expended in Dublin. However, I believe the main objection to this scheme is that it will seriously damage this beautiful city. We all feel a pride in the beauty of Dublin. Some of the splendid buildings which adorn our city are connected with the most glorious memories of Irish independence and progress. We look back to those splendid buildings, and we gather from reviews and their historical recollections vigour to fight in the cause of our country. Now, it is proposed to run a railway through our city. I would not object to that railway if it were to be made through the back streets, but it is proposed that it should pass through Westmoreland-street, which, you know, is one of the handsomest streets we have at present. It would, if carried out, also pass over D'Olier-street, between Carlisle-bridge and the Custom-house, and therefore operate very seriously on the shipping interests of Dublin. This is a matter of great moment to the citizens of Dublin. Remember, if it is once passed into law it is finished for ever. We can never again succeed in rendering Dublin the beautiful city it is at present. Accordingly, it behoves you, when you consider how rapidly this scheme has been brought before the House of Commons—how secretly many of its measures have been planned, and the short time the citizens have had to consider its effects (with many of which you are unacquainted), to put your shoulders to the work, and by a bold and vigorous demonstration—such as the influential meeting which I see before me to-day—to put an end to this scheme altogether, and to give us time to consider the effect of this movement—to give sensible men and sensible architects, who are interested in the beauties of Dublin, an opportunity of considering the matter, and not to be guided by that vandalism which is called the doctrine of modern political economy, and by which everything of beauty is entirely ignored. And I will pledge myself to this railway company, that if they come forward, not with this raw scheme, but with a proper, well-matured, well-considered scheme—one which will enable them to carry out their object without irretrievably damaging our town for evermore, we will all give it our cordial support, though it will, to a certain extent, injure the trade and commerce of Dublin. I will not further refer to the matter, as many eminent speakers are to address you. I thank you for the satisfaction you have afforded me in asking me to preside upon the present occasion. It gives me more satisfaction from the fact that a gentleman (Mr. Benjamin Lee Guinness) who from his intelligence, position, and wealth, is entitled to the greatest weight, has come forward to-day to offer us his assistance.

Mr Guinness came forward amid applause to propose the first resolution. He said,—My Lord Mayor and Gentlemen, I have been honoured by being presented with the first resolution, which I will take the liberty of reading to you. Before doing so I may congratulate the meeting on being presided over by

my noble friend on the left, who, since he has come into office, has done all that lay in his power, and everything within his reach from the high position in which his fellow-citizens have placed him, to promote every object beneficial to his country. I have been, during the course of a long life, at many, many meetings held in the Mansion House, generally presided over by your lordship's predecessors—meetings held for the benefit of the country and the benefit of our city, which, perhaps, have impeded various measures of a retrograde and injurious character, which speculation may have brought forward; but I have never been at a meeting of the same importance to the city of Dublin as the meeting which your lordship presides over to-day. There has been presented by certain speculators—I believe principally from the other side of the water—a measure of what I really cannot but say of a most audacious character. For their own selfish motives they have introduced a bill into Parliament, the object of which is to run a railway right through the heart of the city; and in doing so, they, with the most reckless indifference, propose to erect some 50 bridges on our streets; to shut up various lanes to a far greater number, and encroach on various places; to take away halves of streets, thereby reducing them to lanes; and that we are to submit, for the sake of this speculative measure, to have our city for ever ruined in its beauties, and absolutely rendered most undesirable. I will now read the resolution:—

"That having heard with much surprise and regret that a bill has been introduced into the House of Lords intitled 'the Dublin Metropolitan Railway Bill,' having for its object the completion of a central railway station in Dublin, with a view to connect the existing railways having their termini in this city; and it appearing from the plans that it is intended to erect upwards of fifty railway bridges, some of them crossing the most frequented and beautiful thoroughfares in the city, we are of opinion that this contemplated undertaking is uncalled for by any public requirements, and that the advantages, if any, to be derived from it, would be more than counterbalanced by the disfigurement of the city, the injury to trade, the interruption to traffic, and other evils that it would create."

Now, it is requested that, so far as we citizens are concerned, this project should start somewhere from the Great Southern and Western Railway. It cuts off the entrance to the Park, by Stephen's-lane, from all parties coming from the southern side of the city. It then crosses Watling-street and Bridgefoot-street, and a number of smaller streets, until it comes to Parliament-street, which, as we are all aware, has become one of the most useful and important streets in our city. It also crosses over two of our leading streets—Westmoreland-street and D'Olier-street, running across the Liffey in an angular way, by means of a bridge, and continuing along the south side of the river down to Ringsend. Now, any person who looks into the matter properly will see that the Drogheda Railway Terminus has rendered Erne-street and that portion of the locality comparatively worthless. Who would build a residence there, or make a good street in these localities. This projected railway, running through Dublin from end to end, with its enormous masonry, and the trains running day and night, disturbing the inhabitants, must be admitted on all hands to be a great inconvenience and a serious injury to the citizens. On looking at the map I observe that the contemplated encroachment is to take away the half of several of our leading streets—I say that any person looking into the project will see that it is one of a most audacious character, and we ought, with one heart and one hand, come forward and say that it shall not be. We are told that persons from Belfast and Cork would be inconvenienced by this railway going through our city, but are we for the sake of the slight accommodation of those gentlemen to adopt a project of this kind? Certainly not. Therefore, with great respect, I take the liberty of proposing the resolution which I have read.

Alderman John Reynolds—in a most comprehensive, effective, and humorous speech, in which he graphically demonstrated the irreparable injury that would be done to the city, both commercially and artistically, by the execution of this project, and referred to his own "darling scheme" for rebuilding Carlisle-bridge as having considerably progressed—seconded the resolution. He said he would do all in his power to strangle the contemplated measure.

Colonel David C. Latouche proposed the second resolution, which was as follows:—

"That we are of opinion, should it become necessary to connect the different lines of railway having their termini in this city, the proper course would be by a line outside the city boundaries."

He said he had been unable for many reasons to take much part in public life lately, but he felt it a pleasing duty to accept the post that his friends assigned him, that of proposing the second resolution in opposition to the new project. He had endeavoured in a business-like manner to make himself acquainted with the advantages of the project as well as the striking disadvantages which it possessed. He had inspected the plans in the office of the Clerk of the Peace, for the purpose of endeavouring to ascertain what it was in contemplation to do. Although many present might be acquainted with the project, he

thought it would not be useless to consider, on the one side, what was stated to be beneficial in the project, and, on the other, what the citizens apprehended as an evil. He would wish to deal candidly with the question, and to impress on his fellow-citizens the necessity of promptly saying either yes or no. He would wish to consider what the citizens of Dublin were to benefit by the new bill. It was not for them to say whether or not the project would be profitable to the projectors—the question of success or non-success was beyond their present purpose. All he would look to was the advantage that the city was likely to derive from having an immense central railway, of course for the reception of goods as well as passengers, situated close by Carlisle-bridge, the most thronged thoroughfare in Dublin, and whether it would be advantageous to bring to that place a crowd of cabs and cars. On the other hand the advantages would be that a few of the citizens might, by the contemplated line, be brought nearer to the Bank of Ireland or College-green, in the morning when arriving in town from the country, nearer to their places of business than before. However, the convenience was not much in a city where they could get from one end to another in a quarter of an hour for sixpence. Therefore he said to the projectors of the measure that that was not an advantage, or at most it was a small advantage. It might be some advantage to the people who came from England, but it was no advantage to the people of Dublin. On the contrary, looking on the matter as they should, as one of pounds, shillings, and pence, it was rather a disadvantage. He, therefore, could not see any advantage to be put to the credit side. The disadvantages were formidable. There was no doubt that the proposed railway would pass through many poor districts of Dublin, the houses in which were thickly inhabited, and, if so, where were the people to go to? Was it to the union? If not, where were they to live? Then the line would come from the King's-bridge along the river, and would make the offices and dwellings of the merchants intolerable as places of business. They would either become houses for the poor or waste, and people could not live in them. Then they had a number of streets that had to be passed by bridges. Some of these bridges would be from 70 to 80 feet wide, and the maximum height was 16 feet. There were to be two such bridges in D'Olier-street. Whatever they did he hoped they would make up their minds to vote at once and take action on it afterwards by saying, "No, we will not have this project," because, if they did not speak out boldly and decidedly, the bill would be passed, and it would be impossible to undo it. If once passed into law, they would lose the beauty of the city. The fine view from College-green and the other fine portions of the city would be ruined unless they went forward at once and said, "We will not have it."

Alderman Campbell seconded the resolution. He said he concurred with the remarks of Col. Latouche, and felt he could not add anything to them.

Sir Thomas Deane, in support of the resolution, said that having been for upwards of 50 years intimately connected with architecture and practical engineering, he desired in the presence of that great meeting to stand up as a member of the profession and a citizen, to give his protest against one of the most audacious attempts ever made in our city to destroy its beauty. There was not in any part of Europe a more beautiful combination of architectural objects than those that presented themselves in College-green. They had Westmoreland-street, one of the finest streets in Europe. In point of æsthetics, in matters of taste, it was perfectly and absolutely impossible to connect the go-ahead erections of railway engineers with anything bordering upon beauty. Across Westmoreland-street it was proposed to put a bridge—how high?—just four or five feet above the lamp-post. Let it be an iron bridge, or lattice bridge, or girder bridge, or suspension bridge, or tube bridge—nothing of the kind could harmonize with the beauties of that locality. It was said that the object of the project was for the good of the city, but they did not find the Corporation or any public body, or the guardians of the public, taking any part in it. It was the bounden duty of the Irish members to do their duty on this question. He would be the last man in the world to stop public improvements, but before being adopted they should be properly matured. If a line were brought to connect the King's-bridge Terminus with the other lines, it would annihilate the river front. The line would go along the river for a couple of miles, and altogether destroy the connection of a large line of houses with the river. These were severe matters, and Dublin should be up and stirring, or the city would soon not have either beauty or architecture. Buildings would be annihilated, and no impetus would be given to the encouragement of architectural taste at all. No one would lay out a shilling upon a site that was to be annihilated by a vulgar railway. As a member of his profession, and as an architect against the projected line, he trusted that the taste of his countrymen to encourage works of art was not to

be discouraged and to be annihilated by vulgar railways.

Mr. Francis Codd, in proposing the next resolution, said—Participating, as I do most fully, in the opinions expressed by the gentlemen who have preceded me, that this measure is calculated to deface the beauties, to considerably lessen the convenience of our city; and, as a member of the Ballast Board, knowing that it is calculated considerably to inflict serious injury upon the commercial and shipping interest, lessening the already too limited accommodation for the increased and increasing trade of Dublin, I have no hesitation to comply with the request made to me to propose the resolution, and have now the honour to read it. It is—

"That it is expedient that the proposed Metropolitan Railway Bill should be strenuously opposed by the citizens of Dublin; and that the following gentlemen, with power to add to their number, be appointed a committee to take the necessary steps to oppose said bill on its merits:—the Right Hon. the Lord Mayor; Sir John Kingston James, Bart.; Nathaniel Hone, Esq., J.P.; Sir Thomas Deane; Benjamin Lee Guinness, Esq., D.L.; Robert Manders, Esq., J.P.; Colonel D. C. La Touche, D.L.; Alderman Wilson; Alderman J. Reynolds, J.P.; Francis Codd, Esq., J.P.; Alexander Parker, Esq., J.P.; Alderman Campbell, J.P.; Joseph Hone, Esq., Jun.; Charles Halliday, Esq., J.P.; James C. Colville, Esq.; Alexander James Ferrier, Esq.; James Barrett, Esq., J.P.; Alderman Mackey, J.P.; George Kinahan, Esq., J.P.; John Fry, Esq.; Gilbert Sanders, Esq.; Alderman Moylan, J.P.; Alexander Comyns, Esq.; Captain R. B. Smyth; John Hodges, Esq.; W. H. Fry, Esq."

Mr. Alexander Parker seconded the resolution. He thought the protection of the city of Dublin rested with the citizens themselves. He believed that the class of persons who had concocted this project belonged to what might be called the dangerous class of society—a class of persons always on the look-out for some project that might pay its promoters, and have salaried directors, leaving the shareholders to shift for themselves. He trusted that this threatened invasion would be met by the committee, whose nomination he had the honour to second, with characteristic energy. This was not the first time that the Irish city had been besieged, nor the first time that a sound defence had been made by Irishmen.

Mr. Charles Halliday proposed the next resolution, as follows:—

"That it is expedient that the petitions to the House of Lords and Commons against said undertaking, which have already received a vast number of signatures, be as numerously signed as possible by the citizens, and that Lord Talbot de Malahide be requested to take charge of same in the House of Lords, and our city members in the House of Commons."

Mr. James C. Colville (ex-High Sheriff), in seconding the resolution, said, one of the greatest arguments against the contemplated measure was the large and influential meeting which had assembled there that day, to raise their voice against a project which, if carried out, would prove most injurious to the city of Dublin.

The chair was then vacated by the Lord Mayor, and taken by Mr. Benjamin Lee Guinness.

Alderman J. Reynolds moved a vote of thanks to the Lord Mayor. He spoke warmly of the manner in which his lordship had discharged his duties since his accession to office, and congratulated the citizens on being presided over by such a chief magistrate; and he believed that he would discharge all his duties, as he had up to the present, impartially.

Mr. Alexander Comyns seconded the resolution.

Mr. Barrett, J.P., Chairman of the Kingstown Commissioners, supported the resolution. He said he availed himself of the opportunity of expressing his condemnation of the project, which would, if carried, be the ruin of the city. The unanimous opinion of that most respectable meeting must have a great effect, and that opinion was, that the projected railway would be injurious to the city, and disfigure its general beauty.

The meeting shortly after separated.

## Daily Intelligence.

### IMPORTANT TRIAL ARISING OUT OF THE DUBLIN WATERWORKS BILL.

For ten days, ending 25th ult., the Court of Exchequer—with Baron Fitzgerald presiding, and a special jury—was engaged in the hearing of one of the most important records which has ever taken place in this city. It was an action for alleged libel instituted by Mr. Francis Morgan, one of the attorneys to the Corporation of Dublin, against Dr. John Gray, T.C., J.P., Proprietor of the *Freeman's Journal*, and chairman of the new Waterworks committee. Damages were laid at £500; and some of the first professionals at the bar were engaged on both sides, viz., Sergeant Sullivan, Mr. Macdonogh, Q.C., Sir Colman O'Loughlin, Q.C., and Mr. J. B. Lilton, for the plaintiff; and Sergeant Armstrong, Messrs. Whiteside, Q.C., Dowse, Q.C., and Sidney, Q.C., for the defendant. The speeches on each side were (as may be inferred) masterpieces of eloquence, and the examination and cross-examination of witnesses as to the elaborate details of this most compli-

cated case were not less remarkable for the skill displayed by counsel.

The leading features of the case are briefly as follows:—

Plaintiff complained of eight distinct publications by defendant, each being a libel on him personally, as well as in his capacity of law agent. Defendant admitted publication, but denied allegation of libel. The first count referred to a speech made in the Town Council by defendant on 7th October last (some months after an Act had been obtained, enabling the Corporation to obtain a supply of water from the river Vartry), to which the meaning was attributed that "plaintiff had betrayed his trust, by secretly leaguering with opposing parties, and by intimidating with false accusations the members of the committee." The plea averred that in August, 1860, Mr. Hawkshaw, C.E., as Royal Commissioner, held an enquiry in Dublin as to the best plan for supplying Dublin with water for £300,000; that he proposed the Vartry; that an order was accordingly made for a bill to be prepared by the special waterworks committee; that Mr. Hawkshaw should be arbitrator of claims for compensation, &c. Next averment is that the committee did take the necessary steps; that plaintiff was aware of proceedings; that several citizens and members of the council engaged in strong opposition to the bill, and meetings were held for the purpose; that the Earl of Meath brought an action for infringement of certain water rights—afterwards stayed, and the bill was passed. The plea then averred that on 6th September, 1861, the Town Clerk wrote to plaintiff stating Lord Meath's complaint of litigation being still continued with him, and advising plaintiff to report to committee, of which defendant was chairman. Plaintiff did report that Lord Meath had cause of action in June; that in same month he (plaintiff) had been instructed to take steps to plead demurrer, which he filed on 26th July following; that he suggested to Lord Meath's attorney the discontinuance of the action, but received no reply; that in preparing defence he discovered the "water right" of Lord Meath's ancestors, and believed the action would fail. The committee required plaintiff to produce the data on which he founded the report. On 28th September, plaintiff submitted a further report, stating that he believed that Lords Meath and Fitzwilliam's agreements were made with the parliamentary agents without reference to plaintiff; that he was not therefore aware of the data respecting the sums mentioned, and concluded report by praying that the minutes of 17th September, requiring him "to furnish data," be suspended.

Next plea is that on 25th September the committee censured plaintiff for not furnishing the required data, and advising committee to adopt a dishonourable course; that they directed the other law officer to arrange plaintiff's reports, and forbade plaintiff's attendance at committee meetings without being summoned. The subsequent series of averments related substantially to the foregoing. The fifth charging plaintiff with deliberately affording to hostile parties material for opposing the ratification of the agreements. Next, that plaintiff was secretly acting as agent to the hostile members of the council while employed as the confidential officer of the Waterworks committee; that by so doing he had betrayed confidence, had used intimidation, &c., &c.

The principal witnesses examined were the plaintiff and defendant respectively, Mr. Francis Codd, J.P., Mr. Barry, Q.C., Mr. Smyth, Mr. Farquhar (Town Clerk), &c.

After several hours' deliberation the jury announced that it was impossible they could agree, and were accordingly discharged by the learned judge without a verdict.

### FINE ART ITEMS.

Four bas-reliefs, of colossal dimensions, have been brought to light in the course of excavations in the ruins of Babylon.

All drawings, models, &c., intended for the coming Architectural Exhibition at Conduit-street, London, must be delivered early this month.

The Emperor of Austria has decided that a universal exhibition of the fine arts and industrial and agricultural products shall take place in 1865, if possible, or in 1866 at latest.

We (*Athenæum*) learn with regret that the Liverpool Academy have determined, for the present, to discontinue their annual exhibition, after it has existed for forty years. Among the painters to whom the annual prize of £50 has been awarded are the distinguished names of Messrs. Macdise, Herbert, Cope, Poole, Elmore, Frith, Harvey, E. M. Ward, Holman Hunt, Millais, Anthony, Egg, Dyce, T. Faed and Hook. This prize has always been considered, in the artistic profession, as worthy of the highest consideration.

New schools and a convent are to be erected for the Christian Brothers at Harrington-street. Mr. John Bourke is the architect.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

### THE PLYMOUTH COMPETITION.

SIR,—I am obliged by your insertion of my letter to the managers of this competition, and shall be glad if you will insert the enclosed reply. Fortunately, it is not too late for the advice so politely tendered by the reverend writer to be to be taken by all respectable architects.—I am, &c.,

J. P. PRITCHETT.

Plymouth, 6th February, 1863.

SIR,—The letter of the 31st ult., addressed by you, as "the hon. sec. of the Architectural Alliance, which includes associations in every part of the United Kingdom," to John Hill, Esq.,—recommending, for sundry reasons, the issuing of "fresh copies of instructions, with the objectionable points erased"—has been placed in my hands; and I am instructed to say that, while the committee appreciate your advice, they, nevertheless, presume to think that, in this particular case, the obvious course for any gentleman to take, who may be dissatisfied with their instructions, is—not to compete.—I am, &c.,

J. LOUIT.

J. P. Pritchett, Esq.

### TUAM CATHEDRAL.

SIR,—The general character of the eastern portion of the building (my remark on which appears to have been taken exception to by Mr. Deane) is a question, satisfactorily to understand the merits of which requires a personal examination.

The drawings, however (from measurement), which I forward, will, I dare say, sufficiently explain the general grounds on which the antiquity of this portion of the building may be argued.

Whether the windows referred to by Mr. Deane are of an interesting or uninteresting type, is of course a matter of opinion, and does not necessarily affect the question of antiquity. They certainly present a pure and elaborate system of cusping. The east window (of five lights), especially the two easternmost windows, on both north and south sides, are of three lights, the others of two. Those on the south side are altogether perfect, of line-stone, and vary in the design of their traceried heads, the outside jambs being formed of double chamfers.

That these stone windows are "the only architectural features deserving of such a name," is a statement which I must beg leave to correct. A few others exist, such, for instance, as a priest's doorway, now built up, but still apparent from its label moulding and the jamb of the opening on the south side. A piscina, which has evidently been a fine example when perfect, divided originally by a small central column, the cusped heads over which, with cusped circle in the spandril, the whole inclosed by a pointed segmental arch, with label mouldings over, still remains open to view, but in a rather mutilated condition. Close by this interesting feature, and in the position usually occupied by the *sidilia*, there exists in the wall, on the authority of the verger, an arch or recess, which, to say the least, is suggestive: if the plastering were removed, I have little doubt but that the moulding of the arches and other architectural features will be brought to light (I may mention that the cut stone work of this period in the building is of hard limestone, and therefore in good preservation, except where broken maliciously, or from carelessness).

In addition to these a complete chancel arch is to be seen. This is of a plain character, not unusual in Middle Pointed work, being composed of a series of chamfered rings, five in number; the whole width of the jamb being 5 feet.

This arch, which is the termination westwards of the Middle Pointed work, is built about 6 feet to the east of the Norman chancel, the centre line of each building being identical.

This exact position of the latter chancel could hardly have been adopted without some particular object, and therefore the non-completion of the Middle Pointed building leaves it a matter of interesting conjecture as to what may have been the intended arrangement of the building of which the chancel only was carried out, more especially in regard to the disposition of the arch of Romanesque chancel.

The existence of such features as these, which are not generally considered as unimportant, though in the present case apparently overlooked by Mr. Deane, is, to my mind, quite sufficient to settle the

question of antiquity, not only of the details themselves, but also of the walls in which they are to be found. It would appear to me most extraordinary, to say the least, that all these features, supposing them to be the *debris* of a former building, should be re-used so consistently for an after structure and built in so exactly in the proper places. Such a theory naturally suggests the question—where this former building existed? and if these are its *debris*, how is it that the windows and chancel arch are so perfect compared with the piscina? And also, at what particular period subsequent to what might be reasonably taken as the life of a building erected in the fourteenth century, could such care have been evinced in the proper restoration of such things to their original places and uses?

The interior dimensions of the Romanesque chancel are about 18 feet 6 inches by 17 feet 6 inches; those of the Middle Pointed building 71 feet long by 27 feet wide. Which of these, or whether either of them should be removed in carrying out the proposed restoration (?), are points which I should prefer leaving in other hands for discussion, my object being merely to correct statements which appear to me to have been made without due consideration or examination of the existing buildings, and carrying with them all the more weight in emanating from an architect of Mr. Deane's well-known ability and archaeological attainments.

THOMAS DREW.

## Public and Private Works.

GALWAY.

The new road from Claddagh-quay to the beach at Fairhill, in the line of the proposed break-water, is progressing under the direction of Mr. S. U. Roberts, C.E., and 400 men are employed thereon, who would otherwise be starving, or inmates of the workhouse.

We are happy to see that there is a likelihood of some small improvement in the neglected sewerage of this town, a presentment having been passed for a main sewer much required. There are still, however, densely-populated localities without sewerage of any description. Father Daly lately called the attention of the local relief committee to this fact as a means of giving employment, and enquired if that body considered their funds could be more advantageously laid out on other works. The town commissioners, we conceive, are the parties to blame, if such a useful suggestion is not acted on, and some improvement made in this respect, the necessity for which is so apparent.

A gate-lodge and entrance gates are being erected at Dunsandle, county Galway, for Lord Dunsandle, from designs by Mr. S. U. Roberts, architect; Mr. O'Brien, builder, Loughrea, being the contractor. Cost about £550.

A shooting lodge is in course of erection, on the estate lately purchased by Colonel Henry White, at Broadford, County Clare. It occupies a picturesque site on the edge of a wood, and commands a fine view of Broadford Lake. An entrance and keeper's lodge are also in progress on the same estate. The buildings are in the Gothic style, of the local sandstone, with cut limestone dressings, and ornamental barge boards. Mr. W. Fogerty, of Limerick, is the architect.

Some additions have been made, and others are in progress, to the Limerick Union Workhouse, chiefly with a view of increasing the hospital accommodation. The efficiency of the arrangements of this hospital has lately occupied much public attention in Limerick; one of the local medical practitioners having published a pamphlet, in which he endeavours to show the advantage that would result from making it the general hospital for the city and neighbourhood, as permitted by the Medical Charities Act, and abolishing the other institutions in various parts of the city. This, however, is strongly opposed by many who think there would be an insuperable objection on the part of the working classes to enter the workhouse, in case of illness requiring hospital treatment. A chapel has also been added to the workhouse for the use of the paupers. The total expenditure on the hospital and chapel will be about £1,600. Mr. W. Fogerty, architect.

Several works have been carried out at the Limerick District Lunatic Asylum, by authority of the Board of Control, under the same architect. They include a chapel for the use of the Roman Catholic inmates, and a Turkish bath on Dr. Barter's principle. The chapel stands detached, and is a neat Gothic structure, 55 feet by 25 in the clear, with porches and separate entrances for the male and female patients. The Right Rev. Dr. Butler, Coadjutor R. C. Bishop of Limerick, officiated at its consecration on the 15th ult. The cost of the chapel and other works will be about £1,300. Mr. P. de Lacy, of Limerick, contractor.

## General Items.

The Archæological Institute has decided upon holding its annual meeting in July next, at Rochester, under the presidency of the Marquis Camden, K.G. Professor Willis, president of the British Association; Dean Hook, of Chichester, and Lord Talbot de Malahide, will preside respectively in the sections of architecture, history, and mediæval antiquities.

The Royal Canal Company have procured from their engineer plans for the necessary alterations and additions, at their premises, James' Harbour, for the accommodation of the entire business of the company. These plans are under consideration, and the cost will be £11,000. Mr. Christopher Mulvany, C.E.

The last report of the London and North Western Railway Company shows an increase of receipts from both old and new lines contemporaneously, with a considerable reduction of expenditure. £10,000 had been added to the reserved fund, and the remaining profit enabled the directors to declare a dividend of 5½ per cent., for the first time since 1856.

THE ALBERT PARK, DUBLIN. — A petition has been deposited at the Private Bill Office, asking leave to deposit a petition for a bill to establish the Albert Park. This will be referred to the Committee for Standing Orders.

Dr. Minchin, in his report to the guardians of the North Dublin Union, traces the mortality to the effect of an epidemic of rather an unusual character. "Measles," he says, "re-appeared after Christmas in an extremely aggravated form, complicated with an affection of the throat, resembling diphtheria; also with congestive bronchitis, and a scanty, dusky eruption, constituting the black measles, or *rubeola nigra* of authors; the same form of disease which appears to have proved so fatal at Plymouth in 1745; in London in 1763; and in Edinburgh in the winter of 1861."

A survey and examination of the Phoenix Park has been made, with a view to improvements, for which provision will be made in the estimates before Parliament. [Is not this something about the ninety-ninth time that improvements to our Park have been talked of?]

The Governor and Company of the Bank of Ireland, and the Hon. Algernon Egerton, and the Company of Proprietors of the Mersey and Irwell Navigation have severally presented petitions to the House of Lords, praying to be heard by counsel against the Dublin Metropolitan Railway Bill.

The proprietors of the Mersey and Irwell Navigation have also presented petitions against the passing of the Newry and Greenore, and the Dundalk, Carlingford, and Greenore Railway Bills.

A dividend of 5 per cent. has been declared by the Great Southern and Western Railway on the present occasion, leaving but £2,800 to carry over to the dull half-year; while this time twelve months £3,000 was placed to the reserve fund, and £10,000 carried over, a sum which only proved just sufficient to equalise the dividend. There was a falling off in every item of receipt except goods.

There is not a single Government factory in Ireland. Think of the enormous sums expended at Woolwich, at Plymouth, at Portsmouth, at the vast foundries and arsenals of England. There was a Government dockyard at Cork, but it is transformed into a convict depot. If Ireland had her proportionate share of these Government factories and Government establishments, there would be no distress, no cry for outdoor relief or tenant right. Young men who are now mere farm labourers, earning a scanty and precarious subsistence, would become artisans, induced by the higher rate of wages.

A bill is sought for to authorize the Board of Works to make a new street from Blackfriars to the Mansion House, in the city of London, in connection with the embankment of the River Thames on the northern side of that river. It is estimated to cost £600,000 (but most probably will one million sterling), out of the proceeds of the coal duty.

## Miscellaneous.

NORTH-WALL CATTLE MARKET. — Some of the shareholders of the Midland Great Western Railway are alarmed at seeing by the advertisement calling the half-yearly meeting, that it is intended to apply for £5,000 towards the North-wall cattle market,—a project we thought abandoned. If granted by the meeting, which we consider not likely, it will be so much money wasted, considering that the graziers, landholders, and salesmasters are now, in conjunction with the corporation, constructing a cattle market that will, from what we learn, be an undoubted success—its site, plan, and the principles on which it will be conducted, open to all, with space ample enough to accommodate the home and export trade in cattle, &c.

CARLISLE BRIDGE.—A report in reference to the rebuilding of Carlisle-bridge received a first reading at a recent meeting of Town Council. Alderman Reynolds moved the suspension of standing orders, in order to give priority to the consideration of the report. He also moved the adoption of the report, which recommended that the number of handsome designs recently exhibited in the Royal Irish Institution, College-street, now being taken down, should be moved to the City Hall, in order that they might be there inspected by Sir Thomas Larcom, Sir Richard Griffith, and other gentlemen; and that the Corporation should devote a sum of £80 for prizes to exhibitors of the three best plans. Alderman Reynolds' motion was adopted. Mr. Whelan did not consider a sum of £80 should be so devoted. It was not necessary to make the bridge the same breadth as Sackville-street or Westmoreland-street.

RELIEF OF IRISH DISTRESS.—At the meeting of the Central Committee, held on Thursday last, the Lord Mayor read the following letter, which was ordered to be published:—

"Dublin, 89, Amiens-street, Feb. 24, 1863.

"MY LORD.—We beg to enclose you a draft for £17 3s. towards the relief of the distress in Ireland, viz., £12 3s., being the amount subscribed by the tradesmen and labourers in our employment, and £5, our own subscription, which you will please acknowledge at the next meeting of the committee.—We have the honour to remain, your lordship's obedient servants,

"TIMOTHY MURPHY and SON,  
Builders."

[We wish that a few more of the eminent builders in Ireland would emulate Messrs. Murphy's laudable example.]

THE AMLWCH GAS WORKS.—Strange to say that a town which stands so eminent, has only within the last few days been supplied with gas light. In the years 1853 and 1854 and in 1859, Mr. G. Walcott, the eminent civil engineer, convened gas meetings at Amlwch, but without any practical result at the time. In July last he again paid another visit, representing Mr. George Bower, of St. Neot's, Hunts, an extensive manufacturer of gas apparatus, who has manufactured more than 200 gas works during the last ten years. We understand that it was he that erected gas works for the Viceroy of Egypt; the Duke of Marlborough, Blenheim Palace, and at several other private establishments in and out of England. At this last meeting of Mr. Walcott, several gentlemen formed themselves into a gas company (limited), and the plans and specifications were drawn out by Mr. Bower. In the early part of last September, Mr. Bower's tender for the street mains, about £1,900, was duly accepted. The works have been expeditiously and successfully carried out under the able superintendence of Mr. G. Walcott, C.E. We (*North Wales Chronicle*) paid a visit through the works on Saturday last, and examined the various details of the machinery and the premises, and we must state that they are very complete, and even the details are finished off in a workmanlike manner. The stone work was contracted for by Messrs. W. Thomas and Son, Menai Bridge. At the time of our inspection of the gas works, we were greatly delighted in examining the plans of a little gas apparatus, of which Mr. Bower is the inventor and patentee. A shilling's worth of coal will produce a light equal to 60 candles, and it can be worked by a boy. It occupies little space, and can be made to work in two or three hours after delivery. Mr. Walcott has also erected gas works at Holyhead, Llandudno, Beaumaris, Bethesda, Pwllheli, Slate Quarries, Festiniog, &c., and he is about to commence similar works at Llanerchymedd. [Further particulars of Mr. Bower's system of gas apparatus may be had from his representative in Dublin, Mr. J. J. Lyons, architect, 26, Lr. Gardiner-street.]

THE VARTRY WATERWORKS.—The first cargo of pipes for supplying the city with water from the Vartry arrived at Kingstown non Sunday from Glasgow per the Collier (s.s.) chartered for the purpose. The cargo consists of 70 large cast metal pipes, about four feet bore, averaging thirty-three cwt. each, and one from the Phoenix Ironworks at Glasgow, which formerly belonged to Edington and Sons, and now in the possession of Mr. Law. It was some time before the only available crane on the Victoria Wharf could be used to sling them ashore, in consequence of its being out of order, and if it were necessary to use the capstans on the wharf they could not be turned, owing to their present rusty condition, a state of things not at all creditable. There are 20,000 tons of these pipes to be supplied from the works, and we understand that Mr. Law has on hands a large open iron vessel of about 400 tons for transporting them. As those pipes will have to be conveyed to the works in lorries, we believe a traction engine is to be employed for the service, which will be shortly received from the Phoenix Ironworks.

**LARGE SHOP WINDOWS.**—Every shop-keeper, now-a-days, is wild to have an immense window filled with a single sheet of glass. This is all very pretty to look at as a sheet of glass, and in some (a very few) trades a large show window is desirable; but it is a mistake to suppose that advantage accrues to every shop or every trade by such windows. On the contrary, there are some trades, such, for example, as the shoemakers, where it is a positive disadvantage; and others, such as music shops and bakers, where it is useless; but the insertion of these large gaping windows is, in the general case, the destruction of the building, looked at from an architectural point of view—for no building can be pleasing to the eye whose upper storeys and masses of masonry are deprived of all visible support, or, at least, appear to rest upon too slender a foundation. When a better taste sets in, or when, as is not unlikely, a revolution in the character of our shops shall take place, these gaping shop fronts will disappear, and the slender iron beams will give way to solid masonry.

**CRYSTAL PALACE.**—Preparations of befitting splendour are being made at the Crystal Palace, to mark the occasion of the marriage of H.R.H. the Prince of Wales. The great musical resources of the Crystal Palace will be fully brought to bear on the series of wedding fetes which are to be given. A torchlight procession on an unprecedentedly grand scale, winding round the walks and terraces, will take place on one evening. The entire series of fountains are being rapidly got in order thus early in the season, that they may be in full operation at the time of the wedding. Since the cessation of the unusually large influx of foreign and provincial visitors, consequent upon the closing of the International Exhibition, it has been the policy of the management of the Crystal Palace to afford a slight rest from the excitement of the past year, reducing the working expenditure of the Palace to the lowest point consistent with its proper maintenance. The Palace itself has, notwithstanding, never been so full of useful and permanent attractions as at the present time. The close of the International Exhibition transferred to it a large number of the best exhibitors. Combined with these new establishments, those previously existing at the Palace—many of which have been successfully carried on since the opening in 1854—it may be said that no place offers such facilities for purchasers as the Industrial Courts of the Crystal Palace. Carriages, furniture, china, glass, jewellery, plated ware, as well as all kinds of fancy goods, and the most recent inventions and novelties, may be inspected therein. An addition is now being made to this department, of the Coalbrook Dale Gates, well remembered as one of the principal features of the 1862 Exhibition.

**IMPROVEMENT IN THE MANUFACTURE OF IODINE.** Hitherto Iodine and the various salts have been obtained from "kelp," being sea-weed reduced to that state by fire. It has long been the anxious study of manufacturing chemists to discover a mode of obtain-

ing the valuable products from the many varieties of sea-weed, without reducing it to the state of "kelp." Mr. M'Ardle, after many years of laborious attention to that object, has succeeded in arriving at a perfect knowledge of the system to be pursued; being the first to have discovered this long sought-for method of operating upon sea-weed, and obtaining in one article, viz., that valuable product, "Iodine," by his now patented process, four times—or, according to the analysis of Dr. Apjohn, five times—in excess of the average quantity that has yet been obtained from kelp. And although the various other salts obtained do not amount, in an excess of quantity, equal to that of the "Iodine," yet they are in a considerable degree in excess, and of much superior qualities, to salts obtained by the kelp process. It is an important feature in Mr. M'Ardle's plan of operations, that the sea-weed can be gathered and manufactured in all seasons, in winter alike with summer; under the present, or kelp process, it is only during the dry days in the summer months the sea-weed can be made into kelp, which affords employment to the labouring poor for only a very short period of the year; while, under Mr. M'Ardle's system employment is given the year round. A company entitled "the Irish Iodine and Marine Salts Manufacturing Company" has been formed to work Mr. M'Ardle's patent. The offices are at No. 9, Westmoreland-street.

**THE PRINCE CONSORT A FARMER.**—There were observers who muttered that, though a Prince Consort might, in accordance with the humour of the nineteenth century, play with agriculture and throw away money on a toyfarm, he was bound in honour not to conduct its affairs so that the balance-sheet stood in his favour at the year's end. There were even those who suggested that the royal yeoman and tenant-farmer was animated by love of money not less than love of science. But the Prince kept on after his own fashion, which was proudly to shun affectation, and to labour heartily and honestly at whatever work he undertook. He would manage his farms thoroughly or not at all. His aim was not to achieve popularity at agricultural meetings by speaking of himself as a farmer, but to teach the noblemen who watched him how to till the soil; above all, to teach them that country gentlemen ought to know how to manage their estates. Every improvement in system, mechanism, manure, was had recourse to as soon as it was made known, and, after full and fair trial, was assigned its proper place in the list of agricultural contrivances. After every experiment, the practical question "Does it pay?" was put. Love of the beautiful was never permitted to put the farmer's chief object, the useful, out of sight. When the Prince built the new dairy at Windsor, he wished to have an elegant building; but he would not suffer such wish to interfere with practical convenience. After careful deliberation, he decided on the best conditions of aspect, materials, drainage, ventilation, subsoil, remoteness from timber, and then gave general orders to the builder. "The architect," observes

Mr. Morton, "was instructed by the Prince, that while his Royal Highness wished to have an ornamental dairy, no beauty of ornament would compensate for want of everyday usefulness."—*Athenæum*.

**THE DISCOVERY OF ELECTROTYPE.**—In 1837, Mr. Thomas Spencer, working chemist, of Liverpool, was led by the progress of natural induction of his inquiries to the discovery of the fact that, by means of the electric fluid, copper, silver, and gold, in a state of purity, might be precipitated upon moulds (having what is called the conducting power), so as to produce accurate copies of the originals from which the moulds were taken. This discovery was called Electro-metallurgy: it is now known as the Electrotpe. By the processes founded on this discovery an enormous manufacture of the precious metals and copper now takes place. In addition to this, science and art are served by it in various ways.

#### TENDERS.

For the erection of a Presbyterian Church in Lisburn, Mr. J. Boyd, Architect.

Langford Hanna, Belfast	..	£2268	0	0
Henry Stewart, do.	..	1960	0	0
John Lackey, do.	..	1737	0	0
R. J. H. Fulton, do.	..	1678	0	0
A. Smith and Son, do.	..	1641	0	0
W. Ferguson, Lisburn (accepted)	..	1520	3	0
J. Kidd, do.	..	1255	18	0

#### TO CORRESPONDENTS.

A PROVINCIAL ARCHITECT (We cannot say if the day named for the next general meeting of architects will suit your convenience; it will most probably be convened for 4th or 5th instant).—J. M.; R. L. F.; SENEX (we think not).—F. S. SURVIVOR (on the custom observed in your province a good deal would depend, though it may not be the law of the trade generally).—INTENDING SUBSCRIBER (most of the back numbers can still be had).—C. C. H. (MSS. is at your service).—A CARPENTER (yes).—R. P. (your communication is very valuable, and views the question sensibly and justly; but it is quite impossible that we can depart from our intention of discussing further the questions already treated).

NOTICE TO PUBLISHERS AND AUTHORS. —Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET.

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Mr. Lyons also holds commissions for supply of Caen, Glasgow, Bath, Forest of Dean, and Welsh building stones.

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Gold ditto	..	..	3	17 6

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\*.\* Any further information that may be required will be given on application or by letter.

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# The Dublin Builder.

VOL. V.—No. 78.

## THE CARNIVAL AT LONDON.

**S**ATURDAY, the seventh, and Tuesday, the 10th of March, 1863, will ever be remembered by those who witnessed the pageant in honour of the marriage of Albert Edward, Prince of Wales (Queen Victoria's eldest son), with Princess Alexandra of Denmark—an event forming an important epoch in the history of the British nation, and with it—all-dominant as is Britannia—in “universal” history.

Misgivings fairly considered—and they were comparatively few—it is conceded on all hands that a sight so glorious never was within these realms before presented; and, with much reason too, it is assumed as a probability that the present generation never will again witness its parallel.

Our province demands that we should adopt a somewhat peculiar point of view in sketching the features of the event; for we must necessarily avoid touching on certain considerations open to our contemporaries *ad libitum*, and we must restrain our expressed sentiments (at least) within the bounds of their bearings on art, industry, and general incident; claiming permission to embrace within that range, all that may be comprehended between the two extremes of “the sublime and the ridiculous.”

At best the ornamentations and the art appliances generally employed, either on the occasion of a public procession or illumination, are not—when viewed with a critical artistic eye—of a particularly *distingué* character; and monotonous repetition of antiquated devices, with tastelessness of design—when at all original—are most usually predominant; albeit, we Britishers are, compared with our Continental neighbours, in the æsthetics of such things superlatively deficient; indeed so much so, as most justly to excite the supreme contempt of the latter for our national art excellence.

That the present occasion was on the whole, in this regard, not an exception to the general rule we are forced to admit, despite the vast combined efforts of artists of various classes—who swarm thick as bees in the mighty modern Babylon—and despite a lavish, nay countless expenditure of public and private capital. There were, however, a few isolated instances not to be included in this restriction, but chiefly present, we apprehend, in subjects on which foreign taste in decorative arrangement, had been brought to bear either wholly or as an auxiliary.

Regarding the features of any one of the great arteries of the metropolis, there were apparent the usual infinite repetition of flags, banners, garlands, wreaths (artificial or real respectively), streamers, pendants, &c., &c., projecting from balconies and housetops, or stretched across street along the route of the procession. Then there were many forms of triumphal arches with some questionably artistic appendages; transparency succeeded transparency—the majority displaying most non-orthodox portraits of the Prince and his bride; the plumed arms of Wales principality, and the inseparable ICH DIEN, met the eye at every level; initial letters A. A., in monograms, or separately, were in superabundance; crosses (Danish in the ascendant, of course), stars, crowns, and regal insignia decorated alike the façades of business houses, of clubs, and of lordly mansions, not to speak of the thousand-and-one other appliances conjured up to do honour to the auspicious occasion.

Here and there, where balconies were really tastefully draped in crimson and white, with festoons of flowers and evergreens gracefully intermingled and connecting each; where tidy flags and many-coloured Chinese lanterns projected from decorated window apses; where showboards displayed successive garlands of flowers, united with true lovers' knots, and continued down storey posts or up pilasters or quoins of superstructures, the effect was pretty, charmingly pretty; and, in contemplating surrounding ob-

jects less tasteful, regret was at once experienced that the *morceau* was not reproduced so as to ensure one harmonious artistic whole. Indeed, we believe that if in the matters both of street decoration by day and illuminations by night, uniformity and symmetrical arrangements were better adhered to, the general effect would be most materially enhanced; but as it is, a confusion of incongruous tastes pervades the vista, destroying the poetic element, and accomplishing after all but a very barren result. What a field for experiment, in this respect, did Regent-street, with its classic architectural outline and uniformly horizontal tier over tier balconies, balustrades, and parapets, present! Still it was not availed of; and nowhere, perhaps, in all London, was there less regard observed for harmony of decoration or illumination.

Considering the many expedients to which the London authorities, civic and otherwise, were driven, to provide sitting and standing accommodation for those who scorned to mix with the *profanum et ignobile vulgus* in viewing the procession, their efforts must be regarded as completely successful, both as relates to the security of the constructions and their non-prejudicial effects on the architectural features of the public buildings. Indeed, in the case of the Mansion House, that time-honoured structure never looked to better advantage than since its great portico columns were cut across by a tiered platform covered with a gay and handsome awning; and unquestionably both the decorations and the illuminations of the civic potentate's official residence were the most suitable, and with it the most artistic of any and of all others. The locality of this building was the scene of two memorable events—happy and unhappy respectively—both on the occasion of the procession on the 7th and the illuminations on the 10th; the first being the presentation to the bride Princess of an address and magnificent bouquet of choicest flowers by the Lady Mayoress, and a bevy of fair damsels clothed in snow-white garments; the second, the fatal crush whereby, in the midst of life and enjoyment, many souls (eight we understand) were hurried before their Maker. We, unfortunately, were eye-witness to one corpse (a female) being carried out of the crowd. Heaven only knows how many infant children were sacrificed by their unnatural mothers' sight-seeing propensities! Was the immediate cause of this latter preventable? Much blame is attached to the impotency of the city police (the metropolitan police is a distinct body and acknowledged to be most efficient) for their arrangements at this point especially, and for not adopting precautionary measures against a crush by a dense multitude which were sure to crowd thereto.

Reverting to the arrangements to view the procession with facility, grand stands decorated in lively colours were everywhere along the route, mostly in conjunction with churches and other public buildings, and many independently. Three sides of St. Paul's church-yard were literally covered with an awned and benched platform, with every inch of room let at a high figure to eager spectators; this position, from the narrowness of the thoroughfare, affording an admirable view of the principal actors in the scene—the Prince and Princess. At the churches of St. Clement's, St. Mary le Strand, and others, there were similar erections. Extempore platforms were raised in every shop, in every ground-floor window (hardly raised above the heads of the crowd), on every balcony, on every housetop; and a brisk trade was pursued during a few hours by the owners. Some of these to which admission was paid for varying from one guinea to five shillings per head, were so placed and constructed as to render it utterly impossible for the occupants of back seats to see anything whatever of the procession. “Walking platforms” might be noticed at the corner of each street, where some sturdy fellow, with a form on his shoulder, bellowed out an admonition to by-standers to desert the pavé, and—elevated on his timber pedestal—have a “fast-rate view of the Princess for a shilling;” such individuals, however, shifting their quarters elsewhere when the much-dreaded “bobby” hove in sight.

Of the decorations on the summit of London-bridge we could not speak with too much commendation; but “pity 'tis,” that they were confined to the summit. The arches, spandrils, piers, and abut-

ments were bare and cold, while the balustraded parapet was richly caparisoned in crimson, and surmounted by groups of sculpture on each pier, with Danish national standards, showing gilded elephants, and ravens on their summit; with bronze tripods, emitting incense; medallions, portraits, flags, &c., innumerable, &c., &c. By the way we pause to enquire, who designed the medallion showing the joint portraits of Prince and Princess, and fac-simile casts of which were to be seen on every building in London? The profiles of the two countenances were as *unlike* the originals as they could well be, and most hideously ugly to boot. This was surely flattery reversed!

The arch spanning the road at the northern side of London-bridge was the handsomest of the triumphal structures; it showed three opens, draped in crimson and gold, one greater and two lesser. Others less successful, and considerably less elaborate, spanned the high road at Lambeth, Edgware-road, Cambridge Terrace, &c.

Poor old Temple Bar donned a gorgeous dress, which left not one vestige of its venerable self visible. White and gold predominated; the latter in extreme profusion owing to the employment of tinsel drapery in the covering of the superstructure. By night the effect of its decoration was infinitely more pleasing than by day.

While speaking of these and other public decorative preparations for the occasion—within the city barriers—a fair proportion of credit should not be withheld from the author of same, Mr. Bunning, the Corporation architect. Of the procession itself, on the 7th, we are bound to express great disappointment; the *cortege* west of Temple Bar being shabby, the carriages conveying the royal party having dingy appointments compared with the splendid “turn outs” of the West-end inhabitants. But we are told that this was not a state procession, nor yet a Royal demonstration; that it was her Majesty's command that, as far as royalty was concerned, the proceedings were to be conducted as unostentatiously as possible. The Duke of Buccleuch, however, contributed a redeeming feature; for no royal personage's state coach and livery could exceed in brilliancy the equipage of this Scottish nobleman in every respect. The fair Princess—and she is truly fair—was, however, the all-absorbing object of attraction; her Royal Highness deporting herself throughout the entire trying and most fatiguing proceeding at once amiably and affably, coupled with graceful dignity and manner.

When all the kingdom unites in “*velkommen*,” may we not express an humble wish for the domestic happiness of our future King and Queen; and also add a hope, that Ireland generally will be favoured with a visit from the Prince and Princess of Wales in course of ensuing summer.

Of what a medley of incongruous elements did that assembled multitude consist! but we observed that all classes, from the highest to the lowest, with very few exceptional cases, seemed bent on nothing but enjoyment in the best of good humour; the veriest scum of society sported wedding favours in profusion—rosettes of paper, of satin, aye, of turnip tops and carrots, decorated the *chapeaux* or the breasts of loyal costermongers, sweeps, shoelacks, Jeremy-diddlers, and other members of the great unwashed fraternity; while the very canine species, proud as peacocks, displayed similar appendages at their *crania* or their tails, and strutted with dignified air along the human avenue through which the procession passed. Groups of niggers, imitators of Mr. Punch (who, by the way, at his house in Fleet-street, was wreathed with orange blossoms, and bowed most politely to the princess) with false noses, grotesque head coverings, and great panaches were to be seen everywhere; they, and others dealing in “wedding favours,” “views of the procession”—published in anticipation,—cards bearing likenesses of the Royal Windsor pair (*pear*) plying a very profitable vocation for the time being. Carriages, Hansoms, ‘busses, vans, carts, cars, &c., were trebly laden; and the very steamboats swayed with their swarming living freight.

So, truly was the scene a memorable one, the like of which “we ne'er shall look on again;” all honour to the occasion!

## CONSTRUCTIONS IN WOOD.

## ENGLAND.

WOOD possesses all the qualities to make it a most important building material. The art to use it is called carpentry and joinery. The latter is part of the former, and is limited to the more delicate and skilful shaping of the wood. As far as one may judge from the ancient monuments, the art of joinery was not developed until the thirteenth century. Previously to that period the constructions denote that they were executed only with the saw, the axe, the plane, and jointer; afterwards the chisel and gouge were used in addition.

When man in his primitive state sought shelter from wind and weather it was natural that he would resort to trees, forming the branches into a roof. Gradually he cut the timber; and up to the twelfth century we find that the carpenter timbered the house, and the owner next filled out the space between with thick clay or rubble stone, to the best of his ability. An exception from this were the palaces and mansions of kings and nobles, whose habitations were built of stone since the ninth century.

The Greeks and Egyptians knew the use of wood, and we still see works of the latter; wooden coffins, for instance, in the British Museum.

The Romans were good and clever carpenters, and they had great experience. Some of their writers, like Pliny the elder, display a knowledge of wood in their works which would do credit to a builder of our times.

During the Middle Ages a noble creating spirit brought architecture to such a high development that even now we go back to those times for example and information.

Mediæval art received a serious check through the great Reformation, which shook every European state. The blow must have been severe, for only within the last sixty years has it begun to recover and again to step forward, producing happy results.

It is my intention to bring before your notice such monuments as I met with in my researches, in order to illustrate the progress of timber construction.

There is no doubt that an extended history of wood architecture would be a valuable addition to our literature. My notes must only be regarded as an attempt, with the hope that a more able person will before long do justice to the subject.

Much is to be regretted that many wooden structures have been destroyed, and that even now they disappear gradually more and more to be replaced by masonry; but we must take what we have, and begin at home with England, which above all deserves our best attention.

It appears that the houses in our earliest domestic architecture had but one room, which is evident from the fact that the roof was supported by pillars. The sides were entirely filled out with wood, and the interior was divided by tapestry into apartments. The roofs were thatched, as it is recorded to us in the instance when the roof of the Royal mansion at Kennington was destroyed by fire; it was renewed and covered with straw. Subsequently the thatch was abandoned and replaced by wood, which has been transmitted to us with the name of shingles.

The roofs of the thirteenth century had a considerable pitch, and in many cases they were covered with shingles of stone, tiles, or slates. The open timber framing was generally very plain, and only seldom did it occur that the woodwork was painted. The latter was the case in the chapel built by Henry III., at Windsor, where the wooden roof was painted in imitation of another of stone at Lichfield.

The first attempt at ornamental wainscoting was made under King Henry III., in the twenty-third year of his reign, when he ordered his clerk of works at Windsor to work day and night at wainscoting a chamber in the castle, with boards radiated and coloured, so that nothing might be found reprehensible on that wainscot.

The furniture of this time was limited to tables either fixed or dormant, and resting on trestles, which latter were removed when not in use.

Every article appears to have been made on the spot for its purpose. Of this we find an account of Richard I., during his stay at Portsmouth, having trees sawn into planks and forming them into tables. The seats were also made of planks; and, in fact, the buildings of that time appear not to have had any moveable furniture. There is, however, the coronation chair, which is still preserved in Westminster Abbey. It is an elaborate piece of workmanship for that time. The lions on the lower portion are not in strict accordance with the upper part, and it is possible they may have been added at a later period. Similar specimens may have been in use amongst ecclesiastical officials in

churches; but of these none are left to record. This assertion is based upon the fragments which at the present day may be seen in good condition. For instance, the reading-desk at Bury, in Huntingdonshire, which was made in the early part of the fourteenth century; and it is further proved by the interior decoration of several old churches.

Previous to the Reformation, the naves of churches which were occupied by the congregation were usually fitted with fixed seats, divided from each other by wainscoting. The ends of these were panelled or carved, and some are found with straight heads, and others with carved poppies. Findon church, Northamptonshire, is one of the oldest and most perfect examples.

The ecclesiastical monuments bear the most prominent signs of the actual development of the age; and we must therefore refer to such remaining structures to guide us for information.

Although the Norman roof offers nothing worthy of imitation, the chancel of Adel Church, Yorkshire, is an example of that period. Next we have the simple roof over the porch of Heckington Church, Lincolnshire, which is a trussed rafter roof, too stiff to be pleasing. Long Staunton Church, in Cambridgeshire, is a similar example, with the addition that the roof is extended over the aisles. The roof covering the aisle of Lynpenhole Church, Norfolk, exhibits a different construction, much more pleasing than the two preceding ones, the difference being that in Lynpenhole Church the braces traverse the collar-beam. Stove Bandolf Church, Norfolk, has a similar roof to the latter, with additional second collar-beam. The old roof of a house at Charney Basset, Berks, retaining its original feature, is of plain but good design; it has seven eaves with tie-beams, king-posts, and struts. The king-post is octagonal, with square abacus and base. An example by far more interesting is afforded by the Hall at Stroke, Sey, Shropshire; it has principals which rest upon projecting stone corbels, and these are framed together with collar-beams. In the same building is a staircase of solid timber leading into a room, which is also built of timber. This building is a most perfect remainder, dating from the thirteenth century. In Kent we see apparently the original roof of the ancient manor-house of Soar, with tie-beams and king-posts; the latter have moulded caps. A roof of plain construction is to be seen over the hall in the Priory at Winchester; each pair of principals is supported by a wooden arch, which springs from corbels about two feet below the wall plate, with the collar-beam at the point of the arch. A rather singular remnant may be seen in Oxfordshire. It is the wooden doorway to a barn, the ornaments of which are all cut in wood.

Under the sway of King Edward I. and King Edward II., and after 1272 to 1377, architecture was much promoted and made great progress; and with the appearance of the Decorated style we notice a feeling for improving the appearance of roofs by carving and moulding the principal timbers. An interesting illustration of this period we have in the church at Wimbotsham, Norfolk. The roof is boarded beneath the timbers, and is divided into panels by small moulded ribs, which have well-carved bosses at their intersections. In the roof over the chancel of St. Mary Magdalen Church, Norfolk, we find the introduction of principal rafters and purlins.

The roof over the south aisle of St. Martin's Church at Leicester dates from the Early Decorated period; the circular principal of which rests on carved angles, the spandrels filled in with tracery, and the wall plates are all well-moulded. In its detail it is, however, not satisfactory, and produces less good effect than the originals from which it was re-constructed.

The roof of Trinity Chapel, Cirencester Church, Gloucestershire, is very similar to the preceding one. It has principal rafters and intermediate trusses into which the purlins are tenoned, and every part susceptible of enrichment has received it in the highest degree; the short height, however, imparts a depressed appearance to the design.

In 1364 letters patent were granted by Edward II. to take away the wooden shingles from the roof, which needed repair, and to replace the same with stone, slate, or tiles.

A portion of ancient single roofing is still in existence under a roof of later date, at Ingham, Kent.

In the illuminated manuscripts of this century, we notice carved barge boards, and also in the representation of a projecting wooden bay window.

The houses in Scotland, during the fourteenth century, were mostly of wood, as may be read in the Chronicles by Froissart; and, considering the foregoing, we draw the conclusion that wood architecture was in a great state of perfection at an early period.

Owing to constant improvements and alterations,

it is impossible to determine exactly the various periods, because old timbers and productions in wood were used in the construction of new houses. For the same reason it is difficult to say whether examples were new in design or copies from earlier buildings. Such an instance we have in the ceilings of Neworth Castle, which is richly carved, and bears the character of the fourteenth century, although the structure was almost entirely rebuilt towards the close of Queen Elizabeth's reign.

Up to those times the common place of assembly or meeting was in the hall of the houses, which also formed the principal room; part of the hall was screened off at the lower ends by a wooden partition, above which was the gallery. In churches these screens were used for various purposes, and in most instances their lower portion is close panelling with open work at the top.

The oldest piece of screenwork is in Crompton Church, Surrey. It bears a transitional character from the Norman to the Early English period.

Of Early Decorative character we have the one in the north aisle of the choir in Chester Cathedral. The roof, as already mentioned, was generally open timber work, and sometimes richly decorated, as, for instance, at Malvern and Bagby. We find cases where a stone arch was thrown across the room to support the principals, as at the Mote, in Igham, Mayfield, &c.

During the fourteenth century glass was introduced into most of the domestic buildings, but only in the upper portion of the openings; whilst the lower one was still closed with a wooden shutter. Such an example is to be seen in the window of the hall at Marne, in Somerset.

With regard to furniture, it is mentioned that during the time of Edward II. a large oak table was bought for use in Westminster Hall, at the price of £1 13s. 4d. The celebrated oak table at Windsor was made in 1356; and during that century many luxuries came into use, which may have resulted from the intercourse of this country with France. The luxuries served principally as an interior accommodation of the rooms. In the wardrobes of this period we find some remnants in the shape of lockers or chests; most of these are preserved in churches; but whether they were originally made for them remains an unsettled question.

Chests seem to have been very important furniture in olden times, for they served for the safe keeping of all valuables. The oldest chests known in England are at Climping Church, Sussex, and at Stoke, D'Abernon, Surrey; next follow those at Graveney and Saltwood, in Kent. The latter is richly ornamented with carvings not deeply cut, and decorated with ironwork.

The chests of the Decorated period are mostly panelled, and ornamented with carvings, which are confined to the fronts. A fine example of this is still to be seen at Grimingham, Norfolk.

The Perpendicular style is little different from the former. An interesting specimen is to be seen in the Court of Chancery at Durham, which was made from 1333 to 1345. It is strongly bound with iron; the latter a little ornamented on the top. The inner side of the lid has heraldic paintings, of which the colours are still visible. The roof of St. Andrew's Church, Norwich, is a very pleasing example. Little Welnetnam Church, Norfolk, although a late specimen, is a very good one of the hammer-beam roof; two intermediate trusses occur between the main ones. An exceedingly plain roof is over the nave of the chapel of St. Mary's Church, Suffolk. Hammer-beam roofs of a steeper pitch are seldom met with. The whole of the timbers are well moulded, and the cornice is very effective.

The engineering feature of this age, such as wind and water mills, are spoken of in Domesday Book; but we have no specimens to refer to.

About this epoch guilds began to establish themselves, and they were in the habit of building their halls close to churches, owing to their connection with that establishment. Few of such interesting structures have been preserved. The Town Hall at Ashburton, in Devonshire, is a curious and early building, entirely of timber.

In the timber roof over the nave of Wimbotsham Church, Norfolk, the collar-beams are placed low down, so as to equalize the sides and angles of the polygonal soffit; these are boarded over and divided into panels, by mouldings which have carved bosses at the intersections. These, as well as the mouldings, bear traces of having been richly coloured.

The roof over the chancel of St. Mary Magdalen Church in Pulham, Norfolk, shows a bold construction; and the one over the south aisle of St. Martin's Church, Leicester, is very interesting, and dates probably out of the Early Decorative period. The tie-beam, with the braces, form nearly a semi-circular curve. This arch is beautifully moulded, and the spandrels are filled in with tracery. Similar to this is the roof at Sparsholt, in Berkshire. The roof over the chancel in St. Martin's Church,

Leicester, has a tie-beam, but no principal rafters; the purlins and ridges are supported by struts, the intermediate spaces having tracery, and the tie-beam is supported by curved braces.

From the end of the fourteenth century we have still the roofs over the nave and transept in Ely Cathedral. The large curved truss in this is of one piece.

The triangular corners are filled out with joists, which firmly combine the trusses with the rafters. The great strength of this roof consists chiefly in the large timber used, and in the extreme pointed curves, by which the greater part of the thrust is brought upon the struts downwards.

The combination in the Anglo-Norman style has led to clever and bold constructions.

As the most developed must be looked upon the roof in Westminster Hall, which is 239 feet long, 68 feet wide, and 90 feet high. It is a magnificent example, almost unique. I do not know anything equal to it. The timbers are all well arranged. The roof is formed on the common pitch: the length of the rafters are about three-fourths of the entire span; and to provide against lateral pressure, there are, throughout the length of the hall, principals at about 18 feet distance from each other. These abut against the wall between the windows, and have arch buttresses in the outer wall. Every truss comprehends one large arch, and springs from corbels, 21 feet below the base line of the roof, and at nearly the same height from the floor. The ribs forming the arch are framed into a beam connecting the rafters in the middle of their length. A smaller arch is turned within the larger, springing from the base line of the roof, and supported by two brackets, which rest in the springers of the main arch. Smaller timbers are placed to bring the weight and pressure upon the principals. By this arrangement, and by having the springers so far below the top of the wall, a firm abutment and great security have been obtained.

The quality of wood used in this roof was so well selected, that, after withstanding the ravages of four centuries, it remains to this day in perfect condition. The hall was built under William II.

The Preceptory of the Hospitaliers at Chibburn, rebuilt towards the end of the fourteenth century, has some interesting specimens of old wood work, such as the partitions, and the lower floor, which is entirely of oak. The beams are moulded, and the planks, which are very small, were planed on the lower side, and had an ornament in red painted on them.

In Castle Neworth, Cumberland, we admire the massive ceiling over the library. The wall plates, principals, and rafters, have characteristic mouldings of the fourteenth century; and the intersections are dressed with extremely well executed foliage carvings of the same period. The bosses immediately on the crossings of the timbers have been lost or destroyed, but the panels between the rafters are filled with tracery of considerable variety.

Trunch Church, Norfolk, has a hammer-beam roof; the hammer-beams project too far; but the tracery in the spandrels has a most pleasing effect. In the same church are to be seen the remains of a beautifully carved and coloured screen, also old open seats.

The roof of the church at Worsted is very similar to the one just described; but the nave being wider, and as the hammer-beams do not project so far, it gives a far grander impression.

One of the most beautiful roofs of this period is in Wymondham Church, Norfolk, the carving being exquisitely executed.

Marston Church, in Bedfordshire, retains its old roof, partially coloured, and also a portion of the rood-screen, richly carved and coloured, as well as a few old seats.

The old seats of St. Mary the Virgin, Wigen-hall, Norfolk, have a profusion and a variety of carving.

Burton St. Lazarus, in Leicestershire, has a tie-beam roof, which, though a low pitch, is not without merit.

Next we come to Bagzily Hall, Cheshire, which is a very old timber edifice. The only part now remaining is the great hall. The roof is carried upon wooden arches and pillars, standing a few feet from the side walls, and the space is filled in with open trefoils.

At Maxstoke Castle we also find remnants of timber edifices from the fifteenth century in some richly carved doors.

In the walls of an inn at Coventry are wooden windows richly decorated with tracery, which, no doubt, have come from an earlier and more important building.

The Templars' Hall at Balsall is a wooden structure mantled with brickwork. It is of considerable size, and the interior is divided into nave and aisles, by massive wooden pillars, also worthy of notice is the former timbered hall of the Abbot of Malvern.

Turning our researches into Berkshire, we find in Bisham Abbey, over one wing of the house, a fine timber roof of the time of Edward I., with tie-beams, king-posts, arched braces, and moulded wall-plates.

At Sutton Courtney is a house from the middle of the fourteenth century, as which there remains the original timber roof over the hall. It is very lofty, canted, and supported by king-posts, with struts resting on wooden arches, which rise from stone corbels. The arches and purlins are moulded. The solar also retains its original roof.

The Hall at Penshurst, in Kent, possesses excellent woodwork; amongst which is a richly-carved screen. The roof of the hall is also a fine specimen of timber work; the king-posts and collar-beams are well moulded, and grotesque full-length figures are carved into the wood.

The moat house at Igham, Kent, is interesting for its wooden doors. The chapel has a wooden barrel ceiling and seats; and considering its condition of perfection, it forms one of the most important chapels of that period.

At Gouldhurst, in Kent, is a remarkably fine doorway to a cottage, worked in oak, and well moulded.

Wingham has some good timber houses of the time of Edward III., but most appear to have had their origin at a later period.

Broadstoke Priory has retained part of its domestic buildings. In the refectory is the ancient roof.

A timbered house of this period, with barge boards, is found at Salisbury.

In the Close at Winchester, in Hampshire, may be seen a timber hall from the time of Edward II. Somersetshire retains a singular example in the now termed "Fish House," at Mearne, built during the reign of Edward III. Shrewsbury contains some good timbered house of the same period; also the small town of Welsby, in Herefordshire. The latter are remarkable for their barge-boards and paneling, in kowing tracery patterns.

At Brecon, in Wales, we have in the old refectory of the Convent of St. Nicholas (at present Christ College) a fine roof left. The principals are cut into foliations, and the wall-plate shows a moulding of Early Decorated character.

The succeeding period, with the beginning of the fifteenth century is marked with a decided advance in the application of wood for various purposes; and such remains as are still in existence we look upon as favourite subjects.\*

JOSH. JUSTEN.

#### LECTURE ON SCULPTURE: ROYAL ACADEMY.

The subject of the fourth lecture delivered by Professor Westmacott, was the great importance to sculptors of practising their art strictly according to those conditions which enable them to develop its special resources. It was explained that, though painting and sculpture have a common object in addressing themselves to the senses, they have totally distinct means of doing this; the one affecting its purpose through colour, the other through form. In like manner, the mode of using these means differs according to the capabilities afforded by the language belonging to each art. The success of each depends upon the right use of its own means; and the attempt to appropriate what is essentially an element of success in one with the view of assisting the other, must result in weakening, instead of strengthening, its effect. To give positive substantial form to any object in a picture would inevitably destroy the effect of all other flat parts of the work; because the raised object would not only impede the view of other objects, but it would, of course, carry its own proper lights and shadows, which latter would obtrude themselves in the place of the picture to the detriment of the painted portion; and if the picture should happen to be so placed that the natural light should fall from the right hand, while the painter's simulated light falls from the left, the real shadow of the relieved object would cross those of the picture.

Again, on the other side; treating sculpture—an art strictly confined to form—in the same category as painting, with respect to subjects chosen for representation, and to the arrangement of extended compositions, involves the danger, nay, the certainty, of similar contradictions and anomalies.

The question of colouring and tinting sculpture is not necessarily connected with the present inquiry, which is addressed rather to design and composition. Nor will it be expedient to enter upon the best mode of designing single statues or groups. Being seen all round, these must always produce their own natural effect. They will have true light and shadow wherever they may be placed; differing in this from a picture, inasmuch as the painter, whose composition is independent of natural effects, may arrange his simu-

lated *chiaro scuro* in any way he pleases. It is not intended to say that composing a statue or group is not a matter of great importance and difficulty, requiring study, and calling for the feeling and judgment of a true artist; but the object of the remarks here offered is to show how much more is required, in the case of sculptors, in choosing such subjects as shall come within the possibilities of their art when they have to do with such complicated or extended design as may be attempted in *relievo*.

One of the greatest dangers, in sculpture, is the fascination of the picturesque; by which term is meant here the temptation to arrange a design on the principle of a picture; with a variety of objects, on different planes, with middle distance and background. They are thus induced to introduce accessories, quite forgetting that what the imagination is supplying while they work is absolutely unproduceable in fact, and it is with fact only that a sculptor has to deal. Whatever impression he means to produce upon the spectator must be effected by the only means at his command, the form of the object. It becomes, then, a question of the highest importance to him what subjects allow of formal presentation and what do not.

An artist may sketch in mere outline, in black chalk, pencil, or with pen and ink, a fancy subject, and may clothe it, in imagination, with every fascinating accompaniment; the gorgeous brilliancy of sunrise or sunset, or the lurid effects of night, and storm, and darkness; but this is not yet a work of art: these effects are only supposed by himself, not represented to the sense of others. But if our artist be a painter he may do this. He may at once make his sketch day or night, light or dark, as he pleases. He may enrich his work with all the hues of the rainbow, and force the spectator to participate in his invention and fancy.

But suppose the artist to be a sculptor. Let him have made his pencil sketch, preparatory to the execution of the work itself. Let him try to supply by means of his art what the painter has done by his. How will he succeed with his sunrise or his sunset? How is he to express day or night, light or darkness? Can he render light at all, so as to give any character to a composition? No, and to pretend to do it is extreme folly. A sculptor's sun can only look like a flat disk or counter, and his rays of light, if he should have the boldness to attempt to make rays of light palpable, will assume the form of a carefully arranged bundle of matches, radiating from counter aforesaid. The painter has also another power denied to the sculptor. He can, at least apparently, throw distant objects into perspective. Sculptors have attempted this also by the incomplete device of making some objects very small compared with others, as if taking one condition of receding lines would supply all that is necessary. The effect of the interposition of air tints is quite as essential here as diminution of size, and perspective without atmosphere is an anomaly in a completed work of art. But every object in sculpture must have or should have its proper form, and how would a sculptor prevent the shadow of any figure right across his sun, be it rising or setting, or his clouds, or against the top of a tree meant to be, perhaps, miles off? A work, whether in *basso* or *alto-relievo*, depends upon its position, as regards positive light, for its effect; and the sculptor should always remember that a shadow, naturally cast, is as strong in colour from a small object as from a larger one, though there may be less of it; so that the shadows thrown from the rays before alluded to would be in their colour as intense as those cast by any foreground object. The doctrine here laid down was enforced by a reference to various interesting examples exhibited on the walls, from Ghiberti, B. Cellini, and others, showing the effect of disregarding this principle, while Mr. Westmacott observed that there scarcely is an instance, if one, in the sculpture of the best schools of Greece where the subject is represented in different planes. This is a valuable fact if any stress is to be laid on the lessons afforded us by the greatest masters of the art.

The sculptor may ask what he is to do when he is called upon to represent buildings in perspective, backgrounds of landscape, and similar subjects. From what has been said it would seem his reply should be a very simple and a very sensible one. If his art cannot do it, as he knows it cannot satisfactorily, let him say so, and refuse to weaken the power he really has by frittering away his time and talent on what never can do him credit. A painter would not accept a commission in which he should be required to represent his foreground groups in relief; and still less would he undertake to expressing the rolling noise of thunder, or the sounds of harmony. The sculptor's sunset, or tempest, with its lurid clouds and pelting rain, are in precisely the same category. They are beyond his art, and he must leave them alone. Though in the case of such works as medals and coins, some modification of the rule might, perhaps, be allowed, even the great skill of some of the medallists of the sixteenth and seventeenth centuries cannot altogether reconcile us to the infringement of a law founded on reason and sound principles.

\* Read at Liverpool Architectural Society. To be continued.

Having thus shown the conditions by which the sculptor is bound in the exercise of his art, the lecturer said it followed, of course, that there must be a class or character of subject more or less fitted for sculpture. It did not at all imply that sculpture was an art without sufficient force and power because it could not safely adopt the special qualities of another art. On the contrary, using its own means judiciously, and not challenging comparison where none can properly exist, it is an art capable of most powerful appeal to the sense. Nor does the limitation insisted on necessarily make it tame or ineffective, nor does it deprive it even of the element of picturesqueness up to a certain point. This was exhibited in the case of the frieze of the Parthenon, representing the busy crowding, the variety of character, and the lively movement of the various personages engaged in the Panathenaic procession. No work we are acquainted with gives so valuable a lesson for the guidance of the sculptor, in extended design, as this. He will have no reason to think humbly of his art when he sees, as here, how one of the most difficult complicated subjects may be treated by true genius submitting itself at the same time to wholesome laws.

The great principle the sculptor should keep steadily before him is that, as his means are of the simplest,—form only,—so the spirit of his designs should be under that influence. He must remember that the subjects he is to represent by his art can only be effectively prosecuted when they enable him to expend upon them all his own great resources. In the preceding lectures, on form, the value of simplicity and breadth was strongly urged, against the opposite of cutting up the masses by unimportant details and small parts. In selecting subjects for sculpture the same rule should be obeyed, and those should be preferred that will allow of a mode of treatment which will allow of a mode of treatment which will give force to these essentially valuable qualities; for what applies as an objection to small parts in form, applies equally to introducing too great variety and multiplicity of materials in design. The object the sculptor should try for is, to fix attention at once on his work, and by concentrating and intensifying the motive of his design, to incite all the interest of the spectator. Attempting various effects, and employing means out of the legitimate pale of his art, can only distract the attention, invite unfavourable comment and criticism, and weaken the impression intended to be made.

#### GENERAL MEETING OF ARCHITECTS.

ANOTHER important meeting of architects convened by the committee for revival of the Royal Institute of Architects in Ireland, to hear the report of that committee and to determine on future proceedings, took place on the 5th inst., at the Royal Arcade Hotel, Suffolk-street, Dublin.

The members of the profession present were:—Sir Thomas Deane, Frederick Darley, Thomas N. Deane, S. Symes, W. F. Caldbeck, J. R. Carroll, Charles Geoghegan, W. G. Murray, E. H. Carson, Isaac Farrell, E. P. Gribbon, J. J. Lyons, Thomas Drew, James Bell, jun., Joseph Maguire, J. C. Campbell, J. C. Burne, M. B. Moran, E. M. Allister, Esqrs., &c., &c.

SIR THOMAS DEANE was called to the Chair.

The chairman said he felt highly complimented in being requested, to preside at so influential a meeting of his brother professionals, and although he had himself retired from the active pursuit of professional duties, still it gave him great pleasure to co-operate in any way in behalf of the interests and welfare of the practitioners of the art of architecture. He referred to the circumstances of the present movement, to revive the institute on a basis which would secure its permanency and efficacy in maintaining the rights of the profession; and having, in some pertinent remarks, advocated its desirability, he then called on the honorary secretary of the committee, who had undertaken the task of reorganization, to read the report.

Mr. J. J. Lyons (hon. sec.) then read the following document:—

GENTLEMEN,—Pursuant to a resolution adopted at the general meeting of architects, held on the 3rd day of January last, whereby a committee, consisting of the following gentlemen, viz.—J. McCurdy, N. Montgomery, W. Murray, J. H. Owen, T. N. Deane, J. R. Carroll, E. H. Carson, W. J. Welland, and J. J. Lyons—was appointed to undertake the re-organization and revival of the Irish Institute of Architects, this committee do hereby place before this meeting the particulars and results of the proceedings in reference to the duty so confided to them.

Your committee held their first meeting on the 26th of January last, and proceeded directly to the consideration of the question, as to whether it was more desirable to revive the original Institute, or to form a body independent thereof; and having duly weighed all circumstances connected with the establishment of the Institute, and especially the fact of its enjoying the privilege of a royal charter, they

unanimously resolved, that it was more desirable to re-organise it, than to proceed to the formation of any other association or society of similar purpose.

Your committee, previous to adopting any definite measures to secure such re-organisation, deemed it only courtesy towards the surviving members of the Institute and its officials, to enter into communication with them on the subject.

Accordingly, by direction of your committee, the honorary secretary addressed a letter, dated the 31st of January, to the Honorary Secretaries and Treasurer respectively, of the Institute, informing them of your committee having been appointed at the general meeting of the 3rd of January, and requesting the favour of such information relative to the condition and affairs of the Institute, as would enable your committee to proceed forthwith with the work of reorganisation.

On the 13th of February following, and in consequence of the communication so received from your committee, a council meeting of the Institute was held, at which it was resolved expedient “immediately to revive the Institute, and on a broader basis than hitherto.”

This resolution was communicated to your committee at a second meeting held on the day following (viz., the 14th of February last), by Messrs. J. H. Owen, W. G. Murray, and N. Montgomery, the gentlemen appointed by the council to attend your committee's meeting on that day, and to acquaint them with the terms of the resolution.

Your committee having therefore ascertained, that it was not only the unanimous opinion of the council of the Institute, that that body should be revived and re-established on a broader basis, but that in such opinion the members constituting your committee also unanimously concurred, then directed their hon. secretary to prepare a circular embodying therein the resolutions adopted at your committee's meetings, also certain of those agreed to by the council of the Institute; it being determined that a copy of such circular should be forwarded to each of the gentlemen who attended the meeting of the 3rd of January, and to the members of the profession generally, with request, that they would notify to the honorary secretary within a specified time, whether they desired to join the revived Institute or not.

On the 18th of same month (February), the hon. secretary of your committee prepared such circular, and addressed a copy of same as directed, as also to numerous other gentlemen whose professional avocations, in connection with the pursuit of architecture, would, in all probability, render them eligible for admission into the revived Institute under its “broader basis” constitution.

Attached to the circulars were forms for signature, to be returned respectively by those who, as members of the original Institute deemed its revival desirable; and by those who, not being members thereof, also believed in the necessity for such a body, and were desirous of having their names submitted for membership, in the event of the revival becoming an accomplished fact.

Of the forms numbering ninety or thereabouts, so included in the circulars addressed by your committee, twenty of them have been returned, signed by previously elected members of the Institute; and thirty-three by gentlemen anxious to be admitted into its ranks.

Your committee, while viewing this result as a most gratifying evidence of opinion on the subject under consideration, nevertheless believe, that various circumstances may have prevented even a much larger number of signatures being obtained; for they even remark, that some of the known best wishers of the projected revival are not amongst those who responded.

Having therefore ascertained, as far as practicable, the probable support to be accorded, in one regard at least, to the revived Institute, your committee beg to report, that they believe same—in conjunction with the pecuniary resources at present available—to be ample for the maintenance of that body in a manner creditable to its own constitution, and calculated to confer much practically useful benefits on the profession generally. Your committee, however, would, in addition, earnestly impress on the members comprising same henceforward, the paramount importance of their duty, to aid its objects by their moral influences and exertions, as well as by their pecuniary contributions.

Your committee feeling assured, that at this stage of the proceedings their mission in connection with the proposed revival of the Institute of Architects shall have been deemed to be accomplished, do now consign their trust to the members and officials of that body; confidently hoping that with its revival a thorough invigoration may ensue; that it will not be content to pursue—like its predecessor—merely a path of sufferable mediocrity, but, will be actuated by a spirit of laudable emulation to vie with existing associations of kindred character in the sister kingdoms; and that it will be distinguished for its independence of purpose and determination to uphold the rights

and privileges of that profession of which, in Ireland, it is the elected representative.

Your committee do suggest to the council and members of the Institute, the desirability of a thorough reconsideration and modification of the existing rules and bye-laws; with a view to their being adapted so as fully to provide for all the requirements of an establishment with enlarged principles, and more comprehensive course of action than the present body. Your committee, in conclusion, desire to congratulate the architectural profession in Ireland generally, on the unanimity of feeling and earnestness displayed in the promotion of the re-organisation—elements which they trust will ever prove to be distinguishing characteristics of the revived Institute.

Mr. Isaac Farrell moved and Mr. Carson seconded “that the report of the Committee be approved and adopted.” Passed unanimously.

An interesting discussion on various topics ensued, and was joined in by several gentlemen, after which some resolutions were passed.

One of the resolutions was to the effect “that the officers of the original Institute of Architects be requested to convene at the earliest opportunity a meeting of that body, to take into consideration the details of its revival, and submit them to a general meeting of its members; also, that the Institute should proceed to the election of such new members from the list now submitted by this committee, as may seem to be eligible for admission.”

The meeting, after having been assembled for about two hours, and having earnestly applied itself to the consideration of the subject in question, separated.

[A communication has been subsequently addressed by the honorary secretary of this committee to the honorary secretaries of the Institute, embodying the resolutions adopted at this meeting; so, it will now be seen that the work of reorganisation has arrived at its culminating point, and that the Institute, with a quantity of new blood infused thereto, will be immediately declared revived. We hope to be in a position to announce the names of new officers and council, also to fix a date for the inaugural celebration in our next issue.]

#### KINGSTOWN COMMISSIONERS.

AT the usual weekly meeting of the Kingstown Commissioners on 6th inst., Mr. Barrett, J.P., in the chair, a memorial was read, signed by nearly two hundred ratepayers, making several specific complaints in reference to the conduct and manner of the township surveyor in the discharge of his official duties. Mr. R. Casey, solicitor, appeared for the memorialists, and Mr. Perrin, barrister, for the surveyor. After several witnesses had been examined on both sides, the chairman, before taking the vote of the commissioners, expressed his opinion that the charges were altogether of a frivolous nature, and suggested that some gentleman should move a resolution conveying the opinion of the board on the subject.

Mr. Crosthwaite then moved a resolution to the effect that Mr. Dwyer, the surveyor, stood acquitted of the charges preferred against him.

Mr. O'Rourke seconded the resolution.

Mr. John Reilly said he took altogether an opposite view to that expressed by the resolution of Mr. Crosthwaite. He considered there was ample and satisfactory evidence on the part of the memorialists; and that he for one could not think that the evidence of respectable ratepayers, could be ignored in the cavalier fashion suggested by Mr. Crosthwaite's resolution.

He would be no party to acquitting Mr. Dwyer of the charges preferred against him in the memorial. Civility and urbanity of manner were almost the first essentials in a public officer, ability almost came second and it was unpardonable in a gentleman of Mr. Dwyer's position to be gratuitously offensive to the people. Mr. Reilly concluded by moving an amendment, to the effect that Mr. Dwyer's harshness of manner was calculated to be highly detrimental to the interest of the ratepayers; and that the commissioners felt bound to caution him emphatically on this subject, at the same time stating that they were glad to find that his ability and integrity remained unimpaired.

Mr. Slator seconded the amendment.

After some discussion, an alteration was proposed in the amendment as originally proposed by Mr. Reilly, which being agreed to the amendment was adopted.

**PUBLIC STATUES.**—As a kind of summary of what is going on, or has been lately done in the studios of our sculptors, the *Athenæum* says:—“Mr. Foley's ‘Father Mathew,’ for Cork, is well advanced, and will probably be placed in a few months; the design represents him speaking to, or rather blessing, those who are supposed to be kneeling before him, having received the temperance pledge.”

THE DUBLIN BUILDER'S PHOTO-GRAPHIC ALBUM.

OUR readers will recollect that in the editor's annual address at commencement of present series we promised to give biographical sketches and portraits of eminent architects, engineers, and others; the fulfilment of which promise we now inaugurate with a memoir and likeness of Sir Thomas Deane, who is one of the fathers of "our bar."

PORTRAIT NO. 1.—SIR T. DEANE, ARCHITECT.

SIR THOMAS DEANE, architect, R.H.A., was born in Cork in 1792. He lost his father, who was also an architect, at the age of 14, which obliged him to enter the profession unusually early.

In the first quarter of the present century, architecture, or the æsthetic department of the art, and building—or the application of the artificer's skill in constructive science to the rearing of structures, and provision of materials therefor, as a commercial speculation—went more generally hand in hand than at the present day; and Sir Thomas, in the course of his earlier practice embraced both capacities. Sir Thomas's first work was the Commercial Buildings at Cork, which he obtained in competition against the celebrated classical architect and accomplished scholar, P. Wilkins, M.A., fellow of Cambridge, the architect of the National Gallery, London—a building which, though cited as a popular example of the latter gentleman's works, is by no means one of his most successful productions.

Amongst Sir Thomas Deane's subsequent works



may be enumerated all the vast stores, wharves, tanks, &c., on Haulbowline island, Queenstown.

He received the honour of knighthood when sheriff

of Cork, from the Duke of Northumberland, in 1831.

Sir Thomas Deane was the first patron of the late John Hogan, the great Irish sculptor, and aided materially in fostering art in his native city and elsewhere.

The front of the Court-house at Cork, the old and new Savings' Banks, the Bank of Ireland, and numerous other works in Cork, are also amongst his early buildings.

His works in connection with his late partner, Mr. Benjamin Woodward, and his son and successor in professional practice, Mr. T. Newenham Deane, are well known. They include the Oxford Museum, the Cork Queen's College, the New Museum and other works at Trinity College, Dublin; the Kildare-street Club-house, the Crown Life Office in New Bridge-street, Blackfriars, London, and numerous other buildings.

Sir Thomas has, for the last fifty years, been an ardent promoter of the arts, and has given his best energies to elevate the character of building workmen, by encouraging and acknowledging their individual abilities.

It was Sir Thomas Deane's work—the Queen's College, Cork—that Lord Macaulay in his History of England alluded to as "a college worthy to stand in the High-street, Oxford."

Sir T. Deane had also the peculiar honour of inaugurating, by command, a final statue of the Queen, presented by him to the College at Cork, in the presence of her Majesty and the late Prince Consort, at the time of the first royal visit to Ireland.

ROYAL HIBERNIAN ACADEMY OF ARTS.

THE COMING EXHIBITION.

THE following circular has been addressed to artists by the secretary of this Institution, with a view of ensuring a good display at the annual Exhibition in May next; and we reproduce it in our columns, in the hope of its reaching some not already addressed, and inducing them to contribute. We again take occasion to urge our architect friends not to be apathetic about having their art creditably represented at the Academy's Exhibition as heretofore; even as the results of recent important competitions there are very many beautifully executed drawings immediately available, which would form an architectural exhibition in themselves; and surely a moderate number, at least, of those might, both with advantage to the authors, the Academy, and the public, be contributed for the approaching exhibition.

"I am directed to acquaint you that the Exhibition of the Royal Hibernian Academy will open on Monday, the 4th May, and that Tuesday, the 14th April, will be the last day for receiving works; and I am requested to solicit your co-operation by contributing some of your productions.

"The Exhibition will remain open for a period not exceeding three months.

"The sales in last year's Exhibition amounted to close on £2,000."

(To the above is appended the following.)

NOTICE TO EXHIBITORS.

All works of painting, sculpture, and architecture intended for the Annual Exhibition at the Royal Hibernian Academy, must be sent there on or before the last day announced in the public papers for their reception.

They must be accompanied by a letter addressed to the Secretary, enclosing a list, with the title and price of each work, if for sale, and name and address of the artist. A similar description should be affixed on the back of each work, with the number corresponding to that in the list; particular accuracy is requested in this respect. No advertisement, unnecessary quotation, or narrative can be admitted.

No works which have already been publicly exhibited in Dublin for private emolument—no copies of any kind (except paintings in enamel, and impressions from unpublished medals, in which cases the name of the original designer must be specified); No drawing without a back-ground or with white or tinted mountings can be received. Round or oval frames, unless square upon the outside, are inadmissible.

All works sent to the Royal Hibernian Academy for Exhibition are submitted to the approval or rejection of the council, whose decision is final.

Five per cent. commission will be charged on the Catalogue price of all works sold belonging to artists of Great Britain and Ireland, and 10 per cent upon those belonging to foreigners.

A sale made by the Academy shall supersede one made privately by the artist or his agent, unless the latter be intimated to the Secretary of the Academy in due time.

A "MODEL" RAILWAY BRIDGE.

THE City of Dublin Corporation are causing to be erected at Westmoreland-street, a full-size model of the bridge proposed to cross that fine thoroughfare by the promoters of the "metropolitan railway scheme," with the view of showing the citizens who may not understand perfectly from the drawings the position and character of this bridge, (a "bridge of sighs" inevitably if matured) what those who sign the petition in its favour may expect. This is a very practical mode of demonstrating a result. Unfortunately one of the great scaffolding poles employed by Mr. Meade in the erection of the model bridge fell on a young lady, a Miss Crawford, on Friday last, and nearly killed her.

IRON versus WOOD FOR NAVAL ARCHITECTURE.

AN animated and most instructive discussion on the relative properties of wood and iron for the construction of vessels of various kinds took place in the House of Commons on the 12th instant.

Mr. Lindsay introduced the subject by moving that "it is not expedient to commence building wooden ships to be cased with iron armour plates." He advocated the construction of iron vessels, though the cost was at first largely increased, maintaining that in the end the difference was hardly appreciable.

Lord C. Paget, on the contrary, contended that if we wished to maintain our naval superiority we should continue building armour-plated ships. He admitted, however, that many arguments might be used in favour of both modes.

Mr. Laird (the eminent ship builder of Birkenhead) said that iron ships were much stronger than wooden ones, and with double bottoms or divided into water-tight compartments, were not only safer and more secure, but also more easily repaired. Private merchants and the great steam-packet companies found that iron was more durable and economical than wood, and were building nothing but iron vessels. He strongly objected to the plan of plating wooden vessels with armour. The vessels originally were not strong enough; they were weakened by being cut down, and the plates, instead of strengthening them, further weakened them; and the result generally of building wooden ships in haste, as recommended by the Admiralty, was that in a year or two they were affected with the dry rot.

Mr. J. Ewart agreed with and corroborated the view of Mr. Laird. He cited the cases of the Himalaya and the vessels of the Dublin Steampacket Company, built by Mr. Mare and other private builders, as proof of the strength and durability of iron vessels.

Sir J. Pakington said that as regards the merits of iron v. wooden ships, the debate showed opinions were unanimous. With regard to the immediate question it was not desirable to build the frames of vessels of wood, for he admitted vessels of wood could not be properly built quicker than those of iron. As regarded economy, the best and most efficient vessel was the cheapest in the end.

Lord Palmerston said it was natural that those interested should desire to make anything of iron, although they desired to have the Board of Admiralty

of more plastic material than either wood or iron. It was the old story about "leather" over again. Out of eleven ships, built solely of iron, ten were made or being made by private contractors. There was not the slightest comparison between the packets of a steam company and an iron vessel of war; the former could be easily docked, and in many cases speed and steerage were not so important, but in an action they were all essential. The Warrior fouled so much that she lost a knot an hour in speed every six weeks she was afloat. No vessel with an iron bottom could be sent to distant service for a length of time, and it was necessary to have armour-plated vessels with bottoms of wood if we were to be on an equality with other nations who possessed such vessels. The French had seven, and the Admiralty proposed to add five to the fifteen iron-plated ships now building.

After a few words from Mr. Bouverie, the House divided—

For Mr. Lindsay's motion ...	81
Against it ...	161

Majority ...	83
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The resolution was therefore negatived.

FINE ART ITEMS.

Mr. Leys has completed the picture in oil which precedes the execution in fresco of the great work representing "The Joyous Entry of Charles V. into Antwerp." The work contains a large number of figures. It forms the first of a series intended to decorate the Hotel de Ville, Antwerp, commissioned by the civic authorities.

M. Etex, during his sojourn at Rome, made a colossal bust of the Pope, which is to be placed in the Arezzi Gallery of the Vatican. The plaster cast will be shown in the approaching Paris Exhibition, along with the busts of Cardinal Adonelli and M. de Merode.

The great German painter, M. Kaulbach, has collected a so-called Goethe Gallery, being a collection of pictures representing the personages and scenes of Goethe's dramatic works, romance, and poems. The contents have been photographed at Munich, and the speculation has been very successful.

The Messrs. Forster and Scott, the eminent photographers, purpose opening a spacious gallery of art, in which first-class portraits of all our celebrated artists, literary and medical men, and musicians, will be exhibited. This plan has been adopted with great success in most of the principal photographic salons in Paris, London, and St. Petersburg.

The sum of 5,000 guineas has been paid to Mr. Frith for the copyright for engraving his picture of the royal marriage. We believe this sum to be the largest ever given for the copyright of any painting; exceeding by 2,000 guineas the price paid to Sir Edwin Landseer for his "Peace and War."

An exhibition of ancient and modern wood carving will be held in the rooms of the Society of Arts in June next.

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## THE O'CONNELL NATIONAL STATUE.

THE committee held its usual weekly meeting on the 11th instant at the City Hall.

M. Murphy, T.C., presided.

Mr. Henry, one of the honorary secretaries, having read the minutes of the last meeting, stated that Mr. P. J. Smyth, who had undertaken to prepare the report of the sub-committee appointed on the 25th ult., had that day called at his office, and informed him (Mr. Henry) that he had not yet completed the report, as expected, but that he would be prepared to submit it in a few days.

Mr. Gernon moved, and Mr. Dwyer seconded, a resolution to the effect that the sub-committee be requested to bring up their report not later than the 25th inst., and that, in order to facilitate business, five members of the sub-committee be sufficient to form a quorum. Agreed to.

## Reviews.

## THE FINE ARTS OF ANCIENT IRELAND.\*

IN 1857 Mr. O'Neill published a work on the Ancient Crosses of Ireland, which consisted of a series of plates illustrating these most interesting relics of antiquity. He then merely gave us true and faithful copies, well-drawn and carefully executed. In the present work he has stated his opinions in a very learned manner of ancient Irish ornament, and yet so simply that the casual reader cannot but gain instruction from a perusal of the work.

From his style of writing, and from his acute observations, he has proved himself eminently qualified for the task which he has undertaken. The chromolithographic illustrations drawn by Mr. O'Neill prove that he is not only an archaeologist, but an artist; and the positions he maintains and defends tell of high intellectual culture. His introductory chapter, taken with the second on the "Cause of the Extinction of Classical Art," prepares the reader for the scientific manner in which the subject of ancient Irish Art is treated.

A writer who has studied Art in its varied phases and forms, and has made himself acquainted with its history and vicissitudes, will be listened to with respect and attention, when he traces the rise, expatiates on the excellence, and points out the causes of the decline of any particular school of art.

Every Irish gentleman, whether professional or not, who feels interested in the past glories of his country, and who wishes it a prosperous future, should read Mr. O'Neill's work, in which the high state of civilization of our forefathers is proved beyond doubt. Professional men, whether painters, architects, or sculptors, would do well to study the ancient ornament of their country, with a view to its reproduction as also to the formation of a style of ornament based on its principles and suited to the wants of our times. Mr. O'Neill has opened up the subject for them, and has laid down principles which it would be easy to work out.

In the third chapter on "Opinions respecting Irish Art," numerous authorities are quoted to prove the high estimation in which it is held by those best qualified to judge in such matters. Giraldus Cambrensis, Westwood, Sir W. Betham, Shaw, Noel Humphreys, Godwin, Digby Wyatt, Dr. Keller, of Zurich, and Dr. Waagen, bear testimony to its excellence and to its pre-eminence.

"Judging from the extracts we have given, we could not but form the very highest opinion of Irish Art, for not one of the ten writers we have selected is an Irishman, and they are almost all of European reputation, hence their opinions cannot be suspected of partiality, and are certainly entitled to be received with every possible respect. Do not the opinions of these eminent men fully bear out our own, founded on a profound investigation of the subject, that in fertility of invention and a profound knowledge of the principles of their art in practical taste and most wonderful dexterity of execution, the artists of Ireland have never been equalled. These are the qualities that constitute greatness, and we have no hesitation in saying that the Irish artists are entitled to rank with the best that ever existed."

In Chapters IV. and V., opinions for and against the civilization of Ancient Ireland are considered. It is needless to say that Mr. O'Neill ably contends

for and proves that, anterior to English domination in Ireland, there existed a civilization equal to, if not higher, than that of any country of Europe. Strangely, this opinion is broached by a writer in the *Quarterly Review* of January, though with a qualification. Speaking of the Loane Collection at South Kensington:—

"The early Irish metal work, with its grim hieratic richness, and its Oriental complication of pattern and handling—delicate details spread over barbaric wholes—speaks of a race isolated and self-reliant, and yet sufficient for itself, with acute and yet unequally developed intellect, highly civilized, and yet holding much savagery in solution."

"Some few years ago, when Dr. Petrie was reading a paper on Irish Antiquities in the Royal Irish Academy, he was asked by the celebrated Dr. Brinkeley, did he mean to tell them 'that there exists the slightest evidence to prove that the Irish had any acquaintance with the arts of civilized life anterior to the arrival in Ireland of the English,' and Dr. Petrie states that the assembled Academy obviously participated in Dr. Brinkeley's opinion. A very great change has taken place in that learned body since the above-mentioned circumstance took place; but it is a remarkable fact that, some thirty or forty years ago, the opinions of the most intellectual and learned body in Ireland should have been as Dr. Brinkeley has expressed."

He also quotes from Ledwich's "Antiquities of Ireland," published 1790:—

"From the earliest ages, Glendalough seems to have been a favourite seat of superstition; the tribe of wild and ignorant savages who here fixed their abode, deprived of the light of letters, unoccupied in any amusing or profitable employment, and wandering among human forms as uncivilized and barbarous as themselves, were a prey to gloomy thoughts and the basest passions."

Mr. O'Neill refutes these and other opinions respecting ancient Irish civilization by quotations from other writers, but mainly by reference to Irish antiquities and the high cultivation of the fine arts in this country. The cross at Drumcliff is described in chapter i. part 2, it not having been illustrated in Mr. O'Neill's former work. It is a very beautiful carving, enriched by sculptured subjects and the peculiarly pleasant ancient Irish interlacing ornament—as in all works of early Christian art; the figures are quaint, but they well represent the religious feeling of the subjects they illustrate. It is almost impossible to conceive a more bold and striking effect than that produced by the well-defined outline of an Irish cross. Its forms are simple and true, nor does the elaborate enrichment of its panels in any way confuse it—this, perhaps one of the most important principles of art, was well understood by our forefathers, and is thoroughly appreciated by Mr. O'Neill, who says:—

"Turn to the outline of the Drumcliff cross at page 30; how complete and well proportioned and elegant is that monument! Look at your tombstones and table monuments. How the memorial of the present day suffers in comparison with that of Ancient Ireland!" (p. 69.) "There is no principle of more importance in art than to preserve your subject clear, how-

ever much it may be decorated. The ornament must not smother it; the ornament must not even hide it in the least" (p. 70).

Not only were the Irish great in stone carving, but they illustrated the principles of their art, in all materials of which they had the command. Those specimens of metal work which remain, as well as illuminated manuscripts, show great beauty in design as well as masterly treatment in execution. The Devonshire Crozier, found some forty years ago in the castle of the Duke of Devonshire, at Lismore, is an excellent sample of their work. Mr. O'Neill describes it carefully in chapter iv., part 2.



From the illustration here given, which is taken from Mr. O'Neill's work, the striking difference between the form of the Irish crozier and of those used in England and on the Continent, during the early ages of Christianity, may be seen. We leave it to our readers to say which is most elegant in form. Comparing it with modern works in metal, Mr. O'Neill says:—

"The great effect which Nechtan has produced, with the small means at his command, must strike the most inexperienced observer. Gold, silver, niello; or, in other words, deep yellow, white, and dark blue were almost the whole of his resources; yet out of these very limited means how rich, varied, and telling is the combination he has formed! What modern work in ornamental metal can excel the artistic effect which this old crozier presents?" (p. 44.)

We entirely agree with Mr. O'Neill's remarks as regards modern work, but many of the old croziers of the middle ages are graceful in design and very artistically executed; there is, however, this peculiarity—Irish metal work is more delicate and minute, and was worked in materials which had little intrinsic value.

Again, the well-defined outline in every instance, is in no way interfered with by most delicate and complicated enrichment, is a striking proof of the perfection of Irish art. This is plainly seen in, and can be well understood from, a careful examination of the Tara brooch. Chapter vi., part 2, contains a description of this very interesting relic, imitations of which are now well known to the public. In these, though the form is given, the beautiful work of the original has not been

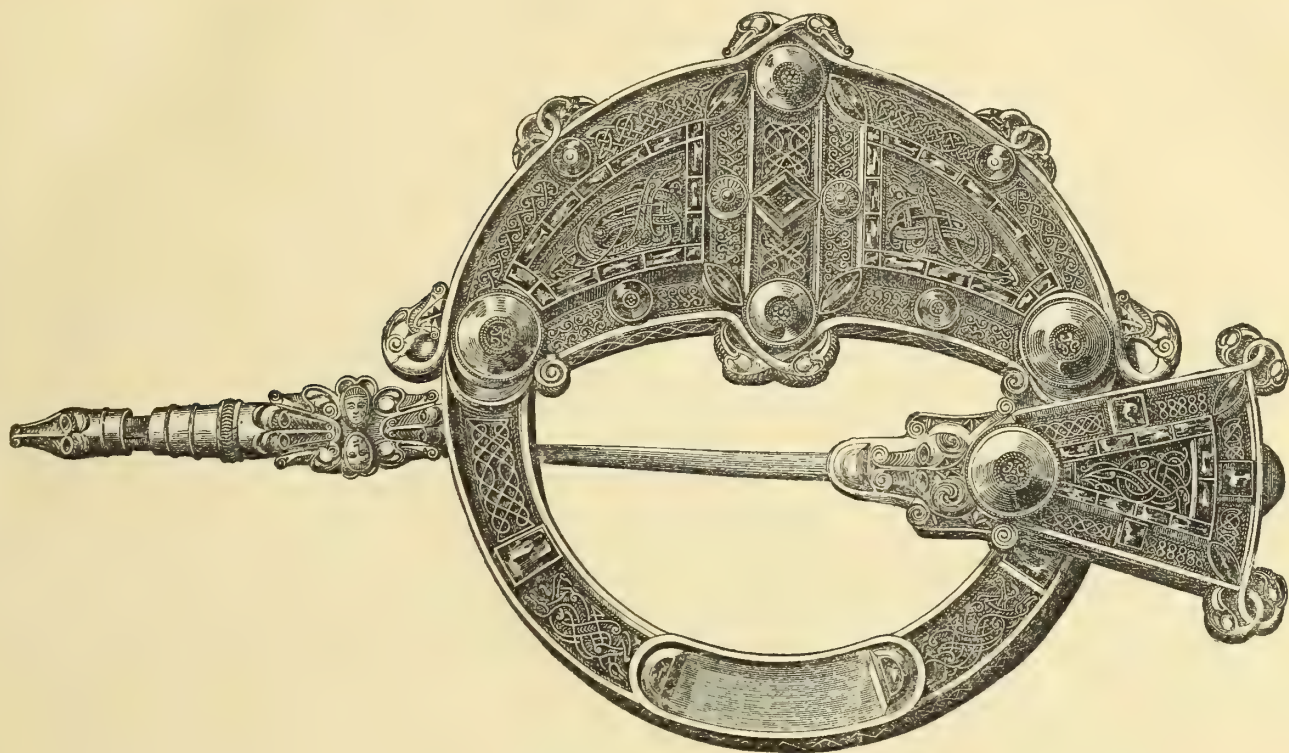
perfectly copied, perhaps such work would be too costly. Mr. O'Neill gives an opinion, which we here quote:—

"No language can convey an idea of the wonderful delicacy of the workmanship of this relic. It is now being exhibited at the South Kensington Museum, and a writer in the *Times* has said that it is 'more like the work of fairies than of human beings.' We have ourselves heard the most practised and able jewellers say, that so wonderful is the workmanship of some of the Irish brooches that they cannot be imitated exactly at the present day. They have been executed in a peculiar manner, unknown to modern times." (p. 54.)

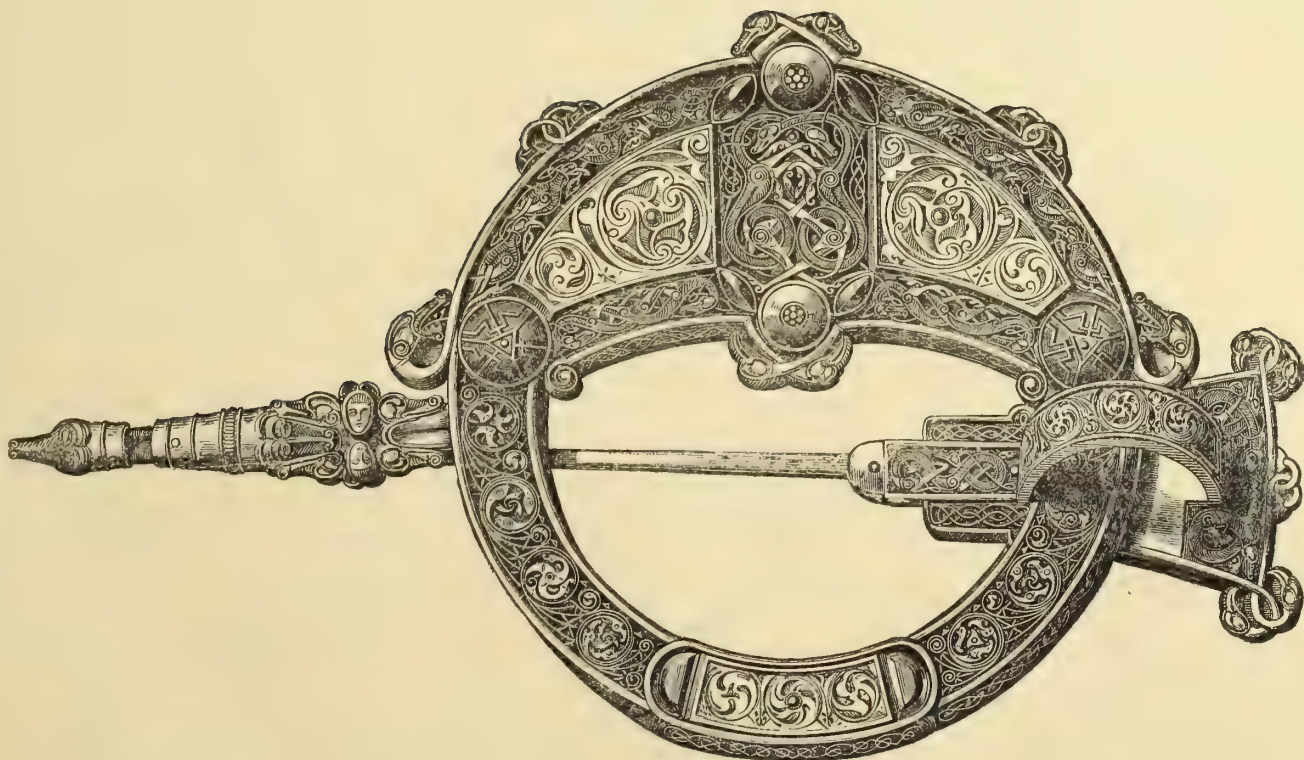
Of all the pleasing branches of art which were practised in the early ages of Christianity, and which is being now revived amongst us, is that of coloured illumination. Vast numbers of manuscripts were saved from the destruction of the nineteenth century, which show to what perfection this beautiful art has been carried. In almost every large library may be seen some examples of illuminated books; but in all the earlier works may be traced that style which was evidently the foundation of the system of illuminated writing—we mean the Irish. It is the most ancient;

\* The Fine Arts and Civilization of Ancient Ireland. By Henry O'Neill: London, Smith, Elder & Co.; Dublin, George Herbert.

THE TARA BROOCH—FRONT VIEW.



THE TARA BROOCH—BACK VIEW.



and on its principles all other systems were founded. Here, as in metal work, a distinct outline—a leading idea—was aimed at, which was elaborated to a most extraordinary extent—some of the lines and interlacings being so minute that it seems almost impossible to copy them; they are not visible without the aid of a magnifying glass.

A perusal of chapters vii. and viii., part 2, will show the reader how well the author has studied this branch of his subject; how clearly he explains its principles, and how greatly he assists students in the art of illumination.

We have seen how great the Ancient Irish were as stone carvers and metal workers. An inspection of the Book of Kells, in Trinity College Library, and other illuminated works, will prove that they were perfect masters of the pencil, and thoroughly understood the harmony of colours.

The Round Towers of Ireland have formed a subject of bitter dispute for antiquarians; hard names have been used, improper motives have been imputed, honesty of purpose has been questioned. Whether their origin and use will ever be determined, remains to be proved. This much is done—that Mr. O'Neill has brought to bear on the subject careful and accurate examination.

Mr. O'Neill's promised work on Round Towers will doubtless throw much light on the subject; from the practical knowledge he has brought to bear on other matters connected with the ancient arts of his country, we believe that he will do much to enlighten the obscurity which has enveloped this vexed question. We hope that the public will appreciate his labours, and that a style of Irish art so long neglected, so perfect and beautiful in itself, will be revived, and that it will, at least in Ireland, resume its old place to the exclusion of many objectionable importations.

MESSRS. SPON, of Bucklersbury, London, Publishers, have just issued "A Handy Pocket-Book of Engineering Formulae," prepared by Mr. G. L. Molesworth, C.E., which, being the result of the author's many years' professional experience and observation of ordinary, as well as extraordinary, emergencies, requiring data for varied and rapid calculations, cannot fail to prove most useful to all engaged in similar and kindred occupations. Old and complicated tables found in other pocket-books, have been simplified in this; and various diagrams connected with civil and mechanical engineering subjects are interspersed throughout. Our architect and builder readers, too, would derive much practical benefit from a consultation of the formulæ on "Continuity of Girders," "Strength of Beams, Girders, Columns, &c.," "Loads on Roofs of Wood, Timber, and Iron," respectively, "Thickness of Walls," &c., &c.—subjects not sufficiently studied in theory and science now-a-days. There is an especially interesting account of the regulations for construction of Prussian railways and their appurtenances, which in many respects vary materially from those adopted in Great Britain. We very cordially recommend this Handy Book to all connected with the constructive arts and sciences.

#### INDUSTRY IN IRELAND.

UNDER this title we reviewed in our issue for Jan. 15, a recently published and very able work, by Mr. William Glenny Crory, and promised to bring it again under the notice of our readers. The pressure on our space for admission of lengthened correspondence and papers on subjects of great professional interests has hitherto precluded our doing so, and even still does, as far as a second extended review is concerned; but we arrange to make room herein for the following quotations, which will further illustrate its character, and we feel assured that the public, after perusing them, will unite in our sentiments, already expressed, as to the comprehensiveness of the book, and the ability with which the author has dealt with varied, and in many instances, intricate topics. We place each under its proper sub-heading.

##### TRAMWAYS.

"To all further efforts after industrial progress in Ireland, tramways are indispensable. Wherever peat-bog, coal, pottery clay, glass sand, marble, granite, and iron ore, are to be carried to a distance, the tramway must be employed. It is the cheapest available mode of transit. To meet the several classes of demand, the kinds of tramway to be supplied must be very various. Some cases will require the moveable sort, and others a permanent 'way.' In several places the 'way' must be light, so that it will not sink in the ground; in other places it must be strong enough to bear heavy weights. Some of the tramways required for this country must

be worked by horses; others may be wrought by stationary engines: some will have to run over roads made already; for others new roads must be constructed. In some instance artificial levels will have to be made; in many cases natural levels may be taken advantage of. A few will have to go up rising ground loaded; some will have to be constructed so that the loaded waggons running on an inclined plane will draw up 'empties.' Even other kinds than all these may be required. But, whatever be the class of tramways suited to any particular case, the condition of the country is such as to give work enough to make tramways pay. The cost of the several kinds necessary for such a variety of work would be widely different. Probably the range for the 'way,' and laying it down, would be from 7s. 6d. to 20s. per yard. But this question is by no means the most important, nor is it just now of any great moment at all, as whatever might be the cost within the range of precedent, even if 10 per cent. over and above wear and tear were demanded on the money invested, it would not make the expense of transit by tramway so high as to hinder the development of any of the several commodities named above."

There is another class of tramways, however, equally important—namely, tramways for roads, in substitution for the horse, coach, van, or cart. In the west especially these are much needed. Several parts of the north require them, too. They are much wanted for Kerry. This would, for example, be a cheap, safe, and satisfactory mode of testing the wants of a backward district before going to the expense of a railway. The facilities offered by this conveyance would, in fact, open up many a place now almost closed to trade. A visit to the coast from Galway to Clifden, and the several districts outlying Westport, Ballina, Sligo, and Roscommon, would show the want of the tramway. Wherever there are fisheries, especially, the tramways ought to be introduced."

##### POTTERY MANUFACTURE.

"The pottery district of England was not chosen because of its nearness to the clay by which the works were to be carried on, but because of its proximity to Manchester, Leeds, and Liverpool. Quartz is brought from Cornwall, clay from Dorset and Devon, flints from Kent and Antrim, and yet the great centre of manufacture is in Staffordshire, to which the approach, though now easy, was never natural, and has actually cost enormous sums of money to make. Suppose, on the contrary, some place in Donegal (Letterkenny, for instance) be chosen as the centre of glassworks. To this may be brought by water carriage any of the quartz, flints, or other materials necessary, besides what might be brought by a tramway from the neighbouring district, where quartz is so plentiful. In or near this town, and in many parts of the district surrounding, the facilities offered by Lough Swilly, or the trifling cost of tramways, or even railways, would be, as compared with the outlay made for the Staffordshire works, very trifling."

##### INDUSTRIAL CONSIDERATIONS.

"Whatever measure of prosperity Ireland has had of late is obviously because capitalists and others have paid more attention to home commerce; also, that the press has been more engaged in treating of industrial resources; still more, that greater industry and more self-reliance are applied in their development, but more particularly because it is a growing sentiment that persons in all ranks, and those of every place, are alike concerned in the material prosperity of all parts of the land, and in the maintenance of the dignity of the capital for sake of the interests of commerce. This can only be properly answered by the fullest employment of Dublin as the commercial and monetary centre of Irish trade, as London is now of British. It is happily even more apparent that Irish prosperity is founded on a better understanding of the real value of things and the relative interests of persons engaged in agricultural, manufacturing, and commercial labours respectively. The mining operations of this country have contributed more to her prosperity, even though these are only as yet in embryo, than all mere trading in goods made elsewhere ever did or ever could do. Besides the little that has been done in mining has created a demand for scientific and skilled labourers."

#### RAILWAY NEWS.

The siding and other works at Roscrea station, necessary to form the junction of the Nenagh and Birdhill extension with the Great Southern and Western Railway, have been nearly completed, and plans are being designed for the stations to be erected on that line, at Cloughjordan and Nenagh, in order that these stations may be available when the line is ready to be opened for traffic to the latter place.

The Portadown, Dungannon, and Omagh Extension Line having been incomplete in several respects at the expiration of the contractor's term, an arrangement was made for the building of the necessary accommodation works, and the ballasting of

the line by this company. All claims with reference to new works were settled, and it was at the same time agreed that the rent under the lease should commence as from the 1st of July, 1862. For these considerations the board accepted the sum of £10,000.

The Clones extension line is ready for the government inspector, and will be opened shortly.

Petitions against the Dublin Metropolitan Railway Bill have been lodged by the Midland Great Western Railway of Ireland Company, the Manchester, Sheffield, and Lincolnshire Railway Company, the Manchester and Yorkshire Railway Company, and the Great Northern Railway Company. The Manchester, Sheffield, and Lincolnshire Railway Company have also lodged in the House of Lords petitions against the Irish North Western Railway Bill, and the Dundalk, Carlingford, and Greenore Railway Bill. Standing orders have been dispensed with in the cases of the South Mayo Railway, and the Cookstown and Pomeroy Railway Bills; and the several promoters are permitted to proceed with their Bills. Petitions praying to be heard against the Baggottrath and Donnybrook Improvement Bill were lodged in the Private Bill office on the part of the Corporation of Dublin; inhabitants of the District and Alexander weir against the Blackrock, Monkstown, and Booterstown Improvement Bill, by the Corporation of Dublin; against the Dublin Corporation Water Bill, by the Midland Great Western of Ireland Railway Company; against the Dublin, Wicklow, and Wexford Railway Bill, by the Honourable Sophia Hely Hutchinson.

The Irish South Eastern Company, with all its appurtenances, has been sold to the Great Southern and Western.

The next half-yearly general meeting of the M. G. W. Railway Company will take place on the 19th inst.

The Directors of the Midland Great Western Railway of Ireland have decided upon recommending to the proprietors at the forthcoming meeting on the 19th inst., a dividend at the rate of five per cent. per annum, free of income tax, for the half-year ending 31st Dec. 1862.

#### Learned Societies' Meetings.

INSTITUTION OF CIVIL ENGINEERS OF IRELAND.—A general meeting of the Institution was held in the Museum Buildings, Trinity College, on Wednesday evening, the 11th instant. Professor S. Downing, LL.D., vice-president, read a paper containing "An Account of the Works for the Restoration of the Middle Level Drainage," after which Mr. Valentine Brown, member, exhibited his Improved Chair for Bridge Rails.

GEOLOGICAL SOCIETY OF DUBLIN.—There was a general meeting of the Society on Wednesday evening in the Museum, Trinity College. Chair taken at half-past eight o'clock. The Rev. Professor Haughton, M.D., F.T.C.D., read "Notes on the Occurrence of Exogenous Wood in the Lower Carboniferous Limestone of the County Mayo." Dr. S. Sterry Hunt—"On the Chemical and Mineralogical Constitution of Metamorphic Rocks."

COLLEGE HISTORICAL SOCIETY.—There was also a general meeting of this Society in the Dining Hall, Trinity College, on same evening. Subject for debate: "That the Failure of the Convict System requires that Punishment by Transportation should be resumed." Speakers (affirmative)—Mr. Himes, sch.; Mr. Curran. Negative—Mr. Coppinger, A.B.; Mr. Stoney, A.B. Chair was taken at eight o'clock, College time.

ROYAL DUBLIN SOCIETY.—The fifth Evening Scientific Meeting will be held to-morrow evening. Chair to be taken at half-past eight o'clock precisely. Communications—Edward Dillon Mapother, M.D.—On the Preparation of Flesh Meat as Human Food. John Locke—On recent Discoveries in Australia. For Exhibition—A new Fire Escape, by Mr. James Joseph Bromlow. Samples of Embossed Berlin Wool Work, wrought by a new method, the invention of Mr. John Toohey. The Root of a Tree of unusual length, taken out of a water cistern, by Edward Haughton, M.D.

DUBLIN ATHENÆUM—PARLIAMENTARY DEBATING SOCIETY.—This society met on Monday evening, the 9th instant, at eight o'clock. Business—Adjourned Debate on the Opening of Stephen's Green.

In excavating recently at Pompeii, a quantity of coins and jewels, together with a recumbent skeleton of a man in remarkable preservation, were discovered. A perfect cast of the latter was secured by the director, Signor Fivrelli.

The next annual spring show of the Royal Dublin Society is announced for the 7th of April and succeeding days. We presume that the additional accommodation of the Shelbourne yard will have been acquired against that time, and the use of the lawn entirely dispensed with.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

## DUBLIN METROPOLITAN RAILWAY.

TO THE EDITOR OF THE DUBLIN BUILDER.

Under which King, Bezonian? speak or die.—Shakspeare.

SIR,—A day or two ago I was attracted by a crowd in the hall of the Commercial Buildings, and turned in with some others to see the cause of the gathering. I found two persons at opposite tables, on each of which was a roll of paper. The respective "Masters of the Rolls" were soliciting the signatures of the by-standers, and each, from time to time, pointed to certain plans hung up on the wall. The first master, when I got up to him, asked me to sign a petition against the "Dublin Metropolitan Railway Bill," which was to disfigure and destroy our city (and then he pointed to the plans), and which had been denounced by all worthy citizens at a great public meeting convened by the Lord Mayor. Being somewhat of a timid man, I declined to sign without consideration, and passed on to the other table, and there I was solicited, with equal earnestness, to sign the petition in favour of the same bill, which was to beautify and improve our city, and then he, too, pointed to the plans, which were approved of by many of the most eminent citizens, whose names he mentioned, and was to confer vast advantages on the country at large. Declining in like manner to sign this latter, I went on my way like Othello, "perplexed in the extreme." No good citizen, thought I, will calmly look on at the destruction of his city. On the other hand, he is a bad citizen who will not aid in what may improve it. In this emergency I determined to investigate the "pros and cons" of the matter for myself, and, having done so, I think it may be useful to others in like case to state my views of this matter, for it is a very momentous matter for us all, and should be discussed with temper and candour, so that we may not commit ourselves, as I hear some have done, by signing a petition under the excitement of a public meeting, and upon reflection changing their opinion and ordering their names to be withdrawn. On petitions I have no great reliance—I know how they are got up. For public meetings—especially when convened, not for discussion of a question, but avowedly to support a performed opinion I have little respect. I therefore set the great names in the one petition against the great names in the other, accepted the arguments used at the Mansion House meeting just for what they were intrinsically worth where there was no one to answer them, and then, seeking such information as any citizen could procure on the other side, I weighed the one against the other till I found how the balance of my own judgment inclined. The arguments put forward by the opponents of the bill may, I think, be classed for all practical purposes under the following heads:—1st.—That "this railway will damage this beautiful city, whose beauties will be gone and perished for ever." Such, in the words of the Lord Mayor, is stated to be main objection. 2nd.—That "it is uncalled for by any public requirements, and that the advantages (if any) would not counterbalance the disfigurement of our city and the injury to trade which it would occasion." So says Mr. Guinness. 3rd.—That "it is a profitless speculation promoted by English speculators, or, perhaps, jobbers, for their own profit, who dare to take advantage of our helpless state, deprived of our paternal legislative protection to perpetrate this act of vandalism," as Alderman Reynolds proclaims. Perhaps the proper order to deal with these objections would be, first to take the second, then the first, and to dismiss the third as meaningless clap-trap. However, in deference to the views of the Lord Mayor [who is, of course, the embodiment of civic wisdom] I shall begin with what he calls the main objection. But first one word on the "jobbers." I can imagine the broad beams of humour that lit up the alderman's modest visage when he invented this new "Irish grievance"—when he described with all his popular eloquence the invasion of the Saxon vandals upon our unprotected city, armed with pickaxes, shovels, levelling instruments, theodolites and what-not, carrying bags of gold to the tune of a million and a half of money, in the fashion of slings, to knock the "natives" over the head with, to desecrate our back slums, uproot our hovels, and sweep away our time-honoured filth, and all this to make profit of a profitless speculation. For my part, I say I fear them not; let them come, we will meet them, aye, if they were to bring us under their money bags, or even destroy the alderman's premises in Fleet-st.

with a thunderbolt of bullion. And now for the main objection—the disfigurement of our city. Sir, I confess this question touched me to the quick—my pride took the alarm, for I am proud and jealous of my native city. She has a noble park, fine squares, a bank with glorious memories hanging around it, a college ornate in its structure and venerated by our nation; our Custom-house, too, is not bad, though we rarely get more than a far off peep at it as we cross Carlisle-bridge, or walk up the quays; and our Town-hall would look well if it was in any place where it could be advantageously seen. Some good streets, too, we have so far as spaciousness, such as Sackville-street, Dame-street, and Westmoreland-st. As I read the oratorical description of the course of the railway, I felt thankful that it cut up no square, nor meddled with the College, but I did feel my soul stirred when I learned that it was to "cut through the former House of Commons," and I felt myself "blushing," like the ghosts of Flood, Curran, Grattan, and the other patriots whom the alderman had evoked from their graves to witness this act of vandalism. My mind, however, was soon relieved from this fear by finding that the Vandals (scared, probably, by the spectre of our Irish parliament) did not mean to touch the sacred precincts, so I turned to consider the disfigurement of our streets. Notwithstanding the beauty of the engineer's plan (which, by the way, I accept with caution), the elegant bridge he proposes to throw across Westmoreland-street, and the very artistic manner in which he masks the passage of the railway through the handsome Lombardic structures at either side of the street, I do feel that the beauty of the street itself will be injured and the view impaired. The same may be said of D'Olier-street, but we must bear in mind neither of those streets form a direct line with Sackville-street, and that consequently the view is but a limited one. I do not think the most ardent lover of our city will say that from Westmoreland-street to King's-bridge there is any beauty to be spoiled along the proposed line save Parliament-street, which, no doubt, will suffer, but in a less degree than Westmoreland-street. A bridge crossing the river to the west of Carlisle-bridge, and certainly not enhancing the beauty of the scene completes, I think, the amount of disfigurement proposed to be perpetrated by the Vandals. And now what are we to gain for this loss? the expenditure of over half a million of money in our city—all, too, drawn from the Saxon—a sweeping away of some of the worst portions of the town, thus improving its sanitary condition; and a splendid series of architectural buildings—hotel, colonnade, and railway offices replacing the miserable shops and sheds which, for the most part, disfigure the quay from Price's-lane to Eustace-street. Sir, when "I look on this picture and on this" I feel that, upon the whole, our city will, in point of beauty and health, gain, at all events as much as it will lose, and so we may eliminate objection No. 1 from our consideration. I feel I have already trespassed too long upon your space, and will refer the consideration of the really most important question to my next communication.—I am, Sir, your obedient servant,  
CIVIS.

## INVENTION AND DISCOVERY.

SIR,—I have been pressed by recent occurrences to the desire of seeking some suitable mode of expression for a very few ideas on the relations of Invention and Discovery to progress, and as the valuable production which you so ably edit seems to be the most likely medium to me available for bringing my views before those best qualified to judge of their soundness, I have to request the favour of a corner in your next publication for this short letter.

It is my opinion that sufficient care is but seldom taken to apportion to concurrent events, and superior genius respectively, what of right belongs to each of the causes to which the advent of invention or the adoption of discovery are to be attributed. It seems as if so soon as any one becomes an inventor or discoverer he is supposed to be the origin, the bringer forth, and the finisher of that of which subsequent events often prove he is only the instrument to announce.

Nor do I observe a general, if any regard at all, paid to the fact that the time of the advent of a discovery is fixed to suit the necessities of the people, to give to whom new opportunities, and to lay on whom new responsibilities it is sent.

The practical result of these errors account for many painful consequences to both patentees and patrons, in respect to many most valuable inventions which, being treated as respects their origin as miracles, and as regards their use as panaceal, fail to elicit that attention of a practical kind, or to evoke that industry in carrying them out, which are indispensable to their proper employment in aid of progress.

No country has gained more by invention, or profited so much by discovery, as England. Nor

is it unworthy of remark that her inventors and discoverers have been mostly practical men, and that their field of operation has been generally in materials formerly neglected, and their aim almost universally at improving some existing operation, or ameliorating *modus operandi* in some branch of home industry. Ireland has been so careless in these matters as not even to take advantage of any of her passing opportunities. Hence with men of natural genius in every part of the country, and materials suited for all kinds of manufacturing, and a position highly eligible for commerce, she is this day, as compared with her more practical sisters in the United Kingdom, far behind the age of progress. This is obvious in the sanitary condition of most of her cities and towns, as well as in the neglected state of her ports and harbours, and, above all, in the fact that Irish soils are still much neglected, whilst in fisheries, minerals, water powers, and many other materials, the country's resources are most wholly undeveloped.

But a new epoch with renewed opportunities has lately dawned on Ireland. The effects of the cotton crisis, sad as they have been, and still are elsewhere, have been made the occasion of opening up new prospects for this country. Therefore the advent of a new process for the treatment of seaweed, whose operation implies a demand for fish, at once calls forth that activity under which England and Scotland made so much greater progress with fewer natural advantages than made in Ireland has been (because of her people's indolence) with her much more material wealth.

At whatever time in the history of his country Mr. J. S. M'Arde had been endowed with that yearning desire under which he searched out and found the way to extract, at a cost compatible with commercial profits, the 400 or 500 per cent additional iodine to be had from sea weed; he would have ranked as a man of genius, and been entitled to a niche amongst those who have been charged with the mission of doing good in his generation. But coming at such a time, and working upon such a material, he rises on merit to that position to which the common consent of men have raised Watt, Crompton, Pallisay, and others who, like M'Arde, have laid hold of a fact and ceased not till it was made to serve the interests of progress. M'Arde's discovery and his invention by which it is applied, are now a patented process, and are in the hands of a commercial company, but are therefore all the more the property of the nation, and ought to be treated as a sacred trust by every member of society. Millions of tons of seaweed are annually cast on the Irish coast, and as much of this as can be utilised will, be subjected to the operations of M'Arde's patent, and these will lead to the introduction into Ireland of several chemical works now known only in Scotland or England, as well as of fish-curing establishments as a necessary concomitant of the process.

All these mean the circulation of money by the employment of skilled and unskilled labour, which would lead to improvements in the culinary and toilet departments of households, which, as Ireland is at present, forcibly suggests such improved dwellings, as could exist but a short time in the present state of sewerage, and all but common disregard of sanitary reforms. Apart from the primary consideration of offering good dividends for the requisite capital to work the business, these secondary considerations presented above ought to enforce a strict and general attention of the M'Arde patent, not only on every Irishman (because he must first be benefitted), but also on all her Majesty's subjects, because its effects will take root and grow, so as to reach all parts of the commercial world.

If you should consider these statements worthy of your space, I shall be glad to see them in print in the DUBLIN BUILDER; if not, pray accept this contribution to your waste-paper basket, and forgive me the trespass on your time and patience in asking you to read it.—Yours truly,

W. GLENNY CRORY.

12th March, 1863.

P.S.—The following is an extract from Dr. Apjohn's report on the M'Arde process:—

"These facts conduct to the conclusion that Mr. M'Arde can, by his peculiar process, prepare an ash from seaweed, which will yield over three times the maximum amount of iodine at present obtained, and five times the average quantity got from common kelp. Such being the case, and assuming that his process can be conducted with economy, there can be no doubt that he has fallen on a discovery of considerable importance, and that his method of converting seaweed into ash, containing all its valuable saline constituents, cannot fail eventually of being substituted for that at present in use."  
—JAMES APJOHN."

## NEW PATENTS.

**LETTERS PATENT**, which have passed the Great Seal since the 13th February, 1863. Byrne and Lambert, Agents; Office for Patents, 4, Lower Ormond-quay, Dublin.

M. J. Haines, for "Improvements in the manufacture of driving bands or straps."

F. H. Le Franc, for "Improvements in the manufacture of casks."

Frederick C. Bakewell, for "Improvements in fire-places and stoves."

Wm. Carwood, Wm. Boag, and Charles Colwell, for "Improvements in apparatus for propelling ships and other vessels."

William Clark, for "Improvements in the means of obtaining light and heat, and in apparatus for the same."

James Walker, for "Improvements in the treatment of kelp, and in the manufacture of products therefrom."

H. R. Fanshawe, for "Improvements in the mode and means used in fishing in seas, rivers, and other waters."

Wm. Huband, for "Improvements in water valves."

Charles Chinnock, for "Improvements in the construction of axle boxes."

Wm. E. Newton, for "An improved method of firing or discharging cannon and other firearms, a part of which invention is applicable generally to the firing of charges of powder."

List of Letters Patent which passed the Great Seal since the 27th February, 1863.

William H. Atkinson, for "Improvements in studs or fastenings adapted to holding together parts of shirt-fronts, wristbands, cuffs, gloves, and other articles of wearing apparel."

Stephen Flexen, for "Improvements in apparatus for ventilating railway and other carriages."

H. W. Hart, for "Improvements in Argand and other burners."

F. D. Aitingstall, for "Improvements in balances."

J. Henry Johnson, for "Improvements in gas-burners."

James Lowe, for "An improved construction of propeller."

James Tange, for "Improvements in, or additions to certain kinds of pulleys for raising heavy weights."

Wm. A. Munn, for "An improved apparatus for caping, loading, and closing cartridges for breach-loading fire-arms."

L. C. Hovan, for "An improved portable apparatus for marking time."

M. A. F. Mennons, for "Improvements in self-inking hand-stamps."

A copy of the specification of any patent, describing the nature of the invention, and the mode of carrying it into effect, can be had at the office for a sum not exceeding five shillings.

## Public and Private Works.

An addition, comprising Infirmary - Assistants apartments, &c., have been lately built, and some alterations made at the Abbey schools, Tipperary, for the governors of Erasmus Smith's schools. Mr. Sandham Symes was the architect, and Mr. Patrick Scanlon, of Bruff, the builder.

A positive evidence of improvement in some of our streets—not leading business thoroughfares—is being presented by various works at present in progress, comprising either the total re-erection of premises or their partial removal and better adaptation to required purposes. To the north side of the city this observation especially applies. In Henry, Mary, Capel, Britain, North King, &c., streets, old tottering houses have been replaced by others, mostly of plain character architecturally, but generally speaking of permanent and substantial construction, showing neatly designed ground floor fronts and tidily wiggled or cemented superstructures. Of this latter class we may particularise a range of five houses just completed by Henry Lindsay, Esq. (son of the Lord Bishop of Kildare), in New Lisburn-street, adjoining the Linen Hall, which from various unhappy modern events has been transformed from an emporium of local commerce into an auxiliary military barracks. The houses in question are three storeys high, that at the corner of Church-street—in which also are two others of similar character, but smaller, are to be erected by same proprietor—being double, and admirably situated for a licensed establishment; and all having a neat range of shops below and compo-plastered fronts above. The general aspect of this range, although by no means architecturally pretensions, contrasts very favourably with the de-lapidated cabins that formerly occupied the site, and it should be noted that it represents in round numbers an outlay of £2,000 or more. We doubt not that from their proximity to the new Smithfield market now being formed, as well as their convenient and generally suitable arrangements, these houses will find ready occupants (indeed some of them are already occupied though barely tenable); and we hope to see the enterprising example of Mr. Lindsay followed by some of the adjoining landlords, and perhaps extended by himself to other localities wherein he is possessed of property. Mr. Kavanagh, of 77, Marlboro'-street (who, we understand, has been for many years engaged by the present owner and members of his family in improving the estate), was the contractor.

Additions are to be made to the District Lunatic Asylum, Maryborough, according to plans by Mr. John S. Butler, architect. Tenders are invited till 30th instant.

Amongst the many architectural improvements noticeable in the city, the new leather warehouse of

Messrs. Pim, Brothers, and Co., in William-street, is one of the most worthy of commendation. The enterprise for which this firm is remarkable has enabled them to resuscitate a business in Ireland which was very much permitted to fall into the hands of English speculators. The splendid warehouse erected by Pim, Brothers, and Company, to further the interests of a home trade, reflects credit on their judgment and national spirit. It is remarkable for the plain sensible character of its design and solidity of construction.

New Turkish baths for the use of the industrial classes have been opened in Cork by Dr. Barter. They are situate in Maylor-street, and comprise a complete set of apartments, viz., a frigidarium, tepidarium, and calidarium, each one of which, but especially the cooling room, is very comfortably fitted up. In the frigidarium are erected separate dressing stalls, one of which the bather can use, and thus be screened from any other persons who may be in the apartment. The tepidarium and calidarium are to the rear of this, and have each low benches running along their sides for the accommodation of the bathers, who can either sit or lie down upon them. The calidarium occupies about three-fourths of the space allotted to the two apartments, and has two ante-chambers off it, where, after undergoing the sweating process, the bather retires for the purpose of washing. At the eastern end of the bath is placed the stove. Ventilation is obtained through three stained glass windows placed in the northern wall, fronting the tepidarium; and over the entrance to the bath a very handsome window of a similar description is placed.

## Miscellaneous.

**BRICK ARCHITECTURE.**—Modern houses in London have generally such narrow fronts, and are so cut up by windows which facilitate the breaking up into small parts and frequent accentuation, that the small dimensions of bricks cease to be so objectionable as they would be in other cities, where fronts are wider and higher, and where there are no more windows than are required to admit sufficient light, and to exclude the heat. It has been found in Paris that the ordinary modes of producing architectural expressions in structures lining thoroughfares, are ineffective, and French architects have abandoned them for flat surface decorations and shallow sunken ornaments. We may also see here that a stylobate pierced with shop windows nearly equal to the whole surface, and carrying on a thin sheet of glass an order, which extends through two or three storeys, to support an entablature for no other purpose than to screen the attic, are not indicative of constructional necessity, nor productive of artistic effects. Now, with bricks, very excellent artistic results may be produced without violating constructional truth; and the constructional features can be indicated either by coloured bricks or by projections, though it would be difficult to obtain any great amount of chiaroscuro. Moulded bricks will afford a means of suitable ornamentation, and may be legitimately resorted to, notwithstanding the interdiction laid on the use of machine-made ornaments by a certain school.—*Building News.*

**SUBSTITUTE FOR GAS.**—A novel Continental invention is making a noise at present. Here, people have never become reconciled to gas. The streets and shops are everywhere lighted with it; but in private dwelling-houses, the trouble of watching meters and wailing lustres, the smells produced by occasional escapes, and above all, the dread of an explosion, have perpetuated the use of old-fashioned candles and lamps to an extent which was, till recently, quite startling to visitors from the North. Moveable pipes of gutta-percha were never found to work, and portable gas-holders, recently employed with much success on the Underground Railway, could only be used where a locomotive was at hand to drag them from place to place. The new invention is said to be free from all the objections made by the Londoners to gas. The light is supplied by passing a current of atmospheric air through a fluid which the French inventor, M. Mongruel, has named "photogène." In a house where there is gas, every closet and cupboard, the Londoners say, may at any moment become as dangerous as a barrel of gunpowder. There is no such risk, it appears, with the "photogène." Should it escape in the form of gas or vapor, it will gather in little beads like dew on the furniture and walls, which will not burn more readily than similar globules of oil. The saving in expense is something wonderful, and has already insured its extensive adoption in France. So society moves on; "the liberal man," as the prophet Isaiah says, "devises liberal things."—*Inverness Courier.*

**TIMBER.**—At Messrs. William Kelly and Co.'s public sale on Thursday, the 5th inst., there was a very numerous and highly respectable attendance. The demand was good. A large cargo by the States-

man, from St. John's, just discharged, consisting of over 320 Petersburg standard, having been entirely cleared off without difficulty, as well as some old balances of previous importations. For red deals the demand was confined to a few large contractors, but the quantity disposed of was, however, more than at the last public sale of this firm. For pine and memel timber the demand was not so brisk, and only two lots were brought forward, as sales would not be proceeded with at the rates offered.

29,496 Pieces of St. John's spruce deals and battens, at £13 5s to £14 10s, per 120 pieces, of 12 feet 9 x 3.

2,367 Pieces of scantling and mixed qualities, at from £12 to £14 5s, per 120 pieces of 12 feet 9 x 3.

3,198 Pieces of red deals and plank, at from £20 to £21 per 120 pieces of 12 feet 9 x 3.

120 Pieces Sundswall timber, at 50s. per ton.

15 Pieces Danzig timber, at 62s. 6d. per ton.

10 Pieces St. John's pine timber, at 60s. per ton.

20 Pieces memel timber, at 67s. 6d. per ton.

Imported per Sunderland, from St. John's, N.S., 14,409 deals, 3,000 laths, 8 cords lathwood.

**THE DUBLIN CO-OPERATIVE SOCIETY (LIMITED)** held its first soiree, in the large saloon, 63, Grafton-street, on last Wednesday evening week. Mr. James Hayes, C.E., was called to the chair. After stating the origin and object of the society, which are the supplying of good and pure food at a fair price to the working classes, the chairman gave a detail of the progress of similar societies on the other side of the channel, and the beneficial effects they had on the morals and social habits of their members. He mentioned that the movement was highly approved of by Lords Brougham and Stanley, the Earl of Shaftesbury, Messrs. Cobden and Bright, and many others who are interested in the progress of social science, and he concluded by repeating Hannah More's beautiful lines on "The Bundle of Sticks," as illustrated by the old man and his children. Mr. Thom advocated the power of co-operation, as exhibited by the wealthy portion of society, and the upper classes in general, in their clubs and similar associations, and showed the good effects that co-operative societies have upon their members. Mr. Wm. Pare, C.E., the proprietor of the Seville Iron Works, in coming forward stated the pleasure he felt in everything that had a tendency to benefit the working classes, and said—"I stand before you, like an old war horse snorting at the sound of the trumpet, to enter into the ranks again, as it is 35 years since I first took an interest in co-operative societies." Mr. Pare in a lengthened address, showed the beneficial effects of similar societies in England and Scotland, and said he could see nothing in the composition of Irishmen that would prevent them, any more than Englishmen or Scotchmen, from co-operating together for their mutual benefit.

**THE GREAT EASTERN.**—The repairs of the Great Eastern are now being rapidly proceeded with, and it is expected that she will be floated off the temporary gridiron, at New Ferry, on the Cheshire side of the Mersey, in about a week or ten days. So soon as the ship is floated she will at once commence to take in cargo, and will leave Liverpool for New York on Saturday, the 21st instant, under the command of Captain Walter Paton. The ship will return from New York on April 25, and sail again from the Mersey, on the 19th May. The vessel will be permanently placed in the trade between Liverpool and New York.

## TO CORRESPONDENTS.

W. A. (Scarcely prudent now; hope you will forego request).—J. P. B. (attended to).—S. S. (do.).—SUBSCRIBER (Lyons's Price Book is in course of preparation, and will be supplied when complete, but it is impossible as yet to fix the precise date for its publication).—R. P. (the foregoing answer applies to you likewise).—J. T., London (we cannot make an exception in your case).—INTENDING MEMBER (All the information we can give you respecting revived institute is in present number).—JUVENIS (not admissible; MSS. returned).—L. F. (thanks).—M. R. D. (no answer yet).—CARPENTER (you can get the information you require by consulting either Nicholson or Fredgold, which in some forms are not so "inaccessible" as you say).

NOTICE TO PUBLISHERS AND AUTHORS.—Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons's office. Mr. Lyons also holds commissions for supply of Caen, Glasgow, Bath, Forest of Dean, and Welsh building stones.

# The Dublin Builder.

VOL. V.—No. 79.

## ENGLISH FARMERIES AND COTTAGES.

IT is pleasant to view the many architectural beauties dotting an agricultural district, when such beauties can be insured free from peculiarities unprepossessing sometimes disfiguring them. It may be to a certain class of poetical antiquarians delightful to contemplate a thatched cottage and a stray barn after sunset on a summer's evening, or to blend the Gainsborough and Stanfield school with the leaky, cold, and uncomfortable; but we may refer to the farmer or husbandman, without fear of contradiction, whether his "secluded cot" is not better with a good tiled or slated roof, his homestead and his premises well arranged, so as to save somewhat of his hard-earned, frugally-spent capital, than dwelling most poetically (?) in an old and flimsy tenement beneath a by no means genial climate. We wish we could see the whole of Ireland dotted by the comfortable and pretty habitations fast covering the agricultural south of England, which misgovernment and other causes have contributed to prevent her as yet accomplishing; but a few years will show that her inhabitants are not insensible to her productive soil, and that they can provide for her husbandmen, who, when properly encouraged, are not slow to perceive it, and repay such encouragement with a sincerity and earnestness not possessed by any other nation in the world, perhaps, to an equal degree. Having passed through the troubles of famine and political misrule, she has but to put forth her strength, and prove that her Australian and Canadian children are but "chips of the old block," and the "old block" itself remains as sound as ever.

In passing recently through the southern and western districts of England, we were struck with the symmetry and regularity of arrangement of many of their farm premises. We must give high farming the credit of the impetus first given. The necessity in such a system of buildings suitable for the machinery, &c., gave rise to new ones, and this being what we may call the revolutionary architectural era of 1862-63, ideas were called in to aid in producing economy and elegance, startling the cobwebs from the corners, and rousing Mr. Clodhopper from the lethargy of—we may almost say—ages. It seemed till then to be the exclusive privilege of the farmer to pave his floors with boulders, sleep in a drafty room, and stow his money away in the bed-sacking (if he had any), and, as usual in such cases, grumble enough for a whole parish. But affairs have greatly altered; metropolitan bricklayers, carpenters, and masons, let loose through the country, have ripped off the weather boarding, the thatch, and bad work, and with the aid of that ever active member of society—the architect—raised charming little villas, well drained, well ventilated, and, in all respects, fitted to comfort and charm, whilst their uses are manifold and various. The Gothic style seems most in vogue, as being that which prevails in our public edifices, likewise private villas. But we much question the desirability of such a style for the purpose. It looks well, and combines well with our climate and geographical peculiarities, but we doubt whether it affords the same amount of convenience as the modern English style, which we may call Italian, had we not made it our own long ago. Nor can it be done so cheaply, except by sacrificing strength and quality of material. Leaving the extra labour entailed upon the architect out of the question, as his commission of five per cent. covers all this, we must look at the quantity of material sacrificed for the sake of effect externally, and the extra time consumed by unskilled hands in this style, which admits of so many varieties in disposition of design, and therefore every time is nearly new to the workman. In small buildings of this character the difference may not be felt, but in those of farms running from 150 to 400 acres, it must be felt. A quantity

of room is sacrificed again in a Gothic farmery, which may be saved in one of Anglo-Italian construction, where every particle of area covered is actually working area, and a number of angles do not interfere with an easy and ready access to all parts of the building. We do not say that there are not modifications of this, and that a Gothic elevation may not be arranged to an Anglo-Italian plan, but such an arrangement is difficult and uncommon, and does not harmonise when done; and however trivial a little sacrifice of harmony may appear to a country squire or the farmer, the architect cannot offend his own eye and taste by toadyism always, even to a healthy and influential client.

The artist, the author, and the sculptor have free scope of treatment of their respective themes, the architect is crippled and thwarted, and really becomes but the mere victim of £ s d's; but he must be guided to a certain extent by the experience of those who instinctively, we may say, are acquainted with the requirements of the premises; but as regards style and site, he must be led only by his superior judgment. To build farmeries properly requires almost an exclusive apprenticeship; to economise space, working expenses, &c., requires an acquaintance with farming generally, but to build handsomely and substantially, and to lay out the money for that purpose to the best advantage, is known only to the designer and estimator.

In the agricultural districts of Essex and Kent, where stanchions are required, iron is generally used instead of timber, and this on stone footings; concrete is largely employed, and great care taken to prevent any sinking in marshy situations, or damp arising. Tiled roofs are rapidly giving place to slated ones, but the sooner the variegated system at present in vogue for brick elevations is dispensed with, the better for the appearance of such elevations in ten or twenty years to come. Effect derivable from colours, in lieu of projection, will prove an utter failure and complete deception. In the homesteads and yards oak is much used, where it can be had, and altogether a better description of workmanship prevails. Where oak cannot be had, elm is substituted. The old stone dwarf columns for hay and corn racks have given place to iron ones. Weather-boarded and thatched barns are replaced by good brickwork and slates. Exceptions to good material occur where proprietors, for the sake of a false economy, use up the old with the new, which is no gain, for the old is soon rotten after complete exposure to the air, and being shaken in removal, this especially in cases where old timber is re-used. In Gothic structures the eave boarding is certainly ornamental, but very liable to be warped and cracked by exposure to heat and rain alternately. But in spite of these trifling objections we must admire the change that has effected so much for the agricultural districts, and in return, as it were, for the momentary distress caused by the introduction of free trade, those benefiting by the same—viz., the city artisans, by their agitation, have succeeded in obtaining healthy and convenient lodging-houses, which has again extended an influence to the agricultural labouring classes in the shape of comfortable and wholesome cottage dwellings.

There is a wide difference between the wealthy farmer and the poor labourer, but the principle of health and comfort exists alike for both, and how much do they influence the morality of the husband and father!

We hope the day is not far distant, we repeat, when the whole of the agricultural part of Ireland will be dotted over with pleasant-looking well-to-do families in good-and-good looking farmeries and cottages.

## THE WORKERS' LEISURE HOURS.

THAT nature requires more regimen and less physic, is a rule applicable to nine out of ten of those bodily complaints called "diseases," and happily for mankind, many doctors have at last found out its truth. But there is an application of the same principle to the mind, which is, as yet, only partially recognised by philanthropists. We are generally too much inclined to prescribe "physic" for ailments, when in truth what is wanting is not so much a medicinal remedy, as a better and healthier mode of daily life, more in harmony with the instincts and demands of

nature, than that to which circumstances have hitherto directed them.

As in the case of children, whose ordinary occupations and amusements frequently present impediments to the operation of beneficial influences derivable from good scholastic training, so it is with adults in their respective pursuits of life, who experience counteracting contaminations in the society they mix in, and in their recreative associations during "leisure hours," to those imbibed during the hours of toil, in which industry—the antidote of vice—holds her sway.

It is undeniable that the working man, as a rule, habitually lives in a state of society, in which evil influences on the whole overbalance the good otherwise acquired, both morally and physically.

It is, nevertheless, a common idea that the greater portion of these influences are engendered during hours that working men and women spend at their regular daily employments; and that the mischief is supposed to be avoided when they work in well-conducted establishments—whether factory or shop, or whatever be the place for regular labour. Such, however, is not the fact. Every phenomenon presented by human nature, as well as every rule founded on past experience, shows that it is the hours of *play*, and not the hours of work, which exercise by far the largest share of influence on the permanent character both of rich and poor. "Partial evil," no doubt, frequently does result from contact with vice, in some shape or other, between six o'clock in the morning and same hour in the evening, but "universal good" is dispensed during this very period; and the mark that is set upon men's morality is usually imprinted after the sun has set, and the hour of recreation has begun.

We cannot help thinking, therefore, that in a large city like Dublin we may do some good service, if we call attention again to the paramount importance of providing innocent and attractive occupations for our hard-working people when the toil of the day is over, or for that "hallowed seventh day" which has been bountifully given to them "for rest." We are, it is too clear, just at a period which proves unusually trying to a portion of our operative classes, but it does not follow that there is the less necessity for doing what we can to contribute to their rational enjoyment, and thereby keep them from the haunts of vice. Hard times do not empty the dram shop, the *low* theatre, nor those other dens of infamy to which these places of so-called amusement inevitably lead. When money cannot be found for "bread," it is astonishing how much is forthcoming for "drink." The pauperism that induces wretchedness is, nevertheless, too fruitful in vice also. We, accordingly, ask the question whether it is not time to make fresh efforts to place harmless and agreeable amusements within reach of the poor? It is surely well worth our while to consider whether we have not been a trifle too stiff and dignified in our notions, "overshooting the mark," by excluding sundry forms of amusement which really would be utilitarian for, as well as attractive to, the poor, but now unfortunately denied them. Modern philanthropy has done much towards their elevation in a variety of ways,—by instruction through books and periodicals of more accessible price; by night and day schools (in which latter our system of national education is all-prominent and powerful); by lectures, reading-rooms, young men's societies, mechanics' institutes, &c., &c.; but our own idea is, that the majority of such establishments are, in Ireland at least, only as yet in their infancy, and that their machinery wants enlivening and enlarging. Whether or not this may be effected by encouraging innocent games under proper regulations, by vocal and instrumental concerts, by singing classes, amateur dramatic entertainments, &c., is the main question for consideration. Leaving the details to abler hands, we submit, that of the general principle there can be little doubt. In a word, our working classes—the people—require to be supplied with recreations of a character compatible with their pursuits and position in society, and calculated simultaneously to contribute to their mental, moral, and physical improvement. We ventilate this suggestion more readily at the present moment, because we can refer specially as precedents, both to one established fact in the case of the Sunday opening of the Botanic Gardens, and to a like project in embryo for the conversion of Stephen's-green—hitherto a close borough—into a public park. This latter, if achieved—and we believe it will be, as the voice of the million is in its favour—may be regarded as an era in our national history. Would not the object be rendered more complete—and does not a favourable opportunity present itself, therefore—by erecting in the new city park a public hall of suitable architectural exterior, comprising within, a cheap concert room, a ball or racket court, a skittle alley, a gymnasium, and such like? For the present, however, we quit the subject, bidding our time to revert thereto more fully.

## CONSTRUCTIONS IN WOOD.

## ENGLAND.

We notice the introduction of the custom to overhang the upper storeys. This may have had its cause in all instances where, with the increase of families, it became necessary to enlarge the houses,—that is to say, the roof was taken off, and another storey was added, which was extended over the open sides of the lower house. Further, we observe, on the ground-floor, an open arcade. Such houses often represent very interesting features, the posts and struts being richly carved, and the panels filled in with ornamental tracery. The more prominent, on frame timbers, being also painted dark.

In the churchyard of St. Peter's, Derby, we have one of these corner posts, the stem of which has a fluted panelling, moulded base, and capital, with a row of Tudor flowers. The spandril of the arch is covered with a diaper pattern.

Another example is at Great Chesterford, Essex; also one at Salisbury, which is rich with panelling, mouldings with flowers, and the spandrils are filled in with flowing tracery. At Bury St. Edmund's is a very curious example.

The one in Northgate-street, Gloucester, is remarkably rich, with the figure of an angel in a niche, and smaller niches on its sides. The canopies are carved with crockets and finials.

The door-posts of such timber houses were, no doubt, equally decorated; as the doors and such like may still be found in Welsby, Herefordshire; in Sherbourne, Dorsetshire; and in York.

Besides these, we meet often with windows enriched with mouldings and panelling; for instance, at Saffron Waldon, Essex. In some cases the entire front of a house is a continuous series of panelling, either plain or richly carved. Of the former there are examples at St. Mary le Wigford, Lincoln, and at Tamworth, in Staffordshire.

In illustration of the latter, we have part of a house in Eastgate-street, Bury St. Edmund's, and another at Dunster, Somersetshire.

The front of a house in the market place at Newark is a mixture of timber with plaster ornaments. It has a long series of niches; and figures in plaster are inserted into the wooden panels. As a splendid example of this period must be mentioned the roof of Crosby Hall, in London; and a fair specimen of a small tradesman's house is seen in St. Mildred's, Canterbury.

In the double butcher's row, at Shrewsbury, we also have a good example of a house of this period, with carved corner-post.

Looking at the roofs of domestic halls, it is evident that they retained their form; but they have, further, some improvement in the arrangement of the louvre, to carry off the smoke.

The roof of Christ Church Hall, Oxford, is a well preserved example; so are those of Hampton Court and Eltham Palace.

The hall of Trinity College, Cambridge, also retains its roof and louvre; and the roof of St. Mary's Guild, at Coventry, deserves to be mentioned, owing to its excellent condition.

South Creek Church, Norfolk, has a good roof of the Perpendicular epoch, also a beautiful screen.

Another, with rich tracery in the spandrils is in Worsted Church, Norfolk; the screen dates from 1524. Martham Church retains some interesting woodwork of this time, which is worthy of mention.

One of the most costly roofs is over Woolpit Church, Suffolk. It is a double hammer-beam, and the rood-screen and seats also remain.

The roof of Palgrave Church, in Suffolk, has colouring, which is still very perfect, and it is a good example for a small church.

The roofs of Outwell Church, in Norfolk, show a few peculiarities, and the one over the north transept retains its original colouring.

The roof over the nave of Brinton Church, Norfolk, is similar to the one just described, with the difference that the principals terminate somewhat abruptly on the wall pieces.

The woodwork which forms the lower decoration of the wall is generally found in carved panels, and in some instances they bear traces of colours.

About this period plaster was introduced into the ceilings, and the main beams were only left to view; these were richly moulded, and had bosses at their intersections.

The furniture of this time was still scanty, and can hardly be considered to have made equal progress with other utensils for domestic purposes.

However, we have a good specimen at Come St. Nicholas, Somersetshire, in the remains of a table, and bench with the poppy-head.

Some of the strong iron-bound chests, the woodwork of which is richly carved, also date from this time.

The Guildhall of the city of York has its original timber roof. It is supported by a double row of octagonal pillars, with moulded capitals and bases. It was built in 1446.

St. Anthony's Hall, erected anno 1440, retains its fine open timber roof, supported by posts. Among other specimens of this period we have the corner house at the end of the pavement; the curved spurs and brackets, which carry the overhanging storey, are remarkably rich.

A very flat-pitched roof is over the nave of St. Mary Magdalen Church, Pulham, Norfolk; still its effect is very pleasing; the various timbers are moulded; the spandrils next the ridge are filled in with tracery; and there are traces of its having been coloured.

A plain roof, with good details, can be seen at Starston Church, Norfolk.

Preslingfield Church has a single hammer-beam roof; although of low pitch it produces a good effect by a high degree of finish.

The roof of Islip Church, in Somersetshire, is richly decorated; but it creates a heavy impression.

The chancel and nave of St. Stephen's Church, at Norwich, are covered with a magnificent roof, which is very carefully wrought.

The nave of Bacton Church, in Suffolk, is covered by a double hammer-beam roof; the abundance of carvings imparts to it a most rich appearance, which at one time was enhanced by the colouring. In the interior of the church are to be seen some fine examples of screen-work and of open seats.

The roof of Bolton Hall was also erected in the fifteenth century.

Selby, in Yorkshire, retains a good example in the upper part of a house; the walls are of timber stud-work, with coved eaves; the windows, of seven lights each, have rich tracery.

In Agceroft Hall, Lancashire, is to be seen a fine oriel window of carved timber, which was erected during the reign of Henry VIII.

Buckshaw Hall, near Kirby, is a beautiful timber house, probably from the time of Queen Elizabeth.

Some interesting details may be seen in Middleton Hall, from the time of Henry VIII.

A portion of Ords Hall, in Manchester, is of the same date; it has good windows and panelling.

Peel Hall and Redscar Hall are elegant timber structures of the Elizabethan period; also Salisbury Hall, near Blackburn, the upper part of which is of timber.

The double hammer-beam roof over the nave of Knpton Church, Norfolk, is most beautiful, owing to its carving, colouring, and its general state of perfection.

Mattishall Church, Norfolk, has some timber roofs, decorated with colours; and also richly coloured is the roof of Oldenham Church, Herts.

The roofs over Walsingham Church, in Norfolk, are examples of good timber framing; the open tracery is of excellent design and workmanship.

Bramford Church, Suffolk, has a good hammer-beam roof over the nave, also timber roofs over the aisles.

Ixworth Church, Suffolk, has a hammer-beam roof over the chancel, and lean-to roofs over the aisles. The tracery is of excellent design. A very interesting specimen, with exquisite carvings, is at Halsingfield, in Cambridgeshire. Bishop Layland's church, in Somersetshire, retains its old seats, and a beautifully-carved screen.

Samlesbury Hall deserves our special attention, having been erected in 1545 by John Southworth; the timber framing is very massive. The roof has the appearance of an earlier period, but it was erected at this epoch. The music gallery is of fine timber work, with richly-carved posts, which are connected with the beams of the roof.

Smithell's Hall is another specimen of a fine timber house of Henry VIII.'s time; it is a copy of the one at Baggily.

The greater portion of Speke Hall was built during the reign of Queen Elizabeth.

Little Moreton Hall, erected in 1559, is a very fine timber structure; so is Bramhall; the greater part of which dates from the Elizabethan period.

At Derby we find an interesting corner post, richly carved, and some details of ancient woodwork are left at Haddon Hall.

The old mansion of the De Burgh family, at Gainsborough, is a very fine example of a half-timbered house of the fifteenth century.

In the parish of St. Mary le Wigford is a good timber house of the fifteenth century, having two overhanging storeys.

At Tamworth, in Staffordshire, several structures remain of the Elizabethan age.

Wigston Hospital, in Leicester, is partly built of timber, with wooden porches, carved doors, barge-boards, &c.

Some remains belonging to 1414 are in the Town-hall at Coventry; amongst which the roof of the kitchen with its louvre is very original.

There are also in Coventry, of the same period, a few wooden windows with rich tracery.

Apthorpe, in Northamptonshire, is an Elizabethan mansion, but it was finished during the reign of James I.

Rushton Hall, in the same county, retains a fine open timber roof of high pitch, with hammer-beams and two collars; and the spandrils are filled in with elaborate tracery, and there is also a wooden screen of the Elizabethan period.

In Gloucestershire we have a good open timber roof at Broadway, in the so-called Old Workhouse, belonging to the Decorative style. At Droitwich we have the George Inn, an old timber house of the fifteenth century. The open timber roof in Berkeley Castle is of the Decorative period. In the city of Gloucester, at the corner of Northgate-street, stands a timbered house of the fifteenth century, with a very rich corner post. In the same street is also a magnificent gateway of oak, with carved spandrils and brackets.

Little Sudbury Manor House, of the time of Henry VIII., possesses a roof and some carved heads of the same period.

Ockwell's House, in Berkshire, is nearly a perfect timber house of the time of Henry VII.; the barge-boards are remarkably rich. This building is used at present as a farmhouse.

The magnificent hall in Hampton Court Palace, on the north side of the middle quadrangle, measures 106 feet by 40 feet; the rich Gothic roof is ornamented with the arms and cognizances of Henry VIII. It was finished in 1536 or 1537, as appears from the initials of the king and Jane Seymour, joined by a true-lover's knot, amongst the decorations, which may be considered as the finest in England.

The ornamented woodwork in the Guildhall at Norwich (1534) illustrates the arms and crests of the guild of the city.

There are a few ancient timber houses in Bury St. Edmund's, Suffolk; in one of them we notice a good corner-post of Henry VII.'s time.

The hall in the Middle Temple at London, 100 feet long, 42 feet wide, and 47 feet high, is covered with one of the finest wooden roofs now in existence. It was built in 1572. It is of Elizabethan character, with a tendency towards the Renaissance. The elaborate carved screen is apparently of later date.

At Lavenham are excellent remains of a timber house from the time of Henry VII. to Henry VIII., with a square projecting window and a richly carved corner-post.

In Layer Marney House, built about 1530, the roof of the dormitory is original, and there is also some carved oak panelling.

At Waltham also may be seen some old timber houses.

Eltham Palace, in Kent, dates from the last half of the fifteenth century. The hall only remains, and its roof is in a good state of conservation, though it is to be regretted that no better arrangements are made to preserve it from the destructive visitations of visitors. This roof has hammer-beams and pendants with carved braces; it springs from stone corbels; is 100 feet long, 35 feet wide, and 55 feet high. It resembles Westminster Hall, and is now used as a barn.

A considerable portion of the works at the Moat, Igtham, belongs to the time of Henry VII. and Henry VIII.

At Rainham there is some oak panelling and a doorway, in Bloor's-place, of the time of Henry VIII.

Wingham has also several timber houses of the fifteenth and sixteenth centuries.

The Archbishop's Palace at Croydon retains its original roof over the hall, which was probably finished under Henry VIII. It has a fine appearance, and is similar to the one over the hall of Christ Church, in Oxford.

The kitchen in the episcopal palace at Chichester, Sussex, has a grand open timber roof. In the hall of St. Mary's Hospital, in the same town, we have an excellent specimen of Decorated wood-work, most probably executed in the latter half of the fourteenth century.

At Lewes, and at Steyning, some timbered houses are met with; also at West Tarving is a house seemingly built before the time of Elizabeth.

Beadenstoke Priory, Wiltshire, retains over the hall, which is now divided into several apartments, a very fine roof of the fourteenth century, with rich carvings on the oak beams. A good timbered house of the fifteenth century is at Pottern.

In Salisbury, the hall of John Halle has an excellent roof of the fifteenth century.

Place House, near Tisbury, has also a perfect timber roof of the fifteenth century, with tie-beams and queen-posts. The latter are chamfered. The barn attached to this building has a good plain roof of the same time.

South Wrexall Manor House has a roof over the hall of the time of James I.; and also, of the same period, a rich panelled screen.

At Pottern remains a timbered house of the time of Queen Elizabeth, with carved barge-boards and panelling.

Among the timber antiquities of Bristol, Somersetshire, must be enumerated the roof of a house in Redcliffe-street, erected in the fifteenth century. It has a high pitch, louvre in the centre, and the principals are richly foliated. In Small-street we have an original roof high-pitched, and a very fine specimen of the trefoil form.

In Butleigh also may be seen an interesting timber-framed house. Dunster has a good example of Henry VII.'s time.

The George Inn, at Norton St. Phillips, is a half-timbered house of the fifteenth century. A few oak window-frames of this period are still to be seen in the parsonage at Stanton Drew.

The Manor House at Twickenham Court retains its plain roof over the hall.

Bradfield Hall, in Devonshire, has a roof of fine obtuse arches, of timber, with angles at the springings. The adjoining drawing-room has a panelled ceiling, richly ornamented with pendants. The pillars are decorated with carvings. The dining-room is executed in the same character, probably in the earlier part of the sixteenth century. A house on the north side of the cathedral close retains a fine wooden ceiling from Henry VII.'s time. There are also some good timbered houses of the Elizabethan period.

In the hall at Cothele, in Cornwall, is an open-timber roof of Henry VIII.'s time, and also some furniture of the same period.

The chapel of Trecarel House has a cradle roof. The fine cradle roof of the hall is also still to be seen.

Some Elizabethan timber-work is still found in Langley Hall, Shropshire.

Plush Hall has an open timber roof of the time of Henry VIII.

In Shrewsbury, on the corner of Butcher-row, stands a fine example of a timber house of Henry VII., fifteenth century. It may be considered as unique in England, with its series of open arches, which have very good details, and the overhanging storeys, barge-boards, &c. In this city are many picturesque buildings of the Elizabethan and of later periods.

Wenlock Abbey has a good timber roof over the abbot's hall; the purlins are connected by cusplings, which produce an excellent effect. The carvings of this roof belong to a later period.

The Shire Hall, at Hereford, is a remarkable structure, of the seventeenth century, in imitation of earlier work, and it was probably the most extensive of its kind; the hall, 84 feet by 34 feet, is supported by 27 oak pillars, which rest on stone bases in these rows. The former have a shaft attached to each face; the spandrels of the arches are carved, and have pendants hanging from them, all of excellent design. The hall was erected by John Abel, who also built the market houses at Kingston and Brecknock.

In Coventry we have from the earlier part of the sixteenth century houses in Wells-street, Bond's Hospital, and Ford's Hospital, all of which have very interesting details. One house in Wells-street retains its original timbered gable, with neatly covered barge-boards. Another gable in the same street has still richer carved barge-boards. In Bayley-lane also are to be found some examples of this as well as of the Elizabethan age in a good state of preservation. Hay-lane and Butcher's-row offer two more examples, with excellent carved barge-boards.

Good barge-boards are also to be seen on the hospital in Warwick.

A gable at New Brentford, Middlesex, dating from the beginning of the sixteenth century, shows details contemporary with the last epoch, of the Gothic, or Pointed style. In High-street, Rochester, is a similar example to the foregoing.

At Eltham Palace, Kent, we have three gables, which probably date from the same period as the old hall; the barge-board is edged with tracery.

From the latter part of Henry VIII.'s time there is a picturesque house at West Bromwich.

Elmley Lodge, in the parish of Elmley, was built at various periods; its front portion bears the date 1635, and was finished at the beginning of King Charles I.'s reign. The details of the later portion built, partake of an Italian character.

The Old House in Preston, Lancashire, was erected in 1629, according to an inscription which it bears. It is a beautiful and commanding specimen of wood architecture; its lower portion has been modernised.

The village church at Huddington retains a wooden porch, which dates apparently from the fifteenth century.

Bramall Hall, near Stockport, a timbered structure of the Elizabethan age, has lost much in appearance during the last fifty years. From the hall, which is 36 feet square, leads a solid oak staircase to the drawing-room situate over it, and which is of equal size; the ceiling being studded with ornaments.

Pitchford Hall, Shrewsbury, with its richly-carved barge-boards, dates from the end of the sixteenth century.

Salwarp Court is an old half-timbered Manor-house, with a good door, and barge-boards.

Meet Hall, near Droitwich, dates partly back to 1535, according to the carved inscription; but its main portion has a decidedly later character.

The Hall in the Wood, near Bolton, is one of the finest which we meet with; and the gable of a cottage at Worsbrough is also a very interesting example.

The main portion of Ince Hall, near Wigan, dates from the same period, although there may be some older relics. It has a richly carved oak ceiling.

Park Hall, near Oswestry, built about the middle of the sixteenth century, presents many peculiarities in the decoration of the exterior, especially in the form and arrangement of the principal timbers. The interior has also retained its original adornments.

Moreton Hall, Cheshire, probably executed in the first half of the fifteenth century, possesses many peculiar features.

The Town Hall at Leominster, erected in the sixteenth century by John Abel, is at present in a very perfect state.

The principal entrance to the old hall or Court-house at Welsby displays some beautiful carvings with appropriate devices. The details are of pure Gothic character.

Another structure by John Abel is the Ley, near Welsby, the front of which offers many striking features. By the same architect are some specimens left, which show the adaptation of timber to more humble habitations. These are the Alms-houses in Hereford, and the School House at Welsby. The porch of the latter is very interesting.

Ludlow has a fine example of street architecture in timber, which is remarkable for its variety of style. The same house has a handsome ceiling.

Turning to Chester, we have a house in Whitefriars-street; the panels of the gable are filled in with ornamental plaster work. More interesting is a house in Lower Bridge-street. In Watergate-street is "God's Providence is mine inheritance," having the date 1652. A fine specimen is the old palace of the Stanley family, with a prominent Elizabethan aspect, erected 1591. Also Bishop Lloyd's house in Watergate-street, 1615.

Amongst the most recent structures in wood which deserve notice are the oak decorations in the interior of the House of Peers in Westminster Palace; also of merit is the woodwork by Mr. Rogers, in St. Michael's Church, Cornhill, London.

With these remarks I conclude my notes on wood constructions in England. The books to which I am indebted for much information are—Brandon's "Timbered Roofs of the Middle Ages;" Clayton's "Ancient Timber Edifices of England;" Habersohn's "Ancient Half-Timbered Houses of England;" Parker's "Domestic Architecture of England;" and Pugin's "Ornamental Gables."

JOSH. JUSTEN.

#### PRESENTATION TO B. L. GUINNESS, ESQ.

THE numerous workmen engaged in the restoration of St. Patrick's Cathedral presented Benjamin Lee Guinness, Esq., on St. Patrick's day, with an appropriate ode, composed (it is said) by a gentleman connected with the works, and beautifully printed on white satin.

Mr. John Kane, foreman carpenter, addressing Mr. Guinness, said—Sir, a general wish having been expressed for some time past, both within and without the cathedral, on the part of the workmen employed in the building, that some slight tribute of respect should be paid to you on St. Patrick's Day for your princely generosity in restoring our great and venerable cathedral from the ruin and dilapidation into which it may be said to have almost fallen, I am deputed to ask your acceptance of the commemorative ode "On the Restoration of Saint Patrick's," which we now present to you in the cathedral, from the workmen employed by you in this noble building. Hoping, Sir, that you will accept of this small token of esteem, which is only to be regarded as the *avant courier* of a more lasting testimonial which will, no doubt, be presented to you on the completion of this cathedral, I have only to express my own prayer, and that of my fellow-workmen, that you may be long spared to enjoy your position in society, and continue to benefit your fellow-citizens.

Mr. Guinness said—Gentlemen, I accept with great gratification this beautiful testimonial of your regard and esteem for me. We have been all fellow-workers in our different lines of life, and in the great work of restoration, which, I thank God, is now drawing to a close, we have had no unpleasant-

ness of any kind. I thank God we have been all preserved from accidents during the course of the works. Those who have been engaged in taking down and in re-erecting the edifice, have all been preserved unhurt, for which we have great cause to be thankful. With regard to myself, I have had extreme pleasure in acting in this work of restoration with those around me, and some who are not here. I knew it was a bold undertaking for one individual like myself to engage in. But I had a confidence—and I find it was well founded—in the skill and experience, and abilities of the highly respectable contractor who undertook the charge of this work. Under his care and attention the work has been accomplished, and by the energy, skill, and diligence of those now around me. I know it was said, and said unfairly, that in this country we would not, without aid from other countries, be able to effect a proper restoration of this cathedral. Public feeling and public good taste now, however, admit that the working classes of Dublin, and those placed by circumstances above them, possess talents not inferior to those who some centuries ago erected this building. I look forward to this cathedral becoming also in future days, when we will have all entered into our rest, a means of keeping alive for future generations an example of the talent and good taste of our forefathers, and a testimony that long since Ireland was not that contemptible country which some historians would represent her to be. This restoration will hand down to future ages an evidence of what this building had originally been, and will remain as an illustration of what the architecture of Ireland was in the 12th century. Gentlemen, I not only thank you for your testimonial to me now, but for all your attention since this work was commenced, and for your uniform continuance at the work, and your great zeal and perseverance in carrying it on.

#### THE ODE.

"In ruin rocked the grand old pile we proudly view to-day,  
And not a hand was stretched to save the structure from decay;

A sable gloom had settled down, and swathed like a shroud  
The ancient grandeur of the shrine of which we all were proud;

And year by year, as time wore on, old men were heard to say  
'St. Patrick's old Cathedral is crumbling fast away!'

St. Patrick's grand Cathedral, where holy men austere  
Once trod the 'Friar's Walk' that led from earth to heaven while here.

"A ruin—in sooth, a sacred ruin—from pinnacle to base,  
Whose every stone had witnessed some old glory of our race;  
It pleaded strongly for our aid, but willing hearts were few,  
For those who had the power to save, had not the will to do.  
It was reserved, at last, for one of noble heart and mind,  
To leave to other times a name and monument behind—  
To leave a NAME inseparable from PATRICK'S by his gift,  
A monument by GUINNESS o'er the resting place of SWIFT!

"Look up! 'tis Patrick's once again that rears its lofty head;  
Look up! 'tis Patrick's—radiant with sunlight on its shed!  
From tower, and roof, and buttress-arch, the slanting shadows fall;  
And from its steeple high, gleams down the ancient cross o'er all.

And did they tell us—that we ne'er should see the sight again?  
And did they tell us—that the task was labor spent in vain?  
In sooth they did, and rashly, but, ah! they little knew  
What noble hearts, and clever heads, with cunning hands

could do.

"They are no 'Vandals,' those who toil'd to beautify this fane,  
But loving workmen who can prize the offspring of their brain,  
In aisle and chancel glance along from floor to ceiling-line,  
The base, the long and slender shaft, the cap and head divine,  
The hooded moulding, crocket rift, the finial and the cross,  
The wondrous groin whose ribs all branch in beauty from their boss;

The glorious mullion'd window that a sceptic scarce could pass  
Unmoved before its gorgeous stained and Scripture-figured glass.

"Wreath the shamrock and the rose to-day around the sword!  
Joy! joy!—we've lived to see St. Patrick's now restored!  
Warders of the world's strongholds, could mankind taste the bliss

To see your standards hung in peace in sacred shrines like this,

'Twould show a conquest greater and holier by far  
Than they could ever have obtained as instruments of war.  
Live on, St. Patrick's, live, and may that generous heart  
That rescued you, be-aye enshrined in that great work of art.

"The hand of God, through human hands, is ever working out  
Those grand creations that we prize and love to speak about;  
Oh! may it be for ever thus—that man will dedicate  
His highest gifts, and prove to man 'The good alone are great!'

Who'er you be, our brothers each, think well and long on how  
You have been living heretofore, or may be living now;  
And if you have a kindly heart, and wealth, and will, you shall  
Do noble works like that on old St. Patrick's Cathedral."

#### RAILWAY NEWS.

The London, Dover, and Chatham Railway Company has succeeded in getting a bill enabling it to cross Ludgate-hill, and thereby shut up even the present very indifferent prospect, obtained from that thoroughfare, of St. Paul's Cathedral. [This is a bad omen, and shows that all consideration of art and ornament must pale before those of railway traffic. Some of the principal streets in the Borough and at Camden Town are deformed by railway bridges of very unartistic appearance. We believe that there will be very many more bridges over London streets before a twelvemonth. Ed.]

# PRELIMINARY MEETING OF THE REVIVED INSTITUTE OF ARCHITECTS.

On Saturday last (28th ult.) a *Special General Meeting* of "the Institute of Architects of Ireland" was held at the Royal Arcade Hotel, at which the following gentlemen were present, viz.—Sir Thomas Deane, J.P., Charles Lanyon, J.P., W. F. Calbeck, E. H. Carson, N. Montgomery, and J. J. Lyons, *Fellows*; and C. D. Astley and J. H. Kirk, *Associates*, together with the *Honorary Secretaries*, James H. Owen and Parke Neville, Esqrs. The chair was taken by CHARLES LANYON, Esq., J.P.

There being no *special business* for consideration, it was deemed expedient—after some general discussion and cursory examination of a list of new candidates applying for admission into the *revived* Institute—to summon a *council meeting* for the following Monday, at which—what is technically termed—"a *house list*" should be prepared and submitted at another general meeting of the Institute on to-morrow. The next proceedings proposed are to ballot for the admission of such of the new candidates in question, as may seem most eligible according to the *existing* bye-laws; and afterwards, to determine certain (as yet *undefined*) details of the proposed "broader basis" constitution of the Institute.

[It is very much to be regretted that the attendance of members (nearly *forty* in their respective classes) should on this occasion be so limited; but we trust that at the *intended* general meeting it will be more numerous, and that matters will be settled *definitely*, so that the Institute may thenceforward commence its operations without any further delays. Relative to the proposed election of officials according to a "*house list*," it may not be amiss to remind members that such list is only *formal*, and that votes may be recorded quite independently thereof. Indeed, either the desirability or the necessity for such a list at all is most questionable; inasmuch as that every member is quite competent to judge for himself as to placing "*the right men in the right places*."

We must remark that it is essential to the well being and the longevity of the *new* Institute, that every vote at this election should be recorded uninfluenced by personal considerations, and with due regard to the constitution of the former Institute, of which the *less* said the *better*.

We are moreover convinced that the *proposed election* should not take place until after the eligible new members (between twenty and thirty) are admitted, as many of them are of high professional status, and in giving in their adhesion to the revived Institute, they are fully entitled to a *voice* in the election of its new council and officers. It almost amounts to discourtesy towards those gentlemen to proceed without them; and, indeed, we have reason to know that secession will be the consequence.

Whatever may be the result of the future proceedings of the Institute of Architects, the profession is *solely* indebted to the "Reorganisation Committee" for reviving that body, and for bringing—nay, urging—them to the present stage—a fact seemingly so far, unappreciated (or, at least, not sufficiently so), as the energetic committee's proceedings ought to have formed at the meeting on Saturday a subject for special consideration and acknowledgment.—Ed.]

## ACOUSTIC PROPERTIES OF SHEET IRON.

With regard to the construction of edifices in which facility of hearing is a special object, we are reminded by a respected correspondent that sheet iron may be employed with great advantage in the construction of the ceiling of an apartment intended for assemblies or congregations. The church of St. Aloysius, at Washington, is, according to our informant, lined at the ceiling with this material, without the architectural feature of panneling being at all interfered with; and we are assured that such is the acoustic effect that the slightest whisper is audible from one end of the building—which is 150 feet by 75 feet—to the other. The adaptation of sheet iron to this purpose is not quite so novel as our informant judges, for we have heard of its partial employment in churches on the Continent of Europe; however, as it is by no means generally known, we give place to the suggestion, hoping that it may elicit some further remarks on the subject. We doubt, though that the principle may not be carried to a vengeance, ensuring an acoustic degree which may prove rather to be an annoyance than an acquisition.

## A CORDON RAILWAY FOR DUBLIN.

MR. RICHARD TURNER, of Hammersmith works, in this city, suggests instead of the proposed Metropolitan railway a cordon line thus—"to start from G. S. and W. Railway about Inchicore, crossing Griffith's-bridge on Grand Canal, and keeping along north side of canal to Maquay-bridge, effecting communication with Kingstown line at Westland-row, and having a tramway branch for goods along the west side of the canal docks to Sir John's quay; also a second branch from G. S. and W. along south side of Liffey, crossing it west of Barrack-bridge over Blackhall-place, up Grange-gorman-lane and adjoining M. G. W. Railway at the Circular-road. Again, the latter would have a short branch for Summerhill-bridge across towards 'west road' on the North Lotts, and joining the Drogheda line at east wall road." Mr. Turner also suggests Harcourt-place as a site for a great central hotel (if desirable).

## THE SHILLING ART UNION OF DUBLIN.

ENTERING on a *fourth* year, this fully established and as fully appreciated National Institution announces its programme for coming operations. It has, during its short existence, within a sphere accessible to the million, effected very much to foster native art, and thereby substantially to aid native artists, who, under modern innovations and mechanical appliances, stand more in need of it than heretofore—a consideration not to be disregarded. Few even of the working—not to speak of the other—classes would miss a single SHILLING out of their little store, and if even such a paltry contribution should prove unsuccessful in securing as a return a *prize* of considerably greater value, the investor will at least have the consolation of placing his capital to a good account.

## Hebichus.

*The Engineers' Pocket Remembrancer.* By F. CAMPIN, C.E. London, Atchley and Co.

THE title of this work at once proclaims that it is not of a very novel or uncommon character, its immediate object being to supply the civil and the mechanical engineer with a concise *vade mecum* of data, rules and formulæ applicable to their respective avocations; but, nevertheless, although many have previously essayed in a similar path to our author, his efforts are not to be disregarded or his competency depreciated. Some of his tables, however, we must remark, are much more comprehensive than concise—that of square and cube roots especially—which reaches from No. 1 to 999; also that relative to circumferences of circles according to diameter—the highest being 100 inches regularly graduating from a *mist* of logarithms, logarithmic sines, tangents, &c. The majority of these are—the author tells us—simplified or corrected to agree with modern practice, while some are from "an original collection made for his own private use;" but which—together with the subsequent formulæ relating to laws of solids, liquids, and gases, the steam-engine, boilers, bridges, girders, &c.—form a very complete volume of reference, or, to use the author's own phrase as to his aim, "a remembrancer." As, in treating each of the departments, Mr. Campin has been more or less restricted, perhaps we may hope that hereafter that gentleman's assiduity and professional attainments, and his publishers' well-known enterprise, may ensure the production of a large and more special volume on such important subjects as gas and hydraulic engineering respectively, bridges, girders, &c., embracing modern improvements and principles. Meantime we wish the "Remembrancer" an extensive patronage amongst the craft.

## Various Publications.

MESSRS. ANGUS MURRAY AND CO., of Eustace-street, publishers, have issued a temperance tale (by the Rev. J. Kane, A.B.), entitled *Love's Labour not lost*, the author advocating the cause of total abstinence by a very pleasingly written and well-strung story, in which illustrations of the baneful effects of drunkenness and its concomitant vices form the thread. Though not coinciding with the author in the full extent of his object, we nevertheless commend the principle and the means adopted to accomplish a philanthropic purpose.—From the same firm we received a carefully prepared treatise on that invaluable attainment, but generally much neglected study, *Right Spelling*. Both adults, who graduated under old and more complicated systems, and the juveniles of the rising generation, would profit by perusal of the short road to it.—Mr. S. O. Beeton, of 248, Strand (a name pre-eminently foremost amongst London publishers), has forwarded us a first packet of his publications produced in parts, and edited by that gentleman. They comprise his *Dictionary of Science*,

*Art, and Literature*, (the most valuable fund of information on anything and everything within the sphere indicated by its title, that—judging so far—we have yet met with, and at a marvellously low price; the *Boys' own Library* and *Magazine* respectively each with relative merits of educational tendency; and "*Garden Management*" no doubt, also worthy of appreciation by those to whom it is especially directed. On receipt of future parts of these works we may be enabled to speak with more confidence.—*Open Stephen's Green* is the title of a sensation drama through which the author under *nom de plume* follows but feebly in the wake of Mr. Scribble, the originator of the memorable Carlisle Bridge pamphlet, (and who has more than excelled himself in the recent effusion entitled *Dublin Destroyed*, or a diatribe on the proposed metropolitan railway scheme,) yet it is not without pungent wit and original thought on some points—metrical delinquencies passed over. We reproduce beneath a part as a sample of the whole.

STATUE—(GEORGE II.)

We said to Walpole once, "We'll shut up 'James' Park, We wish to have it private, a king must have his lark." Walpole replied, "Kings sometimes act like clowns, But this here lark will cost at least three crowns," We took this good advice. My martial friend, To the moral of that story pray attend. The people's voice is rather loud just now, The people, too, are skittish for a row, And if they once begin I'm half afraid, Not the City Marshal, nor the Fire Brigade,\* Nor the police, with B. one eighty-four, Could clear the passage, or even keep the door.

UNITED SERVICE CLUB—

Gentlemen, I think it hardly fair To go and open up this hollow square, To line its sunny glades with levies fit, As Falstaff wisely says—to fill a pit. By —, if this Committee clamours louder, I'll vote for one to make them for powder.

DYCE'S—

I say old horse, just bridle in your wit, And give me leave to edge me in a bit. This hobby of the Commissioners is nearly out of breath. Because the new Committee are riding it to death.

STEPHEN'S GREEN—

Gentlemen, be silent for a single moment, pray, The Catholic University has something got to say.

CATHOLIC UNIVERSITY—

At Paris, Brussels, Dresden, and Vienna, They've opened public gardens, but when a Movement of this kind is made in Dublin, Not a puffer but must throw his bubble in, To blow the project high in air, Or to the Dickens, or the —ace knows where. You'll all remember how those crusty wardens, Who held in durance vile, Glasnevin Gardens, Refused to let the working people through Their classic groves, until the screw Was worked down pretty tight, in such a way, That Parliament at length was forced to say, "If you refuse the working man this plant, We'll order Gladstone to withdraw the grant."

UNITED SERVICE CLUB—

That Movement was confined to lower grades.

CATHOLIC UNIVERSITY—

Yes, 'twas the vigorous action of the trades That secured for them the grateful boon Of walking on the Sunday afternoon Amid these flowers, whose graceful petals tell, The truths of nature which they feel so well. Who would deny the working man this pleasure? What miser keep concealed such priceless treasure? The owners of this hive will scarce keep out the bees!

The *Fourth Report of the Art Union of Ireland* deplors that the subscriptions for '61-62 have fallen very short of the committee's expectations—a sentiment in which we cordially unite, as the Institution was based on sound and most commendable principles, which, unless met by extreme apathy, ought to have been attended with complete success instead of partial failure. We shall hope, however, for more favourable results from coming operations, and we earnestly urge every promoter of national art to contribute his mite in aid. The expenses of management were but £212 15s., including rent, salaries, and various disbursements—an uncommonly moderate figure—which will be even materially reduced under modified arrangements; the secretary, Mr. G. F. Mulvany (the new director of the Irish National Gallery—an office well bestowed) gives his valuable services gratis and *con amore*.

## FINE ART ITEMS.

An exhibition of the works of the late Horace Vernet is to take place at the Palace of Industry, in the Champs Elysee, under the auspices of the Minister of State.

All works intended for the ensuing exhibition of the Royal Academy, London, should be sent in against the 7th instant at farthest.

The Society of Female Artists' Exhibition will open in the middle of present month, at the new gallery of the Society, 48, Pall Mall.

The Society of Wood Carvers, composed mostly of skilled artisans, such as were the Gothic artists, who have left us such noble works, has voted the sum of £15, to be awarded to three of the most meritorious works by its members that may be shown at the forthcoming Sculpture Exhibition.

AN ANALYSIS OF THE FINE ARTS  
GENERALLY.\*

ON the assumption of the exactness of my analysis of the constituents of the Fine Arts generally, I shall proceed to direct your attention to what I believe to be the course proper for the student in form and colour to pursue—regardless of the fact that want of sufficient encouragement will render it practically abortive, though entertained with the best intentions, and that under the blighting effects of local apathy and indifference, we remain conscious of the ability and power to carry out the legitimate business of academic instruction to the fullest extent, should the occasion arise to require it, with the means and appliances indispensably necessary to such an end. In the absence of these we shall show what might be done for the arts, were we past that helpless infancy of our new-born life, which requires the fostering care of an enlightened munificence to bring to maturity.

Inasmuch as the several means employed by the artist to realize a work of art are traceable to a strictly natural source, we may at once begin with the faculty called "imitation." The most poetic form which innate selfishness takes is "sympathy;" this gives origin to that easy and agreeable species of memory called imitation, and although this faculty is by no means confined to man, it may be said in his hands to form by means direct, or by inference, the humble but pleasing groundwork of the Fine Arts,—becoming a medium for the loftiest associations and conceptions of the mind.

It is necessary to consider imitation under two heads; the first is seen in the infancy of the art and in its dotage. In its infancy, whether of nations or individuals, the nearest resemblance to the thing indicated is all that we can expect, showing as it does a certain daring and observation agreeably welcome from its novelty. Its second childhood, or decline of this faculty, is seen in the reproduction of obsolete styles, which is barely tolerable in the most complete eclecticism.

The second head considers imitation as likeness in every respect of the thing copied, nothing added nor left undone to deprive it of verisimilitude found so wondrously in photographic reproductions which, however, are perfect as far as they go. Imitation of a thing is the production of another thing so like that it is taken or accepted for it,—not mistaken for it,—which would be deception, which is not the object of the Fine Arts. Imitation is but a means of art; the hand in connection with the eye, must acquire this power so as to use it with fidelity and ease; the mind also must be cultivated to give it direction and originality, for in the absence of mental culture the most dexterous manipulation is at most sensuous—or for the gratification of the senses only—in which case we must reflect how far such art would remove us from our relationship with the rest of the animal creation.

On more mature reflection we must discover that the very closest imitation is at most but an agreeable agent to open or reveal to us the charms of the mental world. That world, which is the never-ending theme of poets and preachers, which is the refuge of the good and the afflicted, which is given to our intelligence for the trouble of cultivating it; that world for which the wisest and best of our kind have laboured and died in order to keep it open, and free to us all as our inheritance, and an incentive to the highest and noblest thoughts and actions.

The art of drawing is taught in other schools: that is, the hand is practised to work in sympathy with the eye, and to master this mechanical difficulty many years of anxious attention is necessary. But the acquisition of this power without its mental concomitant, is analogous to beautiful peomanship without the author's ability to write a story.

But the legitimate function of an academy of art is to direct those who enter its walls to use the power acquired in the drawing school in a proper artistic direction. In fact the mental labour begins when the pupil acquires facility and freedom of hand.

When this is neglected or forgotten by academies, or rejected by their students, the academy, as a college, virtually ceases to exist as such, and becomes something worse than useless; it becomes a body of exclusives banded together from vanity or for profit. On the other hand the student who will not avail himself of the art instruction offered simply shows he has mistaken his profession.

We are quite aware that academies *have* not, nor *cannot* produce men of genius; but when academies mistake their legitimate functions they do positive harm, especially where true genius submits to their control; for among others, the mistakes academies are liable to make are—attempts to follow in the style of some successful man of genius, or of some particular school of art or style; or, like the school of Bologna, to combine in one all the most perfect

specialities of all the schools prior to their own time. This is eclecticism, and to what is called common sense nothing seems more rational, and perhaps nothing could be better for a fixed and stereotyped condition of society,—look at China, Egypt, and Persia, in the old world, and certain modern instances in Europe; but, we are not sent hither to sit by the wayside and establish a fixed state in anything. Mutability is absolute and continuous, and will go back if but to obliterate and change—to this end are all circumscribed notions about art progress necessary to the healthy development of our highest mental nature and diversified individuality, we can only be honoured by such a course,—by following others, no matter how exalted, our identity is absorbed and our mission perverted.

This voluntary aberration from the direct object of our creation is unworthy of a people aspiring to greatness, and, whether induced by the state, private opinion or public bodies, it is alike discreditable to a free people and incompatible with the object of our being, which was to create after our own manner and to extend to infinity those marvellous powers of art which unfettered genius discovers to be inexhaustible. What I have said of the fallacies inculcated by academies will apply to their immediate students, for whilst they were taught to paint like some one else, they were being taught at best but a fancy or ornamental handicraft; and being thus initiated, the commercial spirit gets possession of them, and a desire to be incorporated for mutual protection and interest; this was always effected by a state charter under the protection of St. Luke, who presides over the guilds of painters from plain wall painting to the most fashionable eclecticism in academies. And I would further say, my young friends, that I could not recommend even the most approved methods of reproducing obsolete styles, however humble our own efforts may be in comparison, as I cannot forego the ennobling hope which I entertain of our common country taking the very highest position in the Fine Arts at no very distant time, recovering, as it were, her former height as a vantage ground to start in a new and higher career of excellence. To abandon such a hope would indeed be to me a loss, for I have given all my energies to discover how it might be realized.

But what is the student to accomplish ere he becomes great in art? The answer to this will show what is the object, the legitimate object, of academies to bestow, and its main duty to the public from whom it derives its existing exclusiveness.

We will suppose that the student on being admitted has shown that he has ability to draw the figure from the cast, and that he has made his acquaintance with the simple elements of design, namely, practical geometry and perspective. These primary exercises will prepare him to proceed with his more advanced studies in the academy.

Here the student really enters upon his mental labour simultaneously with more freedom and the knowledge of handling his materials. He begins once more with the antique; hitherto he has regarded statues as his incomprehensibly severe task-masters; he soon, however, begins to perceive their usefulness and abstract beauty; he then becomes attached to his old friends, and the more so, the longer he is acquainted with them, for it is found by the magic of their excellence, as in the old poets,—that "custom cannot stale their infinite variety."

With manipulative power, as a matter of course, he finds, in order to comprehend the figures before him, that his general knowledge is appealed to; finding this not up to the mark he sets to work by every means at his command—books, advice, calculation, measurement, mechanism, situation, light and shade, colour, proportion, these take some time and anxiety to command, and when done, the poet's part next taxes the imagination. The object of such a work, its history or story, the situation, and sentiment intended to be excited or appealed to—in short, their object, use, and end; these must have been worth the trouble in attaining such power; so much then involves a knowledge at least of drawing, geometry, perspective, proportion, anatomy, balance, action, light and shade, as the means of their development; but these go but part of the way. The life next presents itself, and man is its highest object; here then is an interesting field of study, the study just past was regarded through the statuary's art; but we now come to regard living man himself. On first beholding this new object, the student must have felt, if his perceptions were awakened, that the antique sculptors have anticipated by centuries the embodiment of that noble apostrophe to man, by Shakspeare—"What a piece of work is man! how noble in reason! how infinite in faculties! in form and moving how express and admirable! in action how like an angel! in apprehension how like a god! the beauty of the world! the paragon of animals!" and again as to individual man, what powerful portraiture—"see, what a grace was seated on his brow, Hyperion's curls, the front of Jove himself, an eye like Mars, to threaten and command; a station like the herald Mercury, new-lighted on a heaven-kissing hill, a combination and a form,

indeed, where every god did seem to set his seal, to give the world assurance of a man."

I refer you to the bust of Mars, Jupiter, and the Apollo Belvedere, to prove to you the arts of form and colour can realise this grandeur of character, and we may observe by the words used in the above, how poor language is in the absence of hyperbole, to convey to the mind the works of nature around us, especially those of form.

In the study of the living model, the intelligent student finds himself in a new field of labour—one in which he feels the knowledge he acquired in the antique stage immensely useful to him; but how different its application? The action was arrested action; but now he must decide, and catch the action from a living being, requiring at once both judgment and dispatch. This is the most obvious difference. The anatomy, too, will seem to him a new order of things,—the hardness and direction of the bone, the rigid character of the tendons, the flexible and shifting forms of the muscles, will seem new, and fascinate him by the beauty of their mechanism. The colour and texture of these varied parts in action and repose will be a novelty in itself, which will reveal to him what colour really is in flesh painting. Proportion allied with living action becomes a new study too; the centre of action in the whole figure, and the centre of action in each part and limb, with the extent, limits and kinds of motion, possibly enjoyed by each—these, projected in their peculiar individual proportion, and their position in space understood, will be found to constitute a new, and by no means a light study for the young artist.

These require a grasp of mind, and an exercise of the understanding hitherto untaxed. The sense of morbid anatomy, which at first seemed all in all, will now almost entirely disappear, and will be found to have been so far necessary for the fixing in his memory local association of the names and use of the several parts. The different qualities exhibited in age and sex will require the art student's serious attention, with the properties which years develop under the circumstances of race and climate.

Drapery, hitherto but slightly noted, must engage a due share of attention, both in form and colour. In form, the weight of material, its rigid or its flexible character, will be found to depend wholly upon science, the laws of which must be studied. When colour is added to the light and shade, a new charm is given to this complex pursuit.

All the above is studied and regarded under the influence of a particular light, either real or artificial, and which will lead the student to the mode of using this essential means of art. And here I would observe, up to this stage of progress there is no attempt made to give a bias to the mind in any particular direction, as there is nothing yet given but of a general and absolute nature, and which it is the duty of an academy to afford and to inculcate, and make the constant practice of its schools.

Next in order comes the free exercise of this acquired knowledge, aided by lectures and demonstrations, making the most wholesome use of bygone styles by simply avoiding their recurrence amongst us, except as to their history.

Æsthetics, or the laws which govern the beautiful, must be kept continually in view—for there is nothing good that is not beautiful. Ugliness is synonymous with badness. Artists have always acknowledged this axiom, and called it feeling—artistic feeling—an inner sense of the lovely exhibited in choice of form and loving treatment. This sense, which is born with a few, may be developed in the many by careful culture and constant supervision. Here the kindly offices of the academy visitors come in—advice happily and kindly given in season is rarely forgotten by the student.

The experience of the artist enables him to show the student where that which is merely natural may be made more artistic, and thereby more beautiful, because more in harmony with a particular sentiment, which, of course, the natural arrangement might not indicate. His experience will be able to clearly show how much one part, however naturally painted, would interfere with other parts, and to show the necessity for a certain subordination of force in the component parts of a work, and, in connection with this, to show the way to make the story of the picture at once intelligible. These are the æsthetics which a judicious instruction will develop, and which experience alone can convey.

The last stage of the student's career will lead him naturally to his own studio, and, with the foregoing materials of power in his possession, will lead him into that world of mind where he will associate with the great thinkers and poets of all times. He will be led by knowledge to behold those eternal attributes of Divinity—truth, wisdom, beauty—whose power he will propitiate, whose devoted servant he would desire to become. But outside this region there are lying in wait for him indolence and folly, who will present to his weakness their charming progeny of ease, idleness, fashion, conceit, flattery, gaming, and sensuality. These, or any of them, have sufficient attractions to

\* A Lecture delivered by Professor Macmanus, at the Royal Hibernian Academy, on the 14th of March.

entrap any who are not fortified against such assaults by a humble and intense love for his art and its honourable interests.

Lectures and illustrations, with careful reading, will promote this phonetic object. One of the most difficult things the student has to determine is the choice of his subject. He must have a care that he is not a mere illustrator of the other arts, instead of affording matter of his own for others to quote, illustrate, or embellish. The field of poetry is very large, and nothing but a thorough knowledge of the capabilities of his art can make the student determine on the subject proper to it. Mastery in the art alone can determine the amount of imitation to be shown in works of different phonetic qualities. The student, in this last stage of his studies, which is to evolve his individuality, must consider beforehand what must be the character of his work, whether it is to appeal to the imagination or to the mere fancy, or a strict portraiture of real and familiar objects, or of combinations of parts which his art alone can realize; or, whether in conformity with an exalted sentiment, he shall make such a selection of natural elements as will wholly agree with the effect imagined, to thus invent his means of expression, so that the scene may appear probable, and to the conceptions general, and, under the circumstances, natural; for our world of the imagination is as proper a subject for artistic power as the real and tangible world around us. These our senses discover. But that which all possess, and are educated to conceal, is a world of far greater importance to the artist—he must reveal or reflect this in his art; the means we suppose the student to have acquired ere he ventures to conceive and grapple with the subject of his work. But here his judgment is called into play, and his vanity or humility put to the test; his general knowledge also comes to his aid, or its absence prostrates and paralyzes him, as he feels for the first time he is only an ingenious machine, to be worked by the inventive minds of others.

The world of mind now entered is common to all poets, and to become one of these the art student has but to consider what part of it lies in his own province, and by what means he may develop those regions of thought which can alone manifest themselves through his art. Happy glimpses of the beautiful in form or colour may be and are appreciated for their own sake, but they may be such, and have no story, no immediate connection with anything in particular. This class of work amounts at most to dreamy idleness, or indicates obstinate mental incapacity—a mere exhibition of technical and æsthetic address. But by such work no country ever earned a reputation for art. It is only by the cultivation of that province of thought allotted to the arts of form and colour that a people can be known and remembered as having understood and practised the Fine Arts. The Egyptians, the Assyrians, the Greeks, and their colonies in Italy, amongst the ancients, stand out in bold relief and broadly individual in distinct nationality. Transition, if any, is imperceptible; Egypt has rendered her polity, heroism, and gigantic egotism of its rulers, in immortal colour and form; Assyria, its magnificent power in stupendous symbolism; Greece has shown us in rationalizing art that man, as he is seen, can be made the vehicle of the most exalted ideas—the hero, the statesman, the demi-god, with individual characteristics, personification of nature's elements, operations, and attributes, with the least possible symbolism; whilst her colonies in Italy and Etruria have given us works of such perfection in form, that no man, since their time, has made even a hopeful approach to their excellence; graceful action, beauty of form, and natural proportion, seem united to make them perfect, whilst the story is the best history of their manners and customs.

If we have faith in these being the works of other nationalities, let us remove the mountains of indolence and apathy which, like an incubus, presses us downward. Study well directed, with humble and modest labour, will do this for us. Of the higher qualities I entertain no doubt, for the nation whose sons executed such work as the Tara Brooch and Book of Kells, and whose native melodies have given a back bone and a vitality to the most ambitious musical compositions for centuries past, cannot fail to realize in form and colour an individual nationality of the loftiest kind conceivable.

The mission of the true artist is a glorious one; he not only points to the future, but sits, like the stern judges in Lucian, upon the past acts of all men—priests, kings, and people—wisely extolling the beauty of truth, and showing how difficult it is to conceal what is false. Is not the power to do this well and wisely worth cultivating? What position in life is more honourable than the privilege of vindicating the truth and the efforts of the virtuous, to restrain or punish the wicked, to mend and reform the bad, to show the healing goodness of charity and the pleasing amount of forgiveness which thoughtlessness and folly demand of our humanity? Moral truth will be found in our feelings of what is just; and form and colour suggest many varieties of this; for it is but truth when we imitate exactly the whole and its parts,

but truth demands that the means should subserve the true idea and intent of the artist in making his work. It is true to the subject to arrange its parts in due subordination to the general effect, and to create that impression on the mind which the actual scene would make if it existed. It is not meant to tolerate false effects or bad perspective, or want of proportion or balance of its parts—such a condition, indicating as it does a want of perception of the truth in art—but that perfect rendering of the true imagination that should lead the attention agreeably from one subject to the other, beginning and ending at the right place in such order as must naturally occur. To do all this truly, that is, to make it like truth to nature—mental and physical truth—mastery in the means of art is essentially necessary; and the reason we have not more of this high art truth is because of the laborious means necessary to its accomplishment, promising no adequate compensation, commensurate with the labour necessary to its attainment; hence the few who really practise are constrained by circumstances to do so, on the vague hope of something occurring that would better their condition. Our native power is suffered to remain covered with the ashes of neglect; but there is enough of the vital spark to be seen when a fortunate circumstance arises to rake these ashes.

It may interest the young artist to learn one or two instances which recently occurred in the practice of great artists who removed certain beauties from their work, when they discovered it presented the fact that these objects assumed an importance in the picture which the truth of the story did not warrant the irregularity of a subordinate part to become the principal feature.

Mr. Harvey, the celebrated Scottish painter, painted a meeting, for religious purposes, of the persecuted Covenanters. The scene was laid in one of the beautiful mountain regions common in Scotland. Mr. Harvey's power in landscape painting rivals that of the great painter of Highland scenery, McCullagh; and in this subject he had ample opportunity to indulge in the most beautiful mountain scenery; and he, accordingly, painted such a scene as a background to the figures which formed the subject of his picture. These were admirably painted, and with all the effect and power which a man who feels, as he did, the truth of the ceremony he painted. The picture was ready to leave for the Exhibition, and a few admirers of his work were admitted to a private view of the picture. On beholding it every Scotch heart was charmed with the scene or scenery, for its features of rocky beauty were given with great force and clearness, and as a consequence of such treatment, the attention was first drawn to it at the expense of the figures which really gave birth to the picture. The painter quietly observed this error on his part, and before the picture left for the Exhibition he took paint in his brush, and nearly obliterated the beauty of the background, and so made it quite subordinate to his story, so much so that it only catches that amount of attention it is properly entitled to, as indicating the nature of the locality where the ceremony occurred. This is an illustration of truth of effect.

I shall recite another instance, by Mr. Leslie, the great dramatic painter of the English school. In like manner, Mr. Leslie's celebrated picture of Sancho and the Duchess, the artist painted one of his most lovely heads in the right side of the composition—the young lady who peeps over the shoulder of the dumpy squire, in order to have a glimpse of his face, for Sancho uses pantomime to assist his narration. Every one permitted to see this work ere it left for exhibition exclaimed, "What a beautiful face this is! Where could he have seen such a model?" When the visitors were gone, Leslie took his paint and painted locks of hair between the face and the spectator, which hid from view for ever the lovely face that attracted the attention so much from the story of his picture. So, we find, this head, a picture in itself, was removed because it interfered with the truth which the idea demanded. The face, like the mountain scene in the other, was true as far as itself was concerned, but was not suited to give truth to the whole, of which it was intended to form a subordinate part; and the courage shown in altering both is like the moral courage necessary to support truth when temptations of the most alluring kind go far to make one forget its importance in the moral picture of life.

Thus I have endeavoured briefly to put before you my views of the relation between academies and their students, and to trace the progress of the latter throughout his academic career, leaving him in his own studio at work after his own heart. And my remarks on eclecticism do not refer to those who may desire an acquaintance with the several modes of reproduction or systems of colouring practised by any or all of the schools hitherto in existence. I should say that the student who could imitate the mode of any school was most likely to be most original in his own, and will suit his treatment according to the phonetic character of his work, without using an obsolete method.

In conclusion, the course of study I have above

hinted at, if pursued, will have this one good effect among others,—it would make the true artist more tolerant of those other specialities not practised by himself, because not to his taste or choice; for in the absence of a general and a liberal training we are apt to condemn what we don't understand. We must remember illiberality is the unmistakeable sign of ignorance and egotism, and a more general cultivation will enable us to avoid becoming so ourselves.

#### THE CORPORATION NEW CATTLE MARKET.

THE saying that "many hands make light work" is fully illustrated by the scene presented at the site of the new markets in course of construction at the North Circular-road in this city. But a couple of months since cattle might be seen grazing on the pasture land, and elms and ashes, in large numbers, rearing their stately heads on Jameson's-fields. How changed is now the aspect! Scarcely a blade of grass is visible; huge trunks, felled by hatchets and saws lie prostrate, or are being carted away (as we understand, to form rockeries at the Winter Gardens); the freshly turned and levelled earth shows signs of the recently formed great arteries of drainage beneath its surface; heaps of huge unused earthenware pipes, of whinstone paving blocks, of chiselled granite base courses, and monster gate piers, are strewn about; massive stone walls take the place of hedges and ditches; masons, bricklayers, labourers in abundance, with carts and horses, are all busily occupied at their respective callings, hurrying on to maturity an establishment which must prove a very complete one of its class, and a great boon to the myriads engaged in providing for the animal wants of man and beast. We gave a plan and particulars of these markets in our number for Dec. 15 last; but though well acquainted with the locality generally, we never closely inspected the site till a couple of days since.

It seems to us all that is desirable for its purpose, both in point of position and from the gently sloping nature of the ground, conducing to the securing of a thorough drainage so essential for a concern of the kind.

Main approaches are being formed from Prussia-street at one side, and Aughrim-street at the other, enclosed by solid masonry walls in random jointed ashlar, of remarkably excellent workmanship, and coped with chiselled granite, under which a course of red brick laid angularly, contributes an effective finish. The out offices, which will be fitted up with every requisite accommodation, are of somewhat similar construction externally. The elevation towards the Circular-road will present a panelled wall coped with granite, and surmounted by a solid iron railing, with gateways at stated distances. The metalling of the main approaches has been commenced. A vast quantity of the iron work is ready for fixing, and the gates, railings, &c., &c., have all been prepared at Mr. Meade's (the contractor) own smithy, recently added to his large saw mills in Great Brunswick-street, of which—as it shows the contractor's special capacity to execute this or any work in which iron is an important element—we subjoin a few particulars.

There are no less than ten distinct fires, each supplied with a common air pipe, through which a current is supplied by a patent silent fan (a novel feature), worked by a splendid steam engine, the manufacture of Messrs. Rowan and Son, of Belfast. Communicating by shafts and belts, &c., this engine works the various punching, cutting, screw-cutting, boring, drilling, turning, &c., machines, employed in fashioning the iron to its required form. Indeed, the power, delicacy of workmanship, and accuracy of the ponderous machinery required for these purposes, are truly marvellous. A hole of any diameter is drilled right through; a round or a square bar is chopped across; a piece is bent to any curve desired instantaneously, and with an ease that seems to know of no impediment even in this tough material. The addition of such an industrial branch to Mr. Meade's other avocations reflects great credit on his enterprising spirit, and will serve to make his fine establishment additionally notable.

PHOTOGRAPHS OF THE FRESCOS OF ANNIBALE CARRACCI.—We (*Building News*) learn that a remarkable series of photographs has been received by Mr. J. C. Grundy, from Rome. They reproduce with marvellous effect the frescoes of Annibale Carracci in the Farnese Palace. Unlike most photographs of this class, which are taken from drawings that are invariably more or less incorrect, these magnificent photographs have been taken with great labour from the original frescoes. The photographer, Signor T. Cuccioni, like a true artist, has made no attempt to colour the photographs; the intrinsic value of the frescoes as compositions and models of design is therefore unimpaired. The series consists of seven large plates, each measuring 27 inches in length, and several are 22 inches wide.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

## DUBLIN METROPOLITAN RAILWAY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Is "Civis a citizen? One might well doubt it. In his first well-written letter, I thought he had exhausted every argument in favour of the project he again advocates in a later communication. In his latter production, however, there appears to me to be a feature rather novel. He clearly ignores the opinions of his fellow citizens, three-fourths of whom, at least, are opposed to his views. He designates their opposition as "blind," dismissing them as "short-sighted" and "small minded" individuals. Civis takes his stand upon "public requirement," and asks us to enlarge our views on the subject. "There is," he says, "a public throughout Ireland to be considered, nay a public throughout the empire, and more still, a transatlantic, and it may be, a European public who may, at no distant period, make Ireland a thoroughfare to the Western World and Dublin a portion of its highway. I would say to these publics we shall do everything in reason to meet your convenience, but you cannot expect that the boasted beauty of our city is to be sacrificed to save you the trouble of going from one metropolitan terminus to another. I object altogether to the principle of railways through a city, and agree with the *Times* that cities are made to live in, but it is in my mind actual burglary to force a railway through a city against the wishes of the vast majority of the inhabitants. I believe there exists no such public requirement as that so eloquently argued by "Civis," and I do think that if this railway scheme succeeded Dublin would, indeed, soon become a mere highway for travellers, and that we should have some future Goldsmith lamenting over its state in the style of the "Deserted Village," thus—

Sweet Dublin! loveliest city of the day,  
Low have you fallen—to a mere highway;  
No traveller stops upon his journey through,  
But sighs and mutters "Nothing here to view."  
Your beauties sacrificed for public good,  
Your architecture's turned to railway food.

We are told of the vast sums of money to be spent in the construction of this railway. Let us not forget the enormous sums which have been expended on these splendid buildings, the views of which are to be mutilated and cut off. I have heard Lord Brougham say to Mr. Whiteside that he considered Dublin the handsomest architectural city he had ever been in. I greatly fear a few of the proposed railway bridges across our handsome streets would make it impossible for his lordship to form any judgment as to the beauty and proportion of the buildings which so attracted his admiration. The construction at present in Westmoreland street can but give a very imperfect idea of the injury which would be done by such bridges. Let us remember, too, that several of the houses at each side of such constructions would fall enormously in value, while the poor owners would get nothing in the way of compensation. Again I say to these publics spoken of by "Civis," you must consult the citizens, and your selfish requirements, if they exist, must give way to the convenience of the owners of a city, who feel an honest and just pride in the beauties you would have them sacrifice.

WILLIAM SCRIBBLE.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Some anonymous letters having been published in support of the devastating project called the Metropolitan Railway, and the writers, not having confined themselves to exaggerated praise of the speculation, but having assailed in no measured terms the Corporation for daring to oppose the contemplated ruin of the city, would you permit me, as a member of the committee having charge of the opposition to the bill, to state some of the reasons which have caused the Corporation to oppose the project.

Shortly after the notice of the bill was given, the most influential aggregate meeting of the citizens of Dublin I remember to have been held at the Mansion House, pronounced in decisive terms against the bill. At that meeting our first citizen, Mr. Benjamin Lee Guinness, and a number of other gentlemen, representing every shade of opinion and every local interest, spoke in the strongest terms against the bill.

The promoters of the railway have not ventured to hold a public meeting in its favour. Thus far the public opinion of the city has decidedly declared itself against the project.

Despite the false impressions endeavoured to be produced by pretty and delusive pictures, every im-

partial person will admit that the railway would destroy the business and appearance of at least two of our principal streets, and the utility and appearance of a large portion of our river.

Dublin is already amply provided with railway stations at convenient distances from almost every portion of the city, the most distant of which could, without difficulty or inconvenience, have been brought at least half a mile nearer the centre of the city, was it considered desirable to do so.

Comparatively few passengers pass through Dublin without stopping at least a day, although existing railway arrangements would in many instances enable them to do so without an hour's delay.

The central station would in many instances retard, and in no way facilitate the journeys of the inhabitants of Dublin. While all London, and both Houses of Parliament, are showing indications of hostility to the further progress of London Metropolitan Railways we are called upon to assent to a most objectionable scheme of the same kind in the Metropolis of Ireland.

The Dublin Metropolitan Railway Bill was at first introduced to public notice by a few London capitalists and stockbrokers, aided by covert assistance from some Irish railway boards, and was not called for by any public expression of opinion; it is now supported by misrepresentation and anonymous writers, and an unhappy disposition to differ upon every conceivable subject in Ireland.

If the Corporation had been so remiss in their duty as not to oppose the bill, they would have deservedly merited, and undoubtedly received, a large share of public disapprobation: for doing their duty, they are recklessly assailed; gentlemen discharging public duties in Dublin, consequently, occupy no enviable position. Upon this question, of vital consequence to our constituents, we shall, however, continue to act in accordance with the opinions of the vast majority of the ratepayers, without being deterred by calumny or misrepresentation.—I remain, sir, your faithful servant,  
109, Lower Gardiner-street. JOHN MARTIN.

## THE NEW CATHEDRAL, CORK.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—In my former letters addressed to you on this subject I merely alluded to the questions arising between the Building Committee and the Architects who had the misfortune to enter into this most unfairly conducted competition. I owe a second duty to those who have already subscribed, as well as to those who will be yet called upon to contribute to the necessary and praiseworthy object of providing a dignified and comfortable Cathedral for this diocese.

I have no desire to impede the progress of this most laudable undertaking—far from it; for several years past it has been the earnest desire of my heart to see a suitable edifice supersede the present unsightly and inconvenient structure. But I have every wish to prevent the money of the Protestant public being thrown away on a building which, if erected according to the premiated plan, would be a perpetual monument of the deficient judgment of its promoters, and a source of endless annoyance and discomfort to those who should be obliged to avail themselves of its accommodation.

I shall now proceed to point out what I consider serious objections to the adopted plan.

The design consists of a nave with aisles, two western towers standing within the body of the church, a large central tower supported on four square piers midway between nave and chancel, and forming the choir, furnished with stalls for the choristers, transepts standing north and south of the choir, a very deep chancel, semi-circular at the eastern end, with an ambulatory or broad passage extending from the transepts all round the chancel, the eastern end of the latter opening into the former by large arches closed with ornamental iron gates.

The style adopted by the architect is that prevalent in the north of France in the thirteenth century, of which the churches of Caen and Rouen afford fair types. The style is naturally meagre and severe, hard and rectilinear; and were it executed, would greatly disappoint those whose education gives them no other means of anticipating effects except through the delusive medium of architectural drawings artistically got up; though I admit that the architect has made the most of a bad style as regards the details of his design, particularly in the interior. The external effect of the building will be anything but satisfactory. In dimensions it is but the size of an ordinary parish church, being only 180 feet in length, while it exhibits all the external features of the largest existing cathedrals, those whose length runs to 500 feet and more. The effect of this is to make the building look exceedingly short, and disproportionately high; for those features which produce grandeur in a structure of large extent have a contrary effect on buildings of small size. A church 180 feet in length, 70 feet in height to the ridge, and having three towers and spires, would look a perfect abortion of a cathedral, a swelling attempt to look big, contrary to every principle of proportion and optical effect.

Take away this great centre tower which so much cuts up and shortens the exterior (and incommodes and incumbers the interior), and you will immediately improve its symmetry, giving it the effect of greater magnitude, making it look half as long again.

I know that this centre tower has been a favourite hobby with a couple of the leading members of the committee, who adopted most erroneous and mistaken views on the subject; for at the first selection nearly every design that had not a centre tower was put aside, and amongst them some of the most meritorious and best arranged in the exhibition. Is a centre tower a distinctive mark or feature in a cathedral? I say it is not, nor has it ever been considered so by mediæval architects.

The French examples, admittedly the grandest in Christendom, ignore the centre tower. It is not found at Amiens, Chartres, Bourges, Paris, Poitiers, Troyes, Beauvais, the noblest cathedrals in that empire. Two western towers are the distinguishing features of those magnificent structures, whose lengths vary from 400 to over 500 feet. A similar sentiment actuated the architects of the following great German churches:—Antwerp, Strasbourg, Cologne, Fribourg, Ratisbon, and St. Stephen's, Vienna.

It is true that in some of our English cathedrals the centre tower was adopted, in others not. It is true that Winchester, Rochester, Norwich, Chichester and Salisbury exhibit this feature, but to the exclusion of west-end towers, though these cathedrals range from 400 to 500 feet in length. Exeter has no central tower, as well as others. On the contrary, this feature is the particular and distinguishing characteristic of a parish church in the sister country, as hundreds of the small mediæval churches, scattered through England and Wales, testify. Surely, with such precedents before them, our Cork committee may be satisfied with two west-end towers for their small cathedral, thereby improving both the external and internal effect, and knocking at once £4,000 at least off the cost.

The principal entrance at the west-end is under the organ loft, which stands between the western towers. The congregation are to occupy the nave and aisles, the pulpit being placed against the N.W. pier of the centre tower.

I have before shown the contracted accommodation for worshippers, 466 in number, and that number greatly incommoded by the unusually narrow arches of the nave, and the thick columns between them. Most Gothic churches are defective in their acoustic properties;—this will be specially so, owing to the very great height of the nave, the open roof, and the large vacant spaces at the east-end of the building. Even St. Nicholas Church has far greater advantages in this respect than our proposed Cathedral.

A flight of seven steps leads from the nave up to the choir; to which I most strenuously object. The veneration for high places had a conspicuous position in all pagan rituals, and the introduction of highly raised choirs and chancels in places of worship consecrated to the Christian faith has a significant meaning and intent amongst that ultra-Church party in the sister isle, known amongst us as Puseyites, and whose peculiar ideas of ecclesiastical architecture and arrangement have been most carefully carried out in the adopted plan for the Cork Cathedral.

The choir is placed under the tower, the centre of same being about 80 feet from the organ—a most inconvenient arrangement, in which view I am sustained by the opinions of many eminent professors of church music.

The chancel is of great depth, being, with the choir, in fact fully half the length of the entire structure. At the communion service the ministers will be faintly descried in the dim distance by the worshippers. Opera glasses may help weak sight, but I don't know how the hearing is to be managed, as the communion table will be about 60 feet from the front benches. The position of the officiating ministers will indeed be no comfortable one, with cold draughts of wind sweeping from the transepts round the ambulatories, and in through the open arches of the chancel.

In fact, from its construction, the whole church must be subjected to cold draughts; it could not be more effectually planned to create them in my opinion. Other important deficiencies are to be noticed:—There is no chapter-house, no baptistery, no proper vestry accommodation, no robing-room for the choir; in fact, everything of real proportion, comfort and utility, is sacrificed to a vague idea of grandeur, very doubtfully and indifferently realized.

In conclusion, I am not opposed to Mr. Burges being the architect of our Cathedral, if he can be prevailed upon to forego his peculiar ideas, and make such alterations as will meet the views and feelings of the subscribers.

This letter has been written at the request of several respectable and influential citizens, who are exceedingly anxious about the matter. I have taken upon myself a very unpleasant duty, which I hope I have discharged in a proper spirit.

Sunday's Well.

R. ROLT BRASH.

## CORK CATHEDRAL COMPETITION.

THE following letter on same subject was addressed to the *Building News*;—

SIR,—On reading Mr. Burgess's letter in reply to Mr. Brash, in the *DUBLIN BUILDER* of last month, really my impression at the time was that a portion of it, at least, was intended for nothing more than a piece of "chaff," and merely for the benefit of Mr. Burgess's Irish brethren. I was therefore rather surprised to find the same argument (or chaff) on the question of cost repeated in the *Building News*, and which, unless noticed, your English readers may perhaps imagine is looked upon at this side of the water as being a satisfactory settlement of the question.

I should be very sorry myself to insist on a committee adhering to the letter of their instructions and conditions in point of cost, where the excess of an estimate was within anything like reasonable limits; but doubling the amount, I conceive, is going rather far.

I shall apply Mr. Burgess's style of argument to the opposite side of the question, and I think that even he will admit that the application is much more reasonable and natural than as used by himself:—"It is obvious to remark that had the money" not "been intended to include tower and spire, nothing could have been easier than to say so."

And I may ask, if the money had not been intended to include tower and spire, will any reasonable individual maintain (even giving them credit for possessing all the concentrated essences of committees in general) that this committee could, by any possibility, or through any amount of carelessness or stupidity, have been guilty of the omission of such an important piece of information? And even if they could have been such blockheads, must not the information have been elicited by the remonstrances made (by myself for one) as to the inadequacy of the sum mentioned in their instructions.

(A doubt existed in my mind as to the materials of the present building, and, on putting the question to the Secretary, I was informed that architects should not reckon on even the value of the old materials, as that was represented in the £15,000; which sum was to include everything.)

I can only conclude that Mr. Burgess in his "ingenuity," and its influence on his reading of the "instructions" (by crediting the committee with such an extensive amount of stupidity as the omission of such a point would imply), formed as complimentary an opinion of the individuals composing it as he must have done of the common sense of Irish architects, by meeting with such kind of argument the reasonable protests which have been made against the selection of a design which violates so outrageously the very important condition of cost.

PADDY.

P.S.—Mr. Burgess, will, of course, understand, that the above remarks are made without the slightest feeling against himself personally. For myself, I shall be delighted, in the interest of art, to see his design carried out in its integrity. At the same time it is really too bad, that when so much is written by yourself, as well as others, about the morality and abuses of competitions, that a man of Mr. Burgess's standing—a master in Israel—should back up a committee in their wrong-doing with such a plausible style of argument. The only result of his (no doubt, well-intentioned) assistance is this—that if the committee endorse his readings of their instructions, they must also endorse themselves—something which I suppose they would rather not—or else, by rejecting his interpretation, reject him also, and admit that they have erred, which, I presume, they would be equally unwilling to do. A committee, however, being a body minus soul and conscience, of course they will do neither.

"P."

## ITALIAN ARCHITECTURE AND ITS VARIOUS EUROPEAN OFFSHOOTS.

WE give an abstract of a paper, by Mr. S. Huggins, read at the Liverpool Architectural Society, comprising a Historical and Critical Survey of Early Renaissance, Cinquecento, and Modern Italian Architecture. Treated as one continuous style or connected series of styles, tracing its various mutations from its earliest dawn to the present century, and its varied branchings into all the countries of Europe, including its career in Spain, France, England, Germany, the Netherlands, Russia, and the Scandinavian lands, with a descriptive and critical account of the most noted and typical edifices in each style. It is to form the concluding part of a volume shortly to appear under the title of "The Course and Current of Architecture," elsewhere alluded to, being a history of its various simultaneous or successive phases in all times and countries.

The author remarked that Italy, the hot-bed of art, which had witnessed the full development and application of the columnar system of Greek archi-

ture, and its coronation by arch and dome, became the scene of its revival. The first awaking of antique art in the West was owing to the increased intercourse occasioned by the Venetian conquest of Constantinople, in 1203, between the Italian and Byzantine artists, among the pupils of which latter was Nicolo Pisano, the father of modern sculpture. In his architectural works—for he was architect as well as sculptor—we saw the earliest dawn of modern architecture which first assumed that unique form which had received the name of Renaissance—a style distinct from the Gothic of Italy, which it superseded, and from the more purely antique, to which it led. He had placed the day-spring of the Italian style at an earlier period than it was generally referred to, and to an earlier period than might be at all supposed auspicious to such an event.

But this 13th century witnessed a change in more than one department of intellectual inquiry. It was a significant fact that painting and sculpture and architecture became freed from their thralldom at the same time as physics and mathematics. Cimabue, N. Pisano, and Arnolfo of Florence, the fathers of painting, sculpture, and architecture, respectively, were contemporary with Roger Bacon, the founder of experimental philosophy, by which tyranny and persecution were doomed. The waters of barbarism still flowed over Europe, but they were abating. Italy, the Ararat of the intellectual world, was heaving her head above the floods, and art, like the dove from the ark, could find rest for her foot.

In the 13th century, the schoolmen, with Aquinas and Duns Scotus at their head, were still all potent in Europe; but on the threshold of the next appeared the three renowned fathers of Italian literature—Dante, Petrarch, and Boccaccio—whose contemporary was Giotto, one of the greatest names of which the art could boast. The next great architect to Arnolfo was Giovanni da Pisa, the architect of the Campo Santo at Pisa—perhaps the most beautiful cloister in the world. This was an attempt at the new style, which was formed by a blending of the two styles, Gothic and Classic.

Mr. Huggins entered into a full description of the general style and of its system of decoration, which had other sources than the Gothic and Antique, in the gorgeous styles of Byzantium and the Saracens, through Venice and Sicily. This style he considered reached its perfection of beauty in the 15th century at Venice and the Venetian cities, and in Lombardy. The Certosa at Pavia, and the court of the great Hospital at Milan, were transitional specimens, conducting to the full Italian or Cinquecento style. This Renaissance was the general style of Italy till the end of the 15th century, when it gave place to the Cinquecento or full-grown Italian, which had first appeared in the works of Brunelleschi about 1430. It did not, however, cease to be practised on the introduction of the severer style, but continued in Italy, and was employed concurrently with it; and it was from this later development of the style that the various Transalpine versions of it were derived, and not from the earlier phases—the Trecento and earlier part of the Quattrocento. These Transalpine offshoots stand at different distances behind the parent style in classic beauty as well as in consistency and truth, from the antique being less understood, and its charms less felt, in the West than in Italy. In each Western country, too, what was derived from the Italian was greatly modified, not only by artistic disabilities and inferiority of resource, but by peculiar national feeling. As the same seed falling on different soil must produce different fruit, so these Renaissance styles of Europe, though they had their source in the same parent style of Italy, soon diverged very widely apart, and became very different phases of art. They generally showed the same predilections as regards form and proportion, as well as decoration, which had been exhibited in the national Gothic.

Entering then into a full description of the complete Italian style, which first appeared in tolerable perfection in the works of Brunelleschi and Alberti, Mr. Huggins pointed to several edifices of the Italian peninsula which illustrate it, and to the leading architects who wrought in it, and by whom it was brought to perfection.

Among the celebrated examples of the perfected Italian architecture he cited, a considerable difference might be observed in the mode or manner of applying the antique elements to modern purposes, arising chiefly from local circumstances of different cities of Italy. Local distinctions had become visible at an early period of the Italian Renaissance; but now we had three distinct schools—the Florentine, the Roman, the Venetian—founded respectively by Brunelleschi, Bramante, and San Michele.

Mr. Huggins entered into a full description of these schools, and pointed out their leading characteristics. It was to the Venetian the honour of having best succeeded in adapting the antique architecture to modern wants was due. The works of its founder, San Michele, at Verona, and Sansovino, at Venice, while

they were among the most successful ever reared for harmony and beauty of form and proportion, and refinement and elegance of detail, exhibited the Classic style completely bent to modern uses and re-formed on modern ideas. Palladio was their true disciple, and followed in the same spirit, enlightened and refined by the practice and influence of contemporary schools and further study of the antique. After no great lapse of years these three schools became less definable. As the Florentine school arose earliest, so it appears to have been earlier lost. It imbibed the spirit of the Roman, and at length lost its own distinctive character. The Roman again assimilated to the Venetian, which spread throughout Lombardy, and became the chief source of the succeeding style of Italy, and mainly supplied the various streams of art in Transalpine Europe; Spain, France, England, Germany, and Belgium equally following, in a manner characteristic of each particular country, in the footsteps of Venice. This style was sometimes called Palladian, from the fact of Palladio having fully developed and absorbed into his own system the styles of his great predecessors of the school, and from his having greatly amplified the resources of the school or sub-style by introducing into it what would harmonize therewith of the Roman school.

He remarked that no style was ever more bountifully aided by the sister arts of painting and sculpture than the Italian; and after describing the two great systems of ornamentation wrought out for it, the Arabesque and the Pictorial, he entered into a defence of the omission of symbolism, by which this style differed from the preceding Christian styles. The aesthetic ornament replaced the symbolic of the Gothic, because symbolism was felt to be no longer needful. Architecture's office of teacher being superseded by the printed page on the invention of printing and diffusion of education among the people; since which event doctrinal truths were best inculcated, and the will and the affections would be most powerfully operated upon through the medium of literature. The modern Italian system of architecture was carried on in tolerable purity till the time of Bernini and Borromini; and the latter half of the 16th century witnessed the erection of edifices of great merit, though not equal to earlier works. By the two last-named architects, novelty being sought for its own sake, and with little regard to beauty, the style became corrupted, till at length, towards the latter end of the 17th century, it appeared quite a degenerate variety of the original style. About the middle of the 17th century the singular style of ornamentation, called the Louis Quatorze, was introduced from France, where it had been developed and perfected. It was succeeded by the Louis Quinze or Rocco style, which was little beyond a debasement of its predecessor. Improvement dawned in the 18th century on the manner bequeathed by Bernini and Borromini, and the style was pursued by Galilei and Ivrea, and by Vanvitelli, who designed the Caserta Palace at Naples.

After tracing the parent style through all its phases, Mr. Huggins described its different branches in Western and Northern Europe. Owing to Spain being more exclusively Catholic, and under the influence of the Roman clergy, it was the first country that received the Italian Renaissance, which entered the Peninsula in the reign of Isabella, to pursue a very different course from that it had run in Italy, or was destined to run in France and England. The spirit and character of the middle age, which in Spain, coloured by Moorish poetry and art, legend and romance, had attained to its utmost perfection, and reached its last exquisite bloom—which had manifested itself so vividly and beautifully in the preceding Romanesque and Gothic, Saracenic and Mozarabic styles—continued and survived longer in that country, embalmed in manners, ways of thinking, intellectual culture, and works of imagination and poetry, than in any other. It was to this—to her escape from the convulsions of the Reformation, and to the enormous wealth that was poured into her lap at the close of the 15th century by the discovery of America, and to the direct and potent influence of the poetic art of the Moors—were owing the extraordinary richness and beauty of the architecture of Spain, rather than to any superior aptness for architectural conception and design on the part of the Spaniards.

After having described the style and traced its mutations to the present time, Mr. Huggins proceeded to the French branch—a most interesting and beautiful one—and from that to the English, German, Dutch, Belgian, Scandinavian, and Russian branches, through which, however, our space will not allow us to follow him, and concluded by remarking upon the folly of the present hankering after a new style, all the styles that had hitherto arisen having been the result of circumstances the like to which had not occurred in our age.

A brief discussion followed the reading of the paper, and the thanks of the Society were unanimously voted to Mr. Huggins.

## ARMAGH ROMAN CATHOLIC CATHEDRAL.

Our illustration for present number comprises a perspective view of this noble edifice, at present in course of erection, from the designs of Mr. J. J. McCarthy, architect. A few brief particulars of the general features and arrangements have appeared in previous numbers of this journal, but we reserve a complete description of the whole for our next impression; want of space forbidding its insertion in this.

## IMPROVEMENT OF CLONTARF.

It has been remarked that for many years past the northern suburbs of this city, or indeed the northern district of the metropolis itself, have by no means kept pace in the matter of general improvement, or extension, with the southern; but on the contrary the former have visibly retrograded while the latter have been both wearing a better aspect on the surface of "their former self," as well as spreading their progressive tendencies over a newly acquired territory of considerable area. Comparing the amount of improvement that even in the last decade have been effected in the immediate suburbs of Rathmines, Rathgar, Waterloo, Pembroke, and Raglan roads, &c., &c.; or in the more distant of Monkstown, Kingstown, Killiney, Shankill, Foxrock, Bray, &c., with those of Drumcondra, Clontarf, Dollymount, Raheny, Howth, &c., the fact is forcibly demonstrated. It is gratifying, therefore, to observe reactionary signs in dull places, and, perhaps, in none of the localities named are these so manifest as in Clontarf. But a very short time since the main road along this healthful and picturesque outlet was studded with structures in the last stage of dilapidation, presenting a series of eyesores to visitors who might naturally expect to find along the sea-shore contiguous to a populous city—if not lordly mansions, handsome villas and terraces—at least a respectable class of residences generally. However, with pleasure do we now notice a gradual transformation; many of these structures having been already razed, and (as we are informed) others are on the eve of demolition. Close by Vernon-avenue—between Rutland-terrace, and Mr. Gausson's property—the old and dilapidated mud and thatch cabins have been completely swept away, and a terrace of five modern-fashioned dwelling-houses with red brick fronts, and commanding oriel windows, and neat capping cornices erected in their stead; one at each wing being two storeys with basement, and the three intermediate one storey with offices at rare; all internally planned commodiously. One of these at the end nearest town is the property of Mr. Kenny, of Earl-street, for the erection of which Mr. John Bourke was the architect, and Mr. Hughes the builder; and the other four have been built by Mr. Tickell, of Mary-street, under the direction of Mr. J. J. Lyons, of Lower Gardiner-street, architect, and proprietor of the DUBLIN BUILDER, who also designed the alterations and improvements at Mr. Tickell's own residence at Mercamp, and the new villa adjoining in Vernon-avenue. There yet remains a very unsightly block of ruins between Beechfield and the chapel-house, which, through the enterprise of some speculators, we hope to see removed in the course of the ensuing spring, when doubtless the spirit of improvement will receive an additional impetus here as elsewhere.—*Irish Times.*

## SCULPTORS AND SCULPTURE.

Mr. Story, the American sculptor, whose "Cleopatra" and "Libyan Sibyl" attracted so much admiration at the International Exhibition, has just completed a clay model of "Saul," hereafter to be erected in bronze.—*Athenæum.*

Mr. Gibson, R.A., is modelling a dancing girl, the result, it is said, of several studies made during the visit of Cerito to Rome.

Mr. Earle has just finished a seated statue of her Majesty in Sicilian marble, which is to be placed in the People's Park at Hull.

Baron Marochetti's statue of the Duke of Wellington, for Strathfieldsaye, is nearly ready.

Mr. Steell's statue of the late Marquis of Dalhousie is now completed, and about to be sent off to its destination in Calcutta. It is the first piece of native sculpture of any magnitude that has been ever sent from Scotland.

## Public and Private Works.

The designs and working drawings for the new Lunatic Asylum for the county of Clare have received the approval of the Board of Control, and tenders will shortly be united. Messrs. Fogarty, of Limerick, in conjunction with Mr. Adair, county surveyor, are the architects. The building is to be in the Italian style, and is intended to accommodate

260 patients. About forty acres of land have been purchased for the site within a mile of the town of Ennis. A boundary wall is at present in course of erection, under the supervision of the architects, by Messrs. Ryan, of Limerick, who are the contractors for that portion of the works.

A new cemetery is being formed at Kingstown.

Some additions have been made to the Dundrum gas works and the extension of the mains to Roebuck completed. The contract with Messrs. Edmundson and Co. is stated to be working satisfactorily. A dividend of 5 per cent. per annum is now being paid.

Mr. S. Huggins, of Chester, architect, and the author of many valuable papers and essays on architecture and art, is preparing "A Chart of the History of Architecture," showing, under the similitude of streams, the rise, chronological sequence, relations, and periods, of the various known styles, of all countries and ages, together with its companion volume, in post 8vo., following through all its ramifications, and comprising the entire history of the art, entitled "The Course and Current of Architecture." These works are to be dedicated to the president and members of the Liverpool Architectural and Archaeological Society, and are sure to be—as has been every work with the authorship of which Mr. Huggins's name is associated—valuable acquisitions.

The Government have declared it not to be their intention to authorize the Board of Public Works to proceed with any works of arterial drainage at present.

A member I.C.E., writing to the *Irish Times* on the subject of tramways, says they can be formed for about one thirtieth the cost (or £500 per mile) of railways, and would give employment to skilled and unskilled labour, to the carpenter and blacksmith, as well as the mere labourer or navvy.

The restoration of Down Cathedral is nearly completed. It has been repewed, and the old work repainted and revarnished, also new heating arrangements perfected.

An appeal is made by the Roman Catholic Primate for funds to complete the unfinished cathedral of Armagh.

Efforts are being made by the Belfast Corporation to effect an improvement on the Shankill road by lowering Bower's-hill.

A new convent and schools is being erected for the Christian Brothers at Harrington-street, according to plans by Mr. John Bourke, architect.

The Christian Brothers at North Richmond-street are also adding to their extensive schools. Mr. Patrick Byrne is the architect.

Upwards of £5,000 have been received in subscriptions for the O'Connell National Statue through the medium of the *Freeman's Journal*, which has been indefatigable in its exertions to bring about this much-desired consummation.

The new mineral railway works at Kingstown are approaching completion. The girder bridge at the coastguard station is finished except the planking. The coal quay line, which is to have three pair of rails, has been commenced. Mr. P. McDonagh is contractor for the masonry portion.

A sessions house is about being built at the village of Adare, county Limerick, for the Earl of Dunraven, from drawings, &c., furnished by Mr. W. Fogarty, of Limerick, architect. It is to be in the Gothic style, with stone dressings, mullioned windows, and a clock turret. The public room occupies the first floor, and a residence for the constable the ground floor. Mr. M. Walsh, of Foynes has been declared contractor.

A handsome ball room has been formed and fitted up in the upper portion of the Town-hall at Loughrea, and is of sufficient capacity to accommodate 300 guests. The floor has been prepared specially for dancing. A spacious staircase leads thereto from the ground floor, on which are situated cloak rooms, &c., for ladies and gentlemen. *En suite* with the ball room is a large supper room. A fine kitchen with hot hearths, &c., and other offices are also provided. The architect was Mr. S. U. Roberts, C.E., and the contractor Mr. H. Stone of Eyrecourt, on whom (says the *Loughrea Journal*) the work reflects the highest credit.

The church of Abbeyleix, Queen's County, is to be rebuilt under the direction of the Ecclesiastical Commissioners' architects; also that of Wood's chapel, County Tyrone.

The Parish Church of Swords in this county is to be repewed and otherwise refitted.

The first section of the proposed reclamation of the river Fergus navigation is about to be proceeded with in the construction of an embankment according to plans, &c., by Mr. G. W. Hemans, C.E.

Premiums of £20 (for best) and £10 (for second best plans) respectively, are offered by the new Presbyterian Church Committee at Waterside, Derry; the buildings to include church, school rooms, and manse.

An agent's house is being erected at Foynes, county Limerick, on the estate of Lord Montezagle, by the same architect and contractor. Cost about £600.

## Miscellaneous.

REMINISCENCES AT WALSALL OF THE CELEBRATION OF THE ROYAL MARRIAGE.—The *Local Advertiser* says that a considerable bustle was occasioned at the Railway Station and Telegraph Office, during the week previous to the event, by the *Van Train* parcels of Gas Devices, manufactured by Lambert Brothers, of the Old Tube Works, which detained the otherwise time-bound officials till somewhere near break of day, to despatch them towards their varied destinations; large cases some 20 feet long by 6 feet wide, for Jersey, Cork, Perth, Glasgow, Inverness, and strange places innumerable, evidently puzzled the geography of the officials. We hear it quoted that Lambert Brothers received and forwarded in a few days no less than 159 telegraphic messages connected with the occasion, and that the carriage rate on a single day amounted to over £30 on the cases sent by them via London and North Western Railway alone; all the Great Western (Wednesbury Station) vans were noticed full at same time. Messrs. Lambert Brothers drilled on the occasion considerably more than 400,000 jets which they compute would burn over 500,000 cubic feet per hour; these calculations they say are within the reality, as many special devices they have not taken into account. They did not drill a jet prior to the 17th February, being only three weeks on the work, and only for nine days had they any extensive force on it, as they had not at all anticipated the demand which continued to increase up to Thursday, March 5th.

PARISIAN THEATRES.—Of the new theatres in Paris so much has been said in the two architectural journals lately, that I will not detain you by a long description of them. They are among the most important structures of Paris—not only for their architecture, but for the new methods of lighting and ventilation employed in them. Theatres are the kind of edifice in which the architecture "Rageur" can be best introduced with the least care for architectural principles, and with the greatest amount of effect. The two theatres in the Place du Chatelet are striking examples of this assertion. There are, it is true, many faults to find with the exteriors; but they are due in great measure to requirements forced on M. Davioud, the architect, by the Prefect of the Seine. The interiors are as great an advance, at one leap, in architectural decoration, as I have ever seen. I must draw your especial attention to the two circuses built lately by M. Hittorff. The Cirque d'Imperatrice in the Champs Elysees for the summer reproductions, and the Cirque Napoleon on the Boulevards for the winter ones, are both of them buildings of great artistic merit and constructive genius.—*R. Pherepsiers on Architecture of Napoleon III.*

THE DUTCH SCHOOL OF PAINTERS.—When the wealthy merchants of Holland not only purchased the works of the great Italian painters, such as Carlo Dolce, Correggio, and others, but also imported productions of art from all parts of the world—cabinets from Japan, table-cloths from Persia and the East, and marbles from Italy; that was a period in which it might be said that a taste for the luxurious in art existed amongst the wealthier classes in that country, and this gave rise to the Dutch school of painters, which included the names of Rembrandt, Ostade, Hobbema, and other great men; but in more recent times this taste for the higher productions of foreign art appeared to have declined, and in the exhibitions of painting held in Holland within the last few years, they did not find the works of the great Italian masters, showing that such works were not now sought as formerly by the great Dutch collectors, who were more inclined to purchase the works of their own school, and this change of taste had also acted favourably on modern Flemish art. No country whatever had produced pictures so perfectly in accordance with the spirit of the nation as Holland; and it might be truly said that the social history of the people was recorded in the pictures produced by the artists of that country.

TRUE WORKERS.—It was the modest saying of Sir Isaac Newton, "If I have done the public any service, it is due to nothing but to industry, and patient thought." The path to success, in every department in life, lies along the old highway of steadfast well doing, and they who are actuated by determined persevering application, will seldom fail to attain the object of their pursuit. The efforts of genius if fitful and spasmodic, will effect but little. Such volatile and unsteady natures are sure to be outstripped in the race of life by the diligent and persevering, although devoid of those shining, dazzling qualities which usually command admiration. Steady perseverance, though slow, goes far in a day. The history

of James Hargreaves, the inventor of the spinning-jenny; of George Stephenson, the Railway pioneer; of Hutton, the Bookseller; of Hugh Miller, the Geologist, and scores beside, that might be mentioned, show how much may be effected under the most disadvantageous circumstances, where there is application and determination of purpose; and that it is neither meanness of birth, nor lowliness of occupation, nor poverty of condition, that can present an effectual barrier to the man who is resolved to rise. The coal-pit, the blacksmith's smithy, the tailor's board, the carpenter's shop, the weaver's loom, the mason's shed, the shepherd's hut, have all sent forth men who have been great in science, literature, and art. Thus presenting proof to the world, that in the lowliest calling the true worker may win the very loftiest results.—In every workshop and manufactory the British workman is reminded of this fact, inasmuch as there is not one which does not furnish some display of that inventive skill, and plodding industry, which have laid the foundation, and built up the industrial greatness of the British Empire, and for which it has been mainly indebted to men who sprang from the working classes.

**THE ROYAL ARCADE HOTEL.**—This old established concern has recently changed hands, having passed from the representatives of the late Mr Spadacini to the present proprietor, M. Mouillot, and the largely increasing patronage enjoyed by it rendered it imperative to secure additional accommodation by including some available adjoining premises. The house No. 3, Suffolk-street, lately occupied by Mr. Glennon, was purchased a short time since by M. Mouillot, and with some judicious alterations and additions, a suite of apartments, comprising new coffee, private sitting, and numerous bed-rooms are thereby attached—with every facility of access on each storey—to these already vast concerns, which extends from that street to College-green, presenting a handsome architectural front to each. The several works throughout have been executed under the directions of Mr. J. J. Lyons of 26, Lower Gardiner-street, architect, by Mr. J. G. Meighan, the contractor.

**THE ARCHITECTURAL MUSEUM, SOUTH KENSINGTON MUSEUM.**—Session 1863.—The following is the remaining portion of the programme of lectures to be delivered in the theatre, viz.—Tuesday, 7th instant, on Mediæval Studies in Palestine, by J. J. Wisley, Esq.—Tuesday, 21st instant, on the Ely Lantern, by the Very Rev. the Dean of Ely.—Tues-

day, May 5th, on Construction and Ornament, Old and New, by Sir Henry Dryden, Bart.—Tuesday, May 19th, on the Wrought-Iron Work of the Great Exhibition of 1862, by William White, Esq.—Tuesday, June 2nd, on the Art Collections at South Kensington, considered in reference to Architecture, by J. C. Robinson, Esq., F.S.A.—Tuesday, June, 16th, on Architecture, its Purpose and its Place among the Arts, by T. Gambier Parry, Esq. The following prizes are now offered to artist-workmen, viz.—for wood carving: prizes of £20 and £5; for coloured decoration: prizes of £5 5s. and £3 3s.

**WATERWORKS ARBITRATION.**—On 23rd ult. Mr. Fishbourne proceeded with the arbitration in the cases claiming damages for injuries done to property by the new waterworks. Messrs. Bentley and Son claimed £8,249 7s. 6d., for loss sustained in 50 acres of their grounds at the new reservoir. The amount was as follows:—Land for the reservoir, 2r. 5p at 30 years' purchase, £242 7s. 6d.; injury to 50 acres injured by the continuity of the reservoir, at £1 per acre, at 30 years' purchase, £1,500; way-lease for 2,577 yards of pipes, at 1s. 2d. per yard, the pipes to run through 50 plots of building ground, thus injured to the extent of £3 per annum per plot, at 30 years' purchase, £4,500; consequential injury by the general interference with the property pending the execution of the works, as most people would decline to build or take houses while the neighbourhood is occupied by navvies, £2,000—making the total of £8,249 7s. 6d. Mr. Brett, County Surveyor for Wicklow; Mr. Frith, County Surveyor for Dublin; and Mr. Carson, C.E., were examined on behalf of the Messrs. Bentley, and proved that damage was done to the extent of the amount claimed, as value for the loss sustained.

**CRYSTAL PALACE.**—Good Friday falls this year on the 3rd. It is always one of the great days at the Crystal Palace. For the past few years the attendance has averaged between 40,000 and 50,000 on each Good Friday. For the coming good Friday the special attractions are unusually varied. Mr. Sims Reeves, Madame Rudersdorff, Mr. Weiss, Mr. Thos. Harper, Mr. Levey, and other artistes, will take part. The celebrated Orchestral Band of the Company, under the direction of Mr. Manns, strengthened by the band of the Coldstream Guards, will perform some of the most celebrated instrumental works. The Concert commences at three, and usually lasts until a little past five. The

entire floor of the Palace and the first tier of galleries will be open to the public, admitted to the Palace at the usual one shilling rate. The front rows of seats in the Great Orchestra will be fitted up as reserved seats at half-a-crown, as will also the second and upper galleries of the great transept. The back rows of seats on the Orchestra will be reserved at one shilling each. As usual on good Friday, the Palace will be opened at nine in the morning. At dusk it will be lighted up, to enable those who like to spend a long day amid its varied attractions, returning at leisure. As it happens to be full moon on the following morning, those visitors who stay late will witness the Palace by moonlight. The Palace will remain open for admission from nine in the morning, and extra entrances and exits for excursionists will be provided.

TENDERS.

For Sessions House, at Adare, County Limerick, for the Right Hon. the Earl of Dunraven.	Mr. W. Fogerty, Architect.
Wallace and Son, Limerick	.. .. £921
Ryan, do.	.. .. 680
Hunter, Bandon	.. .. 640
Scantlan Bruff	.. .. 615
Walsh, Foyes (accepted)	.. .. 595

TO CORRESPONDENTS.

J. P. (will avail ourselves of suggestion).—SRNEX (thanks). M. F. M. (do.).—VERITAS PIERVALIBET (no room at present, but perhaps hereafter).—J. G. G. Ennis (not aware).

NOTICE TO PUBLISHERS AND AUTHORS. —Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABOTT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET.

Mr J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Mr. Lyons also holds commissions for supply of Cuen, Glasgow, Bath, Forest of Dean, and Welsh building stones.



# TO ARCHITECTS AND BUILDERS. Stained Glass.

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Enamelled Flocked Patterns for obscuring the view, suited for Water-closets	1 4	Ruby Ground, with Bright Ornament	1 3
Ornamental Enamelled White Pannelled	0 10	Ditto, Blue	1 6
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(By order,) M. ANGELO HAYES, Secretary,  
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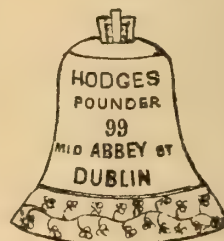
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# The Dublin Builder.

VOL. V.—No. 80.

## WHAT ABOUT THE INSTITUTE?

**T**O the numerous enquiries, personal and verbal, of this purport, we communicate the following in answer; but, be it remembered that, as we are not privileged to attend at "Council" deliberations, the particulars relative to same herein conveyed, are necessarily only collected from information otherwise obtained, but which we can assure our readers is substantially correct.

In our last issue we announced that a council meeting was to have taken place on 30th ultimo, to consider "a house list" of president, vice-presidents, council and officers, for ensuing year, to be submitted to the members of the Institute at a subsequent general meeting; and we have since learned that such a meeting *was* held on that date at the architect's office, Board of Public Works; Sir T. Deane, and Messrs. C. Lanyon, Jacob Owen, P. Byrne, George Wilkinson, S. Symes, J. H. Owen, and F. V. Clarendon, being present.

A list had been previously prepared, nominating as President—Mr. Charles Lanyon.

Vice-Presidents—Sir Thomas Deane, Messrs. Jacob Owen and P. Byrne.

Council—Sir John Benson, Messrs. S. Symes, George Wilkinson, F. Darley, J. J. McCarthy, F. V. Clarendon, and Parke Neville, C.E.

Treasurer—William G. Murray.

Auditors—J. McCurdy and N. Montgomery.

Honorary Secretary—James H. Owen.

It was also proposed to appoint an *assistant* secretary (to lighten the arduous duties of the honorary, and, in a word, to *do the work required* for the proper maintenance of the Institute), at a small annual emolument, for which a certain name was suggested; but we need hardly add that such a post would be indignantly repudiated by *any* member of the architectural profession having any respect for himself.

This meeting separated without arriving at any conclusion, and reassembled on the following Wednesday; it was next adjourned to last Saturday, at which it was resolved to call a general meeting on the 23rd inst.

That our readers may now be acquainted both with the constitution as proposed, and as it existed in 1856, *since which year there has been no election*, we subjoin the last return of "the guiding powers" of the former "model" Institute, viz.—

President—Marquess of Clanricarde.

Vice-Presidents—Jacob Owen, George Papworth, R.H.A. (deceased), Patrick Byrne.

Council—Sir John Benson, Sir Thomas Deane, Fred. V. Clarendon, S. Symes, Charles Lanyon, Joseph Welland (deceased), and Geo. Wilkinson.

Treasurer—Wm. G. Murray.

Auditors—John McCurdy, Nathaniel Montgomery.

Hon. Secretaries—Parke Neville, James H. Owen.

It will therefore be seen on comparison that the only change proposed to be effected is the translation of Mr. Lanyon from the council to the presidency (the president being likewise a member of council); of Mr. Neville, from honorary secretaryship (also a council officer) to the council; the election of Sir Thomas Deane as vice-president, and of Messrs. F. Darley and J. J. McCarthy as two *new* members of council. This last appointment of *two* to the vacancies created by the deaths of Messrs. G. Papworth, V.P., and Joseph Welland (Council member), is, in fact, the *only new* element in the revived constitution—all else is nought but a little shifting here and there—the old story over again in a slightly modified form. We have warned the Institute so frequently of the fatal results sure to arise from any mistakes committed now, that it is almost unnecessary for us to repeat the warning, but we must add that this "house list," as proposed, is not in accordance with the wishes or

intentions of the members of the profession at large, or what it would be if their votes were uninfluenced, and that it will, if persisted in, most assuredly lead to complications—nay more. In plain truth, it is not reconcilable with consistency for a few gentlemen who had held office six years since in the Institute (and who, to maintain their respective positions legally, should, according to Section V. of the bye-laws, "be annually elected at a general meeting, which should be held on the third Thursday in November"), to start up now, and say to the profession, *We are "the council;" we are "the officers" of the Institute; we have sat and deliberated as to whom we should recommend for your future council and officers, and, with two exceptions, we tell you to vote for ourselves, and replace us in that trust, to fulfil which we so signally failed before; bringing this self-same Royal Institute of Architects in Ireland to a position of degenerate nonentityism, and allowing it to remain virtually defunct for six years. Does this council (by courtesy) lay the flattering unction to itself, that either the majority of the present independent members, or any of the thirty-three gentlemen who have applied for admission into the revived "broader basis" Institute will tolerate this proceeding, or that the latter will consummate their proposed adhesion to a body, in the election of whose officers they are not even to be permitted a voice? We know to the contrary.*

We have no wish however to point out difficulties without suggesting the means of obviating them, and what now seems the most prudent, and the *fairest* course to adopt is, for the present members of the Institute to proceed forthwith to the election (dispensing with the stupid "house list" altogether) of a *temporary* president, vice-presidents, council and officers, until the third Thursday in November (the proper date appointed by the bye-laws), such election then to be ratified, or annulled as the case may be, at a general meeting; the eligible new members being drafted in in the interim. Any other proceeding would clearly be irregular and uncourteous, and may lead to results which we would rather not anticipate. Whether council, &c., be temporary or permanent, we are decidedly opposed to absentees (gentlemen without any town residences or offices) on the one hand, or those who *will not or cannot* attend the meetings regularly on the other, being placed thereon. A return of the attendances of council members of the former Institute (if same be procurable, which, from the manner in which affairs were generally conducted, we confidently apprehend is not) would doubtless disclose some interesting facts as to the diligence of office bearers. The ill-judged quorum of *three*, which, according to section VII., constituted a legal meeting, and virtually left the management of the Institute in the hands of the two honorary secretaries and another, is one of those many features in the bye-laws which will demand, and will receive, immediate alteration as soon as some new and independent blood is infused into its veins.

We await with some curiosity this long (*too long*) expected general meeting, at which this potent house list is to be presented; and our readers may rely on a faithful chronicle of the proceedings thereat, which, judging from the smart passages of arms at the recent council meetings, promise to be of an uncommonly interesting and exciting character. The revived Institute has passed through circumlocutory preliminaries enough, and it is quite time that it should be in *full working order*.

## COMPETITION.

### ONE HUNDRED POUNDS PREMIUM!

**VERY** much above the usually proffered prize figure for Irish works, is the announcement lately made by the committee of the proposed lunatic asylum at Monaghan, to award a premium of £100 for the best plan for their buildings to accommodate 300 pauper lunatic, with infirmaries, residences, out offices, &c., &c. The premium, however, will not be awarded if the successful architect be employed to carry out the work; and, therefore, it will be simply a distinction without a difference and no premium at all, unless the result of one man's brains be purchased and handed over to somebody else,—though it is stated that the committee otherwise desire.

## ST. PATRICK'S CATHEDRAL, ARMAGH.

**RELATIVE** to this building, which formed the subject of illustration in our last issue, we subjoin particulars as promised.

The late Mr. Duff, of Newry, architect, furnished the original plans—providing for an edifice in the Perpendicular style of Gothic, with its characteristic low-pitched roofs; and, that distinguished architect superintended their execution to the level of the aisle walls, and to the completion of the internal arches and pillars; but subsequently, after his decease, and after a lengthened suspension of the works—viz., from the year 1847 to 1854—Mr. J. J. McCarthy, architect, was appointed to finish the cathedral.

In the interim of the period above-named a revival movement in ecclesiastical art having taken place, the original style was forsaken and that of the Middle Pointed adopted, by Mr. McCarthy, in preference; some alterations in the important leading and detailed features were also determined on. The plan of the building, as being now carried out, is cruciform, with nave, aisles, transept, choir, and sacristy—the last-named feature being added on the south side by Mr. McCarthy; an organ gallery of commodious size is also at west end (as seen in the illustration). Great arches, 80 feet in height, open from transept into choir and nave, and a triforium, with variegated marble shafts and traceried arches over nave pillars, forms a remarkable and handsome feature. The internal dimensions are 210 feet by 76 ft., the breadth across transepts being 120 ft. The roof, which is high-pitched, has groined ribs, and elaborately decorated panelled interspaces of timber work stained and varnished. The pews and fittings throughout are of suitable character, and are also of stained and varnished timber. Tiles are employed in the flooring of nave and aisles. The great altar, formed of Caen stone and Italian marble, is of beautiful and appropriate design. Local marble is used in the entire of the external construction, and is an admirable material both for structural and ornamental purposes.

The western towers and spires will probably yet remain for some time incomplete, but it is to be hoped that the recent earnest appeal for funds, made to the public by the most rev. pastor, will ensure their ultimate construction, so that this vast and handsome edifice may be perfect in all its parts, and form one of the very few architecturally excellent cathedral structures of which Ireland can boast. Mr. Thomas Byrne, of Belfast and Newry, is the builder, and (as we learn) is performing his responsible task most creditably.

## NEW PATENTS.

**LETTERS PATENT**, which have passed the Great Seal since the 13th March, 1863. Byrne and Lambert, Agents; Office for Patents, 4, Lower Ormond-quay, Dublin.

Charles Chinnock, for "Improvements in the construction of cork-screws."

Alfred V. Newton, for "A new process of obtaining printing surfaces, dies, and substitutes for photographic negatives."

J. B. Gierty, for "Improvements in gas-burners or jets."

Maurice Vogl, for "Improvements in fastenings for leggings and other articles of wearing apparel."

Charles Harratt, for "Improvements in ship masts."

Francis Watkins, for "Improvements in apparatus for milking cows."

Echlin Molyneux, jun., for "An improved carriage with a travelling railway attached."

Wm. B. Lord and another, for "Improvements in loading firearms and in blasting."

R. A. Brooman, for "Improvements in saddle-trees and collars."

Daniel Lowe, for "Improvements in the manufacture of door-bolts and latches."

A copy of the specification of any patent, describing the nature of the invention, and the mode of carrying it into effect, can be had at the office for a sum not exceeding five shillings.

Her Majesty's Commissioners for the Exhibition of 1862 have recently received costly and appropriate gifts from their Majesties the Emperor of the French and the Emperor of Austria, as *souvenirs* of the Exhibition. These royal presents, which consist of many exquisite specimen of modern, ornamental, and Fine Arts were formally presented to the Commissioners, on behalf of the Imperial Commissions, by M. Le Play, on the part of France, and the Chevalier de Schwarz, on the part of Austria. At the opening of the Exhibition, in May last, his Royal Highness the Crown Prince of Prussia, President of the Royal Prussian Commission, also presented to each of her Majesty's Commissioners beautiful specimens of the manufacture of the Royal porcelain establishment at Berlin.

An excursion of working men from Birmingham for a sojourn in Paris is proposed to take place at an early date.

## DESIGNS FOR THE CATHEDRAL AT CORK AT THE LONDON ARCHITECTURAL EXHIBITION.

OUR London contemporary, the *Builder*, has the following remarks relative to some of the competition designs for the above cathedral, now on exhibition at Conduit-street:—

"A dozen designs, out of those which were in the recent competition, fill most of the space in the West Gallery of the Exhibition; but several of them are not displayed in the requisite number of drawings; and, as generally happens, however unavoidably in Conduit-street, the proportion of works exhibited to those which were in the competition is small; whilst the 'successful' design is not of the number. The catalogue leaves visitors uninformed on all the objects, stipulations, and 'instructions' in the competition; so that we are left to cudgel recollection of the event, to know whether the building proposed was one for the Protestant or the Roman Catholic form of worship. . . .

Difference in plans of Protestant and Catholic churches, indeed, as they have been designed during recent years, has not been very remarkable. . . .

The design for the Cork Cathedral, shown in the drawings (245), has a nave 35 feet in width, whilst each side aisle is but 7 feet. The total length of the interior in this case is 173 feet; and the eastern division, or choir, is about 73 feet of the whole. An apse, with ambulatory, is the eastern termination of the plan; and an octagonal chapter-house is a feature of the group, as in most of the designs. There is a strong family likeness decoratively, in several of these Cork designs, which are of the very Early quasi-Geometric character that preceded the use of tracery proper, or having window heads simply pierced with various forms of cusping. The tower is terminated with one of those high-pitched and hipped roof coverings that have been lately run upon, and which, however worthy of notice in old Continental churches, scarcely deserve to be often reproduced. Mr. C. H. M. Mileham's design, however, has broad aisles, and a long choir which terminates westerly, at the eastern arch of the tower,—which last is so much westward of a central position, that the nave appears short. The plan agrees with most of the others by the adoption of the apsidal termination, with an ambulatory. The general character may be called Early English; and there is a slated spire, somewhat too short. Mr. E. W. Godwin's design is most remarkable externally, for the treatment of its two straight-sided and lantern and spire-capped towers, which are placed with considerable effect, transeptwise in reference to the plans; and internally for the pleasing proportion and decoration of both nave and choir, as shown in the sections. Certain details, however, would require revision. . . .

Mr. J. P. Jones's design is represented only by a perspective view, which shows that the plan was cruciform, that there was a central tower with pinnacles, and an octagonal lantern and a spire, and that the style was Geometric Decorated. . . .

In the design set forth by Nos. 36, 37, and 41 to 43, we again fall in with the narrow aisle,—in this case there is a single bench along the wall, and with the transepts scarcely noticeable in the ground plan. The people would look almost entirely in one direction; and there is little obstruction to the view. There is no ambulatory to the apse, excepting in the wall, which, to allow space, has thickening-out, terminated on the exterior by a deep weathering. The Chapter-house, which exceptionally to most of the designs is oblong in plan, is joined by a passage, not to the choir end of the church, but to the south aisle of the nave, close to its western end. The decorative character of this design is Early English. A square central tower carries a slated spire. The group in the perspective view is sufficiently effective. May it not be questioned whether the distinctive character which we have come to think that of a cathedral church, is given by any design in which there is but one tower? Nearly all cathedrals, unless one or two with domes, have had, or seem to have been intended to have, the more than one such feature. . . .

Mr. C. H. Driver's external view and internal view show that the design is Early Decorated in character. A metal rood-screen appears in the interior. The angles of the belfry-stage have an appearance of weakness for the massive spire-capping above them. . . .

Mr. W. Lightly's design has a long nave, and the features of a cruciform plan, but without great width in the aisles, which, however, are appropriated for seats. The piers at the cross seem more bulky than necessary for strength, and they would be obstructions. The tower is at the south-west angle of the nave; and the chapter-house is placed correspondingly with it, at the north-west. There are aisles to the choir; the apse is semi-hexagonal; a triforium is a feature of the interior; and the design generally is Early English. Small photographs

of his drawings, showing a design of 'Decorated' Gothic character, are exhibited by Mr. W. A. Carter (63).

The design by Mr. C. M. Beazley, again, has the narrow aisles as passages only, and the eastern arm but slightly projecting externally, whilst internally the choir extends westward under the cross. Mural decoration is substituted for a triforium. The nave piers are each of four shafts, separate but clustered."

## MONAGHAN ASYLUM COMPETITION.

THE unsatisfactory results of recent architectural competitions in Ireland have been the subject of much complaint, and the architects of Ireland have recently held several meetings to devise such measures as may in future guard the profession from the injustice so often wrought by the arbitrary conduct of committees.\* Architects are now invited to submit designs for another important building, the new Lunatic Asylum for the counties of Monaghan and Cavan. There are a few facts respecting this and the other asylums now about being erected through the country, to which I think attention should be directed.

Orders have been issued by the Lord Lieutenant in Council for the erection of six new lunatic asylums in Ireland. The arrangements are under the direction of the Commissioners of Control, acting in conjunction with local committees appointed by the various county grand juries. The selection of designs, and appointment of architects, have been generally left to the committee, subject to the approval of the Board of Control, who have an architect in Dublin, appointed to advise and report to them on all designs adopted by the local committees, previous to their being carried into execution.

So far, all seems reasonable and fair. The following particulars, however, are of different character, and should be noted by all intending competitors.

It would appear that the advising architect to the Board of Control is also permitted to act as architect to any of the asylums of which the local committee may appoint him, and that it forms part of his agreement with the Board that he is to design and superintend these for half the usual architect's commission, or 2½ per cent. on the outlay. A letter from the Board to this effect was addressed to each of the local committees, and, in consequence, the Board's architect was appointed for two of the asylums, which are now in course of erection. As a further consequence, in the case of two other asylums, where the local committees did not wish to employ the Board's architect, the low terms of his proposal were made the ground of endeavours to induce other architects to undertake the work on the same terms, and in one instance with success.

Passing over the anomalous position occupied by the Board's architect, it is much to be regretted that the Board of Control, composed as it is of men of high standing in the various professions, should adopt measures which, while unfair and injurious to the architectural profession, can hardly be expected to produce any really economical or effective results to the public service.

As regards the Monaghan committee, they have stated that, while not pledged to employ the author of the best design to carry out the work, it will be their desire to do so. They have not stated, however, whether, in the event of his being so employed, they propose to pay the usual commission or not, and with the above-mentioned facts before them, this question becomes of some importance to those architects who may be disposed to submit designs.

ALPHA.

## ROYAL DUBLIN SOCIETY'S SPRING SHOW.

### THE IMPLEMENT DEPARTMENT.

THE collection of implements on this occasion was not as large as other previous shows, but in many of the machines exhibited several useful improvements have been introduced. A great number of our Irish and metropolitan houses were well represented. Amongst the principal exhibitors were Kennan and Sons, Fishamble-street, who exhibited a great number of articles of a useful and improved character; the trustees of W. Crosskill, Beverley Iron Works Yorkshire; W. J. Ritchie, Ardee; Richmond and Norton, South John-street, Liverpool; Francis Morton & Co., Do.; W. O'Neil, agricultural implement depot, Athy, Toole and Co., Westmoreland-street, Thomas Grendon and Co., Drogheda Iron Works; Booth, Brothers, Up. Stephen-street; Samuelson and Co., Essex bridge; Edmondson, Brothers, Dame-street; D. and S. Quan, Talbot-street; Joseph Saunders, Dame-street; W. McCulloch, Talbot-street; Paul and Vincent, Blackhall-place; J. Huggan and Co., Blackhall-place, Dublin; W. and H. M. Goulding Patrick-street, Cork.

\* We wish that we could see the probability of some practical results arising therefrom.—ED.

and Eden-quay, Dublin; Frederick Barrett, Leinster-street, and Stephen's-green; Edward Wright, Leeds Woollen Hall, Corn Market; John Maguire and Son, Dawson-street; Edward Farrelly, Hawkins-street; Joseph Wonfor, John Carrick, Mary's-abbey, Christopher Lavender, Grafton-street; James Noble, Chapelizod, Dublin, &c. In the agricultural hall a very fine specimen of Morewoods and Co's continuous patent roofing sheets of galvanized iron, now so extensively used by landed proprietors, was exhibited by the agent, Mr. Askins, Mid. Abbey-st. Messrs. F. Morton and Co., of Liverpool, occupied a large and most important stand, and displayed a very excellent variety of wire-strained fencing, of farm gates, and other articles manufactured by that well-established firm, and which are highly prized by our Irish architects, agriculturists, &c.

## THE ENGLISH OPERAS.

BALFE's newest operatic production, "the Armourer of Nantes," has been presented at our Theatre Royal during the past week by the Pyne and Harrison troupe, Mr. Harrison sustaining the part of Raoul, the armourer; Miss Pyne, Marie (afterwards countess); Miss Hiles, the duchess; Mr. A. Cook, Fabio; Mr. Patey, the baron; and Mr. H. Corri, the Jew. The plot is obscure and complicated, and the music, though not without its gems, somewhat heavier, and both the solo and the concerted parts more lengthy, than the generality of Balfe's compositions. Miss Pyne, however, is such a charming and unexceptionably perfect vocalist and actress, and she was so ably supported by the above in their respective parts, that the opera was most favourably received and appreciated as a welcome novelty. Mr. Harrison's voice seems to improve with time rather than otherwise, for in our recollection of him (extending almost over his entire professional career), he never sang as well as he did on his first appearance in this engagement as "the armourer." A subsequent hoarseness, however, interfered with his successful rendering of the *roles* undertaken in the operas of the "Lily of Killarney," and "Lurline," that followed. The operatic version of the former of these last-named, which was given on Tuesday night, suffers materially by contrast with the dramatic in which Mr. and Mrs. Boucicault as Myles and Eily respectively, Mr. Granby as Father Tom, and Mr. Searle as Danny Man, first introduced it to a Dublin audience. It were better, too, for the artistes of this present troupe not to aim at imitation of the Irish accent at all, when the attempt (except with Mr. Corri, as Danny Man, who himself is "of the soil"), is so unsuccessful. Wallace's beautiful opera of "Lurline," has been also presented, and repeated in obedience to a general call. "Love's Triumph," by the same distinguished Irish composer, commenced the *partie d'evening* present week. Mr. Mellon conducted and Mr. Levey led with their usual ability. The chorus and orchestra were considerably augmented, and performed their respective duties most efficiently.

## Learned Societies' Meetings.

**GEOLOGICAL SOCIETY OF DUBLIN.**—A general meeting of this society was held on the 8th inst. in the Museum Building, Trinity College. Prof. Jukes presided. The first subject brought before the meeting was a paper by the Rev. Professor Haughton, "on the occurrence of exogenous wood in the lower carboniferous limestone of the county Mayo." Dr. John Barker then exhibited a microscopic section of the specimen referred to by Rev. Professor Haughton. Mr. Robert H. Scott, one of the hon. secretaries, read a paper by Dr. T. S. Hunt "on the chemical and mineralogical constitution of metamorphic rocks," which was referred to council for publication. A model exhibiting the mode in which buildings are overthrown by earthquakes, was exhibited by Mr. Bolton.

**INSTITUTION OF CIVIL ENGINEERS.**—A general meeting of this institution in connection with Trinity College, was held in the Museum Building same evening. The subject brought before the meeting was an account of the works for the restoration of the middle level drainage by the Vice-President, S. Dowling, LL.D. Mr. Valentine Brown, member of the institution, exhibited an original production in the shape of an improved chair for bridge rails.

**THE ARCHITECTURAL ASSOCIATION (LONDON).**—A meeting was held on Friday evening week, Mr. Blashill in the chair. It was announced that the first meeting of the preparatory class for the next voluntary architectural examinations was held on the preceding Tuesday evening, and that a considerable amount of work has been done. The adjourned discussion on "Ventilation" was then entered upon, in which Messrs. Atkins, Fowler, Pierce, Spiers and Adams took part.

**GLASGOW ARCHITECTURAL ASSOCIATION.**—At last meeting of this body Mr. J. M. Smith read a paper on "Contemporary Architecture."

## ON ARCHITECTURAL ART.\*

AN address was delivered on Tuesday evening week, at the theatre of the South Kensington Museum, on "The Condition and Prosperity of Architectural Art," by Mr. A. J. B. Beresford Hope, M.A., D.C.L., president of the society. He said, that it had heretofore been the practice to commence the session of the Architectural Museum by an evening devoted to conversation and to the distribution of prizes. On that occasion they would deviate from that custom, without, however, ceasing to uphold architectural art in the various forms in which the Museum existed to promote it. They were met at a time of considerable interest to the architectural world. Last year was a kind of saturnalia of art, with its Great Exhibition held in that neighbourhood, and its little exhibition held in the building in which they were assembled. They had had an autumn to collect their senses, and were now, he hoped, wiser and better instructed than before. The present was a year of unusual interest, but there was nothing like a crisis in art apprehended. They were long warned against the prophet who cried, "Peace! peace!" where there was no peace; and they should be also on their guard against the equally false prophets who cried, "Crisis! crisis!" when there was no crisis. Everything with respect to the Museum and to architectural art was going on as heretofore, but with the great impulsion which it had received. He selected the term "architectural art" not without due consideration, but with a special view to the functions of the Architectural Museum. Architectural art was not architecture. Architecture might be an art, it might be a science, or it might be a business. It was a business in many senses; it was a science so far as it dealt with obscure and naked rules of mechanics. To set things on end so that they would not tumble down was the first and simple function of architecture; but it became an art when it dealt with the consideration of how to make things so set up on end beautiful without the elaboration of their beauty interfering with their stability. If it did so interfere, it might be art, but it was not architecture. The Museum did not deal with architecture as an art,—it dealt with architectural art. The difference between architecture as an art and architectural art was very simple. The former dealt with the mass—the outline, the skyline, the vista, the relation of one apartment to another; it dealt with proportion; in fact, with the building as a whole; and for the development of architecture as an art many societies were in existence. Architectural art, however,—of which the Museum took special charge,—consisted in the fringing, the flouncing, if he might so say, of architecture as an art; it dealt with delicate details, with the manipulation of form,—the carvings, the colourings, and all the other accessories which are to architecture what the glazing, which painters apply as a finishing to their works, is to the picture. That was the especial work of the Museum, and it was right that such a body should exist in order to supplement that which might be forgotten in the grand scramble for big effect. They existed, as he had specially defined it, for architectural art, which was something more minute than architecture itself as an art. How did they exist for that? There had been of late years a great movement in this country, in respect to what were called "Schools of Design,"—schools that should teach people the art of drawing, and of elementary forms. Was the Museum a school of design? No, for they had no systematic teaching. What, then, were its functions? He would give them a very practical answer. Such of them as had mixed in public life knew that there was no such useful people as those who filled offices to which no assignable line of duty could be allotted, for it was universally found that there were a great many things which fell out of the category of cut-and-dried official duties, but which must be done, and of course required somebody to do them, and these duties were fulfilled by the people to whom he alluded. The persons who filled those offices were the odd men of the administration. There was a deal of odd work to be done, and somebody must do it, and odd men were found to do it. The Architectural Museum was the odd man of the architectural and artistic world, and did a great deal more than was a return in money's worth for the money invested. If their income reckoned by thousands as it reckoned by hundreds—if they had a grand palace of their own, and had a subsidy guaranteed by parliament, they might effect a good deal more than the odd man's work; but with their limited income their exertions were also limited, but they had a very hearty zeal, and a determination to do their best within their own limits. Under other circumstances they might do more; but, standing in the position they occupied, they fulfilled a very useful function in the artistic

movement of the day. In the first place, they had collected a museum of specimens, which, to say the least, exemplified many phases of Gothic art of the thirteenth, fourteenth, and fifteenth centuries. These they distributed, of which he would say more hereafter; and they gave a course of lectures, of which they commenced the session that evening. These lectures were not and could not be intended as a systematic teaching. The idea of systematic teaching by lectures was a fallacy. The lecturer might generalize truths, and might set folks a-thinking, and in that way lectures possessed a marked value; but beyond this they did not pretend to go. The Society then provided a museum for people to study in; for the art-workman to copy the best models that could be provided; for the architect quietly to work out those details which he had already conceived, but to complete which it was necessary for him to resort to ancient models.

Those whom he addressed had not attended that evening to support the Government institution in which they were assembled, and to which they owed a great debt of gratitude. They were not assembled to support one of those many excellent schools of design which now existed in various parts of the country, but they were come to take part in an association which existed for itself and by itself, and with a view to supplement certain great elements that were found to be wanting, and which, until they were supplied, would leave the machinery of art defective.

Before he came to speak of architectural art he would dwell for a moment on architecture as an art. Without being exclusively or bigotedly, they had been always consistently, supporters of the Gothic, rather than the Classical side of the architectural movement. Had they been worshippers of a past antiquity—had they been archæologists purely and simply—had they been looking to the 13th century as an Elysian age, as a kind of millennium, which began and ended in that century? Far from it. They, of course, respected antiquity, for without it they would remain perpetual children in art; but he appealed to all who had taken an intelligent part in the operations of the society to testify whether they had not, with one united and strong voice, declared that they had taken up the Gothic movement because it was the movement most practical for the material and the social and the political and the religious needs of this progressive and agitated century. He did not speak of what architecture might be in 1863; but this he did say, that whatever it might be, it would have drawn more of its life from the principles which they upheld than from those of the antagonistic school of classicists. The architecture of which they claimed to be advocates had been triumphant. It was called, to be sure, Gothic; and they adopted the term. Was it because they had any special respect for the Goths or the Vandals, or for the Huns either? Was it because they looked upon the Pointed Arch as the only line of beauty, as if they did not see any beauty at all in the semi-circular line, or in the horizontal beam of the Greeks? No. But it was because Gothic was a term of reproach that they had adopted it. He had stated that their principles were triumphant; and it needed but a morning's stroll through the metropolis to prove that they were so. Look at the improvement in street architecture. Look at the points that had been gained since the Exhibition of 1851. Formerly the ideas that existed in the mind of the London builder were cement mouldings run, and capitals cast. Now, however, materials were changed. Colouring was introduced, not only into public buildings, but into private dwellings. Carved stone was used for shop-fronts, sometimes grotesquely, more often beautifully. He could point, as an instance of the great advance that had been made, to the Renaissance house in Upper Brook-street, in the occupation of the well-known jeweller, Mr. Emanuel; to the Grosvenor Hotel; to the London Bridge Hotel; to the gigantic structure of a similar class about to be erected in Langham-place; and to many others. Not that these were Gothic buildings, but they were equal evidences of their victory in the reality of the materials, the carefulness of the carving, and above all in the skyline. What they had always insisted on was the pre-eminent necessity of the skyline not being forgotten. That was a point which the London architect ten years ago did not care about—did not understand, or if he did, repudiated. There was no design, no taste; but now the necessity for attending to the skyline had been recognized, the pyramidising of the skyline now formed a constant element of artistic conception. That showed the growth of educated feeling in architectural art. He would avoid speaking on that occasion of ecclesiastical architecture, although in that also there were triumphs to be recorded—triumphs of composition, of materials, of form—on which he might dilate, but the field was too wide; he should content him-

self with pointing to the advances which had been made, and the victories that had been achieved in secular architecture, as a proof of the success of the principles for which they had contended. What was now the special function of architectural art in the sense in which the Museum applied it—he meant the art specially of the stone-carver, the wood-carver, the decorative painter, and the manufacturer of indestructible coloured material in tiles? The Museum started some ten years ago, when the condition and position of the workman had begun to excite the attention of those who had emancipated themselves from the trammels of pedantic architecture. Up to that time the workman was looked upon as little better than an intelligent machine. Certain forms were put before him for the purpose of following. Those he had to hew out, but there was no invention developed in what he did. The carefulness of his work was very little considered. There was a certain rough conventionality which was required of him, and which he had to comply with, but more was not expected. Invention was nowhere. It was not necessary for him to have a knowledge of art; of the play of the human figure; of the expression of the human face, and of those various forms into which animal and vegetable nature throw themselves, and that are producible by a plastic art. These were beyond his scope. They were not thought of much by any one, but with the development of free art the necessity of a wider field of decoration came to be recognised on all sides. The architect had seldom time to compare, and still less time to superintend the elaboration of his designs, and so the responsibility fell upon the operative class,—the art-workmen,—to whom the details of the structure were confided. This was a wholesome thing; it taught these people the dignity of their own vocation, that they were not merely executives of certain pre-existing diagrams, but ministers of beauty and gracefulness,—active contributors to the whole artistic effect of the structure on which they were engaged. It was only by bringing this home to them that anything like a real artistic movement in the people could be consummated, and accordingly the architectural Museum was established. It was not, however, set up to teach men anything, but for the purpose of furnishing examples in the shape of models and casts, to which those who had been elsewhere taught might resort with a view to carry out the spirit of their teaching. For that reason the Museum had been brought together; but it had not been so without forethought; for, true and wholesome as the doctrine he had stated was, the art-workman ought not to be enslaved by example, but encouraged to cultivate originality; to take the flower of the field as it grows; the human face as he found it; the passing animal as he saw it, and to draw his inspiration from them. True and wholesome as the doctrine to which he had alluded was, as to giving the workman an idea of the dignity of his position, and that he was not a mere machine, incapable of thought, yet, like all other doctrines, it had its vicious side: and the greater the success that was attained, the more that was seen of the good fruits which it produced, the more they ought to avoid that vicious development which would lead to the springing up of a crop of weeds around the goodly plants. The whole system of mere bookwork, mere imitation of a model without feeling thrown into the details, without originality evidenced in the lines and curves, was deadening, and might lead to a rapid recoil from free invention on the part of the art-workman. But, on the other hand, was it true that mere instinct was sufficient to develop the principle of free invention? Was it sufficient to set before the art-workman a group of animals or a bouquet of wild flowers, and to tell him to imitate them, and take them as his model? Could a man, in short, imitate without education? He could not. In art, as in politics and religion, the doctrine of the perfectibility of the human animal was at fault. There must be training and education. There might be the germs of the beautiful in human nature; but he did not believe in its instructive existence, for any practical purpose, without training. It was one thing to feel, it was a totally different thing to reproduce.

The principle of putting the art-workman in possession of ability to copy nature as it is should be adopted only on the condition that that workman had received such instruction as made it possible for him to analyze beforehand, to follow out and to combine those elements of beauty which lay veiled in the material forms before him. They should not run wild after originality, with the idea that the human animal is capable of unknown degrees of perfection. The principle of turning the art-workman loose, and giving him full scope at his work, was good; but if carried too far it was dangerous. Originality should be kept within due bounds. First-rate imitation was far better than second-rate originality. The Architectural Museum held up examples to be copied, and it also distri-

\* Mr. Hope's Address: Architectural Museum.

buted prizes. How far had these prizes carried out its principles? It might be said that they gave the rein too much to invention, and led to a sort of feeble originality. He did not think there was any ground for such apprehension. In last year's exhibition, the wood carvings were of a high order of merit. Carvings in stone came next. The other work, he was sorry to say, disappointed them all. This year they had thrown their strength upon wood-carving. They had offered few prizes, but these were of considerable value, and a long year had been given for the completion of the works intended for competition. They did so, thanking those who co-operated with them in other branches, and acknowledging great merits in the works sent in; but they thought that a higher degree of merit was now required. They wanted, in short, to abolish the art-workman, and to create instead the working artist. He might be a man who only carved foliage or mouldings; but he might rise higher, and carve the human form. He should, however, work in the spirit of an entire conception of the work on which he was engaged as an artist. Much might be taken out of books; for the scholarly work of a working artist would involve more or less of originality, and more or less of copying.

There was another branch of architectural art of which he should say a word. He alluded to the movement in the matter of colouring. It was in a state of transition; but it should go on and become much more extensively developed. The craving of the eye for beauty of colour in our buildings was increasing. True, they had to contend against an adverse and malignant climate,—an atmosphere overcharged with smoke and with gases which greatly deteriorated and interfered with the effect of colouring. What was required was something that would give outlines of beauty in colors, and which would at the same time resist the atmosphere and the smoke. And had they not that in the vitreous materials which retained the colours which were imprinted on them, under any circumstances of fog or haze, in March winds and November clouds, and whose surface only required the pelting shower to cleanse it again and restore its beauty. They should make use of the opportunity thus afforded, and grasp at the growing appreciation of the truth, that colour, no less than form, was one of God's good gifts. The world of colour was co-extensive with the world of form. Great study should be devoted to the working out of detail. The day was going when strips of colour stuck up and down at hap-hazard were considered sufficient. Something bolder—something bigger—something more constructional, was now required. Architecture in burnt earth should be as completely architectural art as architecture in carved stone. Here also originality and copying should go hand in hand. The materials might be original, but the principles of design were old and immutable. So it was also with architecture in iron, in which there was great scope for the exercise of invention and originality, but in which much might be acquired by existing precedents. It might be thought that he had spoken more against than for the purposes of the Museum, for, as he had stated, the Museum had no systematic teaching of its own; it had no classes; it had merely its collection of casts and models; but it was in the consciousness that these materials would work together for good that they had adopted that line of action. They held strong convictions—prejudices, some might consider them—but they proclaimed what they believed to be the truth in art, leaving all others to fight their own way, and knowing that truth was great and would prevail. They believed in reality of materials, playing with the sky-line, attention to symmetry of form, and infinite variety in dealing with wood and stone, and now with pottery and iron. They believed that architecture had produced its most glorious development in the Gothic of the thirteenth and fourteenth centuries.

Much had been light and beautiful in the centuries since. Many mechanical inventions had been produced; many new forms of beauty and infinite resources in design had been developed; a new world with its flora and fauna had been thrown in; the revival of classical art, which seemed to deal a death-blow to the Gothic, but which, if properly handled, would have been the font of its regeneration; all these were consistent with the free architecture of Europe. We have everything the thirteenth and fourteenth centuries could give to us, together with all that is our own, and all that the invention of printing and the spread of literature have opened up. Art is in a transitional state; the minds of men are in a transitional state; politics are in a transitional state; we live in a century that some years since we used glibly to say was an uneventful age, but it has, on the contrary, proved to be a century of revolutions—of which even the sixteenth or seventeenth century produced no similitude. Empires are crashing, new worlds are forming—the

strong are being made weak, and the weak are becoming unexpectedly strong. And in the midst of all this zeal and turmoil, there is the grand figure of Christian, progressive, European, and especially English art, rising higher and higher from the dark and surging waves of the ocean; and we shall in the future be noted with a good or bad mark, according as we perform well or ill our sworn service to that good, majestic mistress of ours.

#### CARMELITE CHURCH, MOATE.

THIS building is steadily advancing towards completion. Wonderful progress has been made; all the aisles, both at the northern and southern sides, are completed, their elegant and compact limestone pillars are finished, a beautiful encaustic pavement has been laid down in the sanctuary, some of the stained glass windows put up, and a great variety of details supplied in a style fully in keeping with the just pretensions of the whole building. The style of architecture is the Early English Gothic, and all the works have, it is said, been executed in a substantial and superior style by the contractor, Mr John Molloy, of Tullamore. Five arches at each side, springing from polished limestone pillars, separate the nave from the aisles, and above these arches are as many two-light lancet windows. The sanctuary is lighted by three windows, and the ceiling is groined in plaster work of a tasteful design. At the Gospel side of the sanctuary there has been erected a small lady chapel, furnished with a richly designed stained glass window. In the southern aisle there are two stained glass windows, one representing the Delivery of the Scapular to St. Simon Stock by the Blessed Virgin, and the other representing St. John of the Cross. The tower is a massive and elegant building, the summit of which is reached by a stone spiral staircase. It is proposed to erect on this tower a spire surmounted with a mediæval cross, which will be 126 feet from the ground. Although a considerable amount of work remains to be done, which will, of course, involve considerable expense, the appearance of the church is already very imposing, and well calculated to excite the admiration of the beholder. The interior fittings and decorations are as complete as possible, and in addition to all that has been described as accomplished, a superb altar and tabernacle of Caen stone are being erected in the mediæval style. An organ of much power and remarkable sweetness of tone, built by White, of Bishop-street, in this city, has just been put up, and has been inaugurated.

#### THE TIMBER TRADE.

MESSRS. WILLIAM KELLY & Co's public sale of timber and deals on Thursday, 9th inst., was largely attended by the leading builders and contractors. The demand for red deals was very considerable. In spruce deals and balk timber a moderate business was done, and the auction was unquestionably of a most satisfactory and highly respectable character. The sales comprised:—

13,721 pieces red deals, at from £17 10s. to £22 5s. per 120 pieces of 12 feet 9 x 3.  
1,278 pieces Swedish white, £17 7s. 6d. to £19 2s. 6d. per ditto.  
1,070 pieces of 11 x 8 Memel plank, £24 to £26 12s. 6d. per ditto.  
5,270 pieces spruce deals and battens, £13 5s. to £14 15s. per ditto.  
120 pieces Dantzic timber, 62s. 6d. per ton.  
40 pieces Sundswall timber, 50s. "  
40 pieces white pine, 62s. 6d. "  
20 pieces Memel, 70s. "  
40 oak wainscot logs, 6s. 6d. to 6s. 9d. per lineal foot.

The following circular had been forwarded to the trade previous to the sale in question:—

"33, SIR JOHN ROGERSON'S-QUAY.  
"Dublin, 8th April, 1863.

"DEAR SIR,—We send you by book post a catalogue for our sale on to-morrow (Thursday), hoping to be favoured with your presence.

"We shall not hold out the temptation that we will sacrifice our goods in order to induce an attendance; but, as heretofore, we will sell at the lowest rates consistent with a steady course of honest trading.

"We need not remind you that business cannot be carried on without reasonable remuneration for the capital and labour employed in it, and, therefore, you will readily understand our not following the experiment of forcing goods on the market, by endeavouring to sell them without reserve. Apart, however, from that reason, it is not to be expected that by resorting to such an expedient the confidence of any branch of the trade is to be secured; for while it might at first sight appear that such a competition is directed only against importers, it must be obvious that it disturbs the regular course of trade in a manner not alone to affect, in common, the interests of all timber yards through the city, but to deserve more particularly the disfavour

of the independent builders and contractors, who can draw their own conclusion as to the prices they should afterwards have to give in order to repay the sellers these speculative sacrifices.

"We beg to remind you that we have not deviated from the system which we first adopted, and there is a proof of the approval it has met with from the trade in the large quantity of goods we have got through, as you may see from the annexed particulars of our imports during the last two seasons.

"We shall not trouble you with any further remarks beyond the simple recapitulation of the principles on which we started, as announced in our circulars:—1st. Not to endeavour to crush the legitimate industry of other traders in order to try to establish a monopoly, and the entire control of the market. 2nd. To sell our goods, not without profit, but without exacting too much when any chance opportunity might arise, or when more or less confident of the business of particular customers. 3rd. To sell balk timber invariably according to the well-known string measure, which has been so long established in this port, and not to make our quotations so indefinite as to be able to substitute calliper, or other measure, afterwards.

"Confiding in your appreciation of these principles, and being able to supply all the requirements of the trade on the most moderate scale of profit that any house could adopt, we trust that we shall continue to receive the same share of support as heretofore."

Extract from Custom-house return of wood goods imported by William Kelly and Co. from 29th June, 1861, to 31st March, 1863:—58 cargoes, containing 394,466 pieces spruce and pine deals, 69,246 pieces red deals, 12,303 pieces timber, 5,539 pieces spars, 294 fathoms lathwood.

The *Freeman's Journal*, in its commercial article of Monday, commenting on this circular, makes the following remarks:—

"Always glad to see the interests of any section of the commercial public progressing, we are happy to observe from a circular of Messrs. William Kelly and Co., timber merchants, that that portion of our foreign import trade has been active. It furnishes an abstract of the Custom House returns, showing that the imports of that firm alone (although it is only a young one), for the past two seasons amount to fifty-eight cargoes, of various assortments. It is fortunate that a branch of industry, which gives so much employment, has not shared the dulness that has prevailed in some other trades. The increase of buildings in Rathgar, Rathmines, Ball's-bridge, and in Bray, and other intermediate places on the Wicklow line, will afford some idea of the extent of the employment which has been thus created. The following paragraph from the circular conveys such a sound notion of the principles which should guide at its outset every young house in all branches of trade that we copy it. After referring to a public sale of theirs this week, of which we give particulars in our trade report, the circular proceeds:—

[As we give the circular *in extenso*, it is unnecessary to repeat the extracts referred to by the *Freeman*.]

#### BELL'S PATENT BRICK.

MR. R. BELL, of Westland-row, Dublin, has obtained (says the *Building News*) a patent for a brick so formed as to bind the work in such manner that it shall form a mass incapable of being riven asunder. These bricks are well adapted for arches, tunnels, and vaults, by forming them of a wedge-like shape, the grooves and tongues corresponding accordingly. The bricks are also suitable for fortifications, embankments, sewers, light-houses, and for general building purposes.

The bricks are formed with projections or tongues across or along one surface, and with grooves or recesses of corresponding size on the opposite side, whereby they may be laid down one on the other, with the aid of a small quantity of mortar or cement, in such order as to fit or bind together the upper layer with the lower layer, and to tie each other longitudinally and crosswise, so as to prevent any lateral or transverse deviation or fissure occurring in the work.

With regard to bricks for arches a similar system of construction is adopted by means of which it is evident that centres will not be required in the construction of arches and vaults, for as soon as one single layer of bricks has been thrown across the arch the series may be continued by inserting the second layer into the first, into which it will register and be self-supporting, and so on with the entire length of arch, tunnel, or vault. By the adoption of this invention a wall or arch may be constructed with great rapidity and with much greater strength, durability, and saving of expense, than by the use of the bricks now in use.



J. BOURKE ARCHT

MORISON LITH 32 BACHELORS WALK DUBLIN

Intended New Church of SS Peter & Paul, Moate

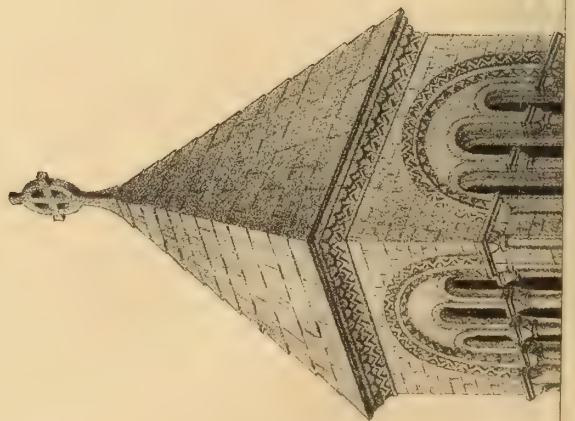
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Nº 80 April 15, 1863,

The Dublin Builder,



## THE CATHOLIC UNIVERSITY OF IRELAND.

THAT such a project as a vast university establishment—an Alma Mater—for the education of the Roman Catholic youth of Ireland has been for some time in contemplation, and moreover, that a great demonstration and ceremonial attendant on a somewhat anticipatory event in connection therewith has already taken place, most of our readers are doubtless aware.

Doubt, perhaps, may have and did exist as to whom the honoured individual should be who by acclamation of the University senate should conceive and preside over the erection of this most important work—to cost most probably some quarter of a million sterling. At one time it was thought that prudential considerations might render desirable or demand, either a limited or a general competition; but after some discussion “doubt” was dispelled, and the eminent ecclesiologist and architect, Mr. J. J. McCarthy, R.H.A., professor of architecture in the University, was selected for that responsible post.

For such a gigantic building, embracing multifarious requirements, and the style and arrangements of which were subjects for consideration by “men of many minds,” it is not unreasonable to suppose that the plans should have passed through a few gradations between first submission and final adoption, according as mature professional judgment on the one hand, or fancy on the other, should dictate. However, they are now fully adopted and completed for contracting purposes, and we give the result of an inspection thereof.

The buildings comprise two distinct but united blocks, the front quadrangle being 450 feet square, and devoted to university, and the rear to collegiate purposes,—a distinction requiring explanation, viz.: surrounding the former are the apartments comprising temporary church, lecture theatres, apparatus rooms, dining-hall, the *aula maxima*, offices and residences for the administration of the university, reception rooms, libraries, &c., whereas the latter is designed exclusively for students’ dwellings, the accommodation (provided for about 300) varying according to class and to suit circumstances. Hereafter a great dining-hall, with requisite culinary offices adjoining, and a church, 180 feet by 80 feet, will form additional wings at west and east sides respectively. The principal façade is designed in a novel and effective style of architecture, and shows five great masses of building, the centre being 130 ft. wide by 125 feet high to apex of roofs—which throughout are surmounted by a rich, perforated, metal ornament—and the wings about 48 feet in width; the intermediate spaces completing the 450 feet above noted, for that side of the quadrangle along the full length of which this façade extends. Immediately behind the centre building a great campanile and clock tower, containing the chief staircase of stone, will rise to a height of 253 ft. 6 in., which, when completed, will be by far the highest structure in this city, and will be seen to additional advantage in the naturally elevated position of Drumcondra hill.

A pedestal, 10 feet in height, is continued from end to end of façade, and tier over tier of arched headed opens, with columnar shafts and moulded archivolts, rise above it, the centre and wings being surmounted by great pavilion roofs, with attic storeys therein. In the spandrels over windows medallions to contain busts of Irish saints, &c., are introduced. A corbelled cornice of bold and peculiar character is continued at the eaves on principal façade. The effect of these grand features will, doubtless, be very imposing in execution, as it is now in the drawings. The interior is approached by three separate entrances, viz., a central one—under a great outer piazza, communicating with a hall and vestibule, which lead to a spacious corridor—also two others midway between the wings. On the flanks the style of architecture of front is partially followed, but much less elaborately. Granite is the material intended to be employed in the walling throughout, and the finer portions, dressings, &c., are to be of Portland stone. The University grounds will embrace thirty-four acres, and the front of the building itself will face the Bishop’s-road, with one flank towards Drumcondra-road. The works will be commenced in a few weeks.

## ST. PETER’S CHURCH, BELFAST.

It is proposed to renew the works for the completion of this handsome building with the least possible delay, but it appears that the funds are low, and that a sum of £2,000 is already due to the contractor. We feel assured, however, that the proverbial liberality of the townspeople of all classes and denominations will enable the committee to prosecute the undertaking to a successful issue.

## RAILWAY NEWS.

**RAILWAY FARES ON MARKET DAYS.**—A memorial to the Midland Railway Company has been adopted by the Ballinasloe Town Commissioners, praying that parties along the line who may attend on markets should be supplied with return tickets at a single fare. The system, we understand, has been attended with mutual advantage to the public and to railway companies elsewhere, and, no doubt, it would be considered a great boon west of the Shannon. The various boards of guardians and benches of magistrates throughout the county should take the matter up; and the town commissioners of Athlone, Tuam, and Galway should endeavour to promote the interests of those towns by facilitating the attendance at market of the inhabitants of the rural districts.

**BALLINA RAILWAY.**—We (*Connaught Watchman*) have been told, and it has been received as certain, that this line was actually contracted for, and that a few weeks would see it in course of execution, but it now appears, that not alone is it not contracted for, but it is questionable if it will be commenced at all under existing circumstances. The Westport line is also *in statu quo*; but as this has been actually contracted for, it is to be hoped it will be completed, if not in the time specified, at least it will be done.

**COEK AND KINSALE JUNCTION RAILWAY.**—Sir Cusack Rooney and Sir John Benson (two of the directors), went over the above line recently, accompanied by Messrs. P. R. Roddy, resident engineer, and R. Coghlan, superintendent of the Cork and Bandon Railway. They expressed their satisfaction at the general forward state of the works, and more particularly of those at the Kinsale terminus. They have every confidence in having the line ready to open for public traffic early in May.

It is proposed to apply to Parliament for a bill to authorise the construction of a second railway between Dublin and Kingstown.

The extension of the metropolitan underground railway (London) to Finsbury from Farringdon-st.—the present terminus—is being proceeded with.

In the event of the Dublin Metropolitan Railway Bill passing the Houses of Parliament (which we apprehend is probable, as a commons committee will hardly heed our outcry against the destruction of thoroughfares, architectural beauties, &c.)—there will be a swivel and not a fixed bridge over the river Liffey as intended.

The Sligo and Ballaghaderreen Railway Bill has passed through the House of Lords Committee, and we hope soon to hear of the works being commenced.

It is proposed to make a railway, length 14 miles 60 chains, from the town of Wexford to Enniscorthy, and a tramway, length 48 chains, from the termination of the railway to the intended terminus of the Dublin, Wicklow, and Wexford Railway, in Templeshannon, to be completed within five years.

## Public and Private Works.

A spacious residence has been commenced at Temple Hill, Monkstown, Co. Dublin, for William Hogg, Esq. Mr. M’Curdy is the architect, and Mr. Moyers the contractor. The cost will be about £6,000.

The fine old mansion at Leyrath, Kilkenny, formerly the seat of Sir Wheeler Cuffe, is being restored and remodelled; extensive additions are also in progress, which, when complete, will, with the present pile of buildings, form a large and imposing edifice in the Italian-Renaissance style. It is to be the residence of the present baronet, Sir Charles W. Cuffe. The works will cost about £5,000. Mr. M’Curdy is the architect, Messrs. Beardwood the contractors. The terraces, slopes, pleasure-grounds, &c., are being laid out by Mr. Home, of London, the eminent landscape engineer.

The interior of Gilford Catholic Church is to be finished under the directions of Mr. John Murray, of Dundalk, architect.

A detached residence is to be erected at the corner of the Cross-avenue, Booterstown, Co. Dublin, for C. Goggin, Esq., to cost about £2,000. Mr. M’Curdy, architect. Mr. G. Murphy of Williams-town, builder.

A pair of commodious dwelling houses of architectural character are about to be erected at Kenilworth road, Rathmines—on a plot close by the new Baptist Chapel—for Captains Cross and Garroway, according to plans by Mr. J. J. Lyons, of 26, Lower Gardiner-street, architect. Mr. J. G. Meighan is the builder. The remaining portion of the plot will be let in lots for building. Terms may be known on application to Mr. Lyons. The depth is about 260 feet.

Additions and alterations are to be made to the Hook lighthouse tower, Co. Wexford, according to plans, &c., by the engineer to the Port of Dublin Corporation.

Various works are to be executed at the churches of Derrylane (Killeshandra), Co. Cavan, and Ardfield, Cove or Templerobin, and Timoleague, Co. Cork, under the direction of the architects to the Ecclesiastical Commissioners. Tenders to 18th inst.

A new church is to be built for Kill in the Parish of Monkstown, Co. Dublin, and extensive works are to be executed at the church of Rower, County Kilkenny, also under the directions of the Ecclesiastical Commissioners’ architects.

We hear of some contemplated building improvements in the neighbourhood of Clontarf, of which, when sufficiently advanced, we shall furnish particulars.

The show yard at Kilkenny is to be fitted up with new shedding, fencing, &c., for the coming agricultural meeting.

The directors of the River Fergus Navigation Co. are prepared to receive tenders for the construction of an embankment to enclose the first section of the proposed reclamation. Mr. G. W. Hemans is the engineer.

Alterations and additions are to be made to the Roman Catholic Church of St. Peter’s in West-st., Drogheda, and a new and handsome tower and spire 150 feet high, built centrally on entrance front. Mr. McCarthy is the architect.

A new theatre is to be erected in Holborn, London, nearly opposite Chancery-lane. Various improvements are to be introduced into the construction. A “new theatre company,” with which Mr. Boucicault is associated, proposes to erect, in addition to the structure we have already referred to, in the Haymarket a theatre at Westminster-bridge, south side, and opposite the Houses of Parliament.

The grounds of the intended Winter Garden and Exhibition Palace are being laid out according to the designs of Mr. Nevin, the eminent landscape gardener, by Mr. Bowers, the company’s superintendent. The area extends over fourteen acres. The contract for the building will be decided shortly.

Additions are to be made to the Dundrum Lunatic Asylum, according to plans prepared by the architect to the Board of Public Works.

A dwelling house and offices has been partially erected at the deer park, Barley-hall, Co. Meath. Mr. James Boulger, C.E., architect.

The parish church of Carlow has been repewed and refitted. It was opened late last month.

Some important city sewerage works were contracted for by the corporation of Dublin on the 13th instant.

Additions and alterations are being made to the Roman Catholic Church of St. Peter (a conspicuous object in West-street), Drogheda, designed by the late Francis Johnston, architect, at a period when the application of Gothic architecture to parochial church structures was, to say the least, by no means “as happy” as it is at the present day. The interior is to be quite remodelled, and a handsome tower and spire, 150 feet high, will be added centrally at the front, other portions in connection therewith being remodelled to correspond in character. Mr. J. J. McCarthy is the architect.

## General Items.

The Exhibition of the Institute of Painters in Water Colours, London—such being the title by which the late New Society of Painters in Water Colours is to be known in future—will open on Monday, the 20th inst. The private view will be on the 18th.

There is an increase of £200,000 in the estimates for public works and buildings. The total estimate is £893,000.

The council of the Society of Arts purpose holding an exhibition of wood carving, ancient and modern, next June.

The town bell of Carlisle, after being in use for 279 years, has been taken down and deposited in the archaeological collection of the corporation, and a new bell is being erected in its stead.

Henry MacManus, Esq., R.H.A., is about retiring from the School of Art, Royal Dublin Society, upon a pension, granted by the government in consideration of his services.

Among the numerous advantages bestowed on the inhabitants of Paris within the last few years is to be reckoned a good supply of pure water. Paris now receives from various sources a volume of water equal to 153,000 cubic metres daily, of which the canal of the Ourcq supplies 105,000 cubic metres. This water is distributed by means of 20,948 metres of pipes for the supply of houses, and 754,852 metres of pipes for the supply of the public, of which the diameter of the largest is not less than 1 metre 10 centimetres. Two new steam pumps are being constructed on the Quai d’Austerlitz of 100-horse power each, which will increase the present supply of water by from 12,000 to 15,000 cubic metres the day.

It is stated that Mr. Charles Lanyon, the eminent architect and C.E., will, under proposed election changes, become a candidate for the representation in parliament of Belfast or of the County Antrim.

One of the odd ideas of the day is to get up a company to construct wire suspension bridges over the most dangerous crossings of London—return ticket a halfpenny—ascended by spiral staircases, constructed with a view to hide crinoline effects.

### Miscellaneous.

**PROPOSED LIFE ASSURANCE BILL.**—The following petition has been presented to Parliament, prepared by Arthur Scratchley, Esq., M.A. of the University of Cambridge, and others, members of Life Assurance Societies:—"That your petitioners are deeply impressed with the urgent importance of additional security being afforded to those who have already endeavoured, or may hereafter endeavour, to effect provision for their wives and families by way of life assurance. That at present a policy of life assurance taken out with such object is liable for the debts of the assurer, which may deprive his wife and family of any provision whatever. It appears to your petitioners that by the act of marriage every man undertakes the distinct responsibility of providing, as far as may lie in his power, for his wife and children; and that if he incur other liabilities of a pecuniary character, his family have at least as great a right as any other creditor to require some provision to be secured to them by a policy of assurance; and that it is to the interest of the community at large that, where assurances have been effected, the assurer should have the power of making some portion of them specially available for his family without the uncertainty and expense of a trust-deed. Your petitioners further humbly submit that the principle has already been recognised by the Legislature to a limited extent in the Acts relating to Friendly Societies; and that it has been adopted by the State of New York by an Act passed on the 1st April, 1840, enacting that any married woman by herself and in her name, or in the name of any third person, with his assent as her trustee, may cause to be assured for her sole use the life of her husband for any definite period, or for the term of his natural life; and that in case of her surviving her husband, the sum or net amount of the assurance becoming due and payable by the terms of assurance shall be payable to her, to and for her own use, free from the claims of the representatives of her husband or of any of his creditors; but that such exemption shall not apply where the amount of premium paid annually exceeds three hundred dollars. Your petitioners further humbly submit that, while granting this boon to the wives and families of assured persons, it is of the highest importance (whatever opinion may be entertained as to the propriety of making 'choices in action' generally assignable at law) that policies of assurance should be allowed to obtain their full value as commercial securities, by being made assignable by simple endorsement like bills of exchange, without the necessity of the legal representatives of the deceased joining in the receipt for the sum assured."

**THE FORESTERS AND THE LIFEBOAT INSTITUTION.**—The Ancient Order of Foresters are now making a collection amongst their members in aid of the funds of the National Lifeboat Institution. In their appeal they refer with gratitude to the great and important services the lifeboats of the institution are constantly rendering to the cause of humanity, and the strong claims it has on the support of the benevolent everywhere. The executive council, therefore, feel confident that a permanent and effectual response will be made to the appeal of the order, on behalf of one of the most important and valuable institutions in our land.

**EDUCATION, SCIENCE, AND ART. — CIVIL SERVICE ESTIMATES.**—The details of Class IV. of the Civil Service Estimate show a total net decrease on the estimates for education, science, and art for next year, as compared with last, of £23,693, the amount voted last year being £1,410,144, and the present estimate £1,386,417. There is a decrease on the amount of the Privy Council grants for Great Britain of £38,117, the estimate being £804,002, as against £842,119 last year; a decrease of £2,250 on the amount voted for the National Gallery, Ireland, viz., from £2,750 to £500; and of £8,471 on the amount voted for the British Museum, viz., from £99,012 to £90,541. The vote for the science and art department is £122,883, being an increase of £6,183, £5,000 of which is for special purchases from the International Exhibition. The vote for national education, Ireland, is increased by £15,112, from £290,904 to £306,016. The vote for the National Gallery is increased from £11,953 to £16,028, £4,000 of the increase being

due to the purchase of pictures, and the sum of £1,500 is asked for the purchase of works for the Historical Portrait Gallery, instead of £1,000 voted last year. The other votes under this branch are much the same as last year, and are as follows:—Commissioners of Education, Ireland (office expenses), £805; University of London, £5,500; Universities in Scotland, £19,905; Queen's University in Ireland, £2,296; Queen's Colleges, Ireland, £4,800; Royal Irish Academy, £500; Belfast theological professors, &c., £2,500; scientific works and experiments, £7,141; Royal Geographical Society, £500; and Royal Society, £1,000.

**THE METROPOLITAN RAILWAY.**—The opposition to the present plan of uniting the metropolitan termini is so general, that we (*Freeman*) would suggest to the promoters the policy of reconsidering the project, with a view to meeting the wishes of all classes of the citizens by uniting the railways, and not disfiguring any portion of the city. Several suggestions have been made, which seem calculated to effect this purpose of meeting all in support of the general purposes of the promoters, and it would be both a graceful and prudent policy on their part to reconsider their plans, and be in a position to go to parliament next year with the sanction of all parties in the city. There is yet time to do this, and to do it in a manner to win sympathy and support for an improved project.

**BRITISH COLUMBIAN TIMBER.**—Beaver harbour is fine, roomy, and well sheltered. . . The timber here is fine—the Douglas and White Pines growing very large. Three or four years ago a large number were felled, with the intention of shipping them to China and elsewhere; but from some mismanagement in the company which had undertaken the work, they were never dispatched, and are now lying about the beach in all directions. There is a considerable quantity of yellow cypress here also. This wood is not found on the south-east part of the island. Some have been cut on the west side, but it becomes more plentiful as you travel north; and in Russian territory, near Sitka, it exists in large quantities. It is very light and tough, and is by far the best wood on the coast for boat plank. When green it emits a peculiar, though not unpleasant smell, and can always be recognised in the woods by its leaf, which differs from that of the common pine—which tree it closely resembles, being convex on both sides. — *Mayne's British Columbia*.

**PRESENTATION OF THE FREEDOM OF THE CITY TO THE PRINCE OF WALES.**—The Corporation (London) have voted 250 guineas for the gold casket in which the freedom of the city is soon to be presented to H.R.H. the Prince of Wales. Out of thirteen competing designs for this casket, one in the cinquecento style, sent in by Mr. Benson, was selected on Saturday, and the work ordered to be completed forthwith. The casket is not to be as heretofore, a mere lump of precious metal, but will be an exquisite specimen of enamel and jewelled work; miniature coronets of the Prince and Princess, carefully jewelled in perfect imitation of the originals, surmounting the top of this costly little coffer. — *Times*, March 30, 1863.

**TUAM CATHEDRAL.**—In some measure connected with the objects of the Church Endowment Society is a proposal for rebuilding the ancient cathedral of Tuam. The plans for the new cathedral are drawn by Sir Thomas Deane, and are very beautiful. The celebrated ancient triumphal arch, unique in Ireland, is to be preserved, and to form the chancel of the new building. The cost of the edifice is estimated at £10,000, of which £3,000 has been collected and already expended in laying the first course of the structure. — *Irish Times*.

**ROUNDWOOD.**—It is stated that a hotel is to be erected in this picturesque locality, in close proximity to the great reservoir and tanks of the Dublin waterworks, which will, doubtless, form objects of attention in their neighbourhood, not only during their progress, but also after their completion. There are fully 300 workmen employed at present in the locality.

**THE LARGEST CITY IN THE WORLD.**—A very erroneous idea is indulged in by many people in relation to the largest city in the world—many confidently asserting that London, or, as it is frequently termed, the Great Metropolis, is far superior both in size and number of inhabitants. But such is not the case. Jeddo, the capital of Japan, is, without exception, the largest and most populous city in the world. It contains the vast number of 1,000,000 dwellings and 5,000,000 of human souls. Many of the streets are nineteen Japan serls in length, which is equivalent to twenty-two English miles.

**THE FINE ARTS.**—The *Times* states that Mr. Frith's picture, "The Railway Station," has been purchased from Mr. Flatow by Mr. Graves, the eminent publisher, for the enormous sum of £20,000. This is the largest sum ever paid for any single English picture.

**A SUB-DRAINING RAILWAY PAVEMENT.**—Mr. L. Stebbins, of Worcester, Massachusetts, has invented a sub-draining railway pavement, with which he proposes to cover the entire area of the street. It is made of iron; each block is about two feet square on the surface, and two inches and a half deep. There are four keys or square bolts to each square foot of surface. These keys rise three-eighths of an inch above the surface, and yield to the pressure of the horse's hoof. Each key rests on a rubber spring, which is secured in an iron tube. The inventor claims that it affords the best known surface for wheels to roll on; it renders the slipping of horses impossible; its use would prevent, to a great extent, the accumulation of dirt, and greatly reduce the expense incurred by cleaning streets. — *New York Daily Tribune*.

**ART UNION OF GREAT BRITAIN.**—We are informed by Mr. Lesage, 40, Lower Sackville-street, agent for the above art union, that it is the intention of the committee to select a portion of the prizes for their June drawing from our approaching Royal Hibernian Academy's Exhibition, and that the secretary, Mr. James G. Law, will visit Dublin on the opening of the exhibition purposely for that object. The remaining picture prizes are to be selected from London, Edinburgh, and Manchester. It will thus be seen that those connected with the management do not overlook, but are anxious to promote and sustain Irish art and artists—a fact which we trust will not be lost sight of by the Irish public. We learn from the prospectus that there will be upwards of one thousand prizes distributed, of which about two hundred and fifty will be paintings selected as above.

### TENDERS.

[The following has been forwarded to us by "a Subscriber," who should have authenticated it with his name in confidence.—ED.]

For erection of Stations at Nenagh and Cloughjordan on G. S. & W. Railway.

Lynch .. ..	£5,780
Drysdale and Son .. ..	5,390
O'Callaghan .. ..	5,388
Bagnall .. ..	5,300
Beardwood .. ..	5,280
Meade .. ..	4,800
Crowe, Brothers (accepted) .. ..	4,600
Dwyer .. ..	4,299

### MARYBOROUGH LUNATIC ASYLUM.

The tenders for additions to the asylum, according to plans by J. S. Butler, architect, were gone into. There were thirteen tenders, the highest was £7,880, and the lowest £5,460. The four lowest were recommended for acceptance by the Comptroller, Dublin, but no final decision was come to by the Board. The plans provide accommodation for thirty males and thirty females, in two wings, with an enlarged kitchen and store-room, a large hall, to be used on Sundays as a chapel, having the end of it enclosed by folding-doors to form an altar; the whole to be in keeping with present building, and to be finished in eighteen months. — *Leinster Express*.

[We understand that there were six of the tenders equal, or nearly so; a rare occurrence truly.—Ep.]

### TO CORRESPONDENTS.

**SUBSCRIBER** (will be glad to receive promised information). —W. F. (attended to; the body is not yet in a position to take any steps about anything, as may be seen by present number, though it should have been long since had there been less delay in the preliminary proceedings). —J. J. M. (answered before). —**OLD SUBSCRIBER** (it does not matter now). —S. S. (thanks; declined). —R. F. F.—y (no).

**ERRATUM** (review of Campin's book, page 58).—By one of those awkward but occasionally unavoidable errors in typography (sometimes, perhaps, as much the consequence of illegible MS. as the carelessness of compositors), our notice of this book was made to read ridiculous, and quite contrary to our opinion, which is favourable of it. The sentence in which the word *mist* is erroneously introduced should have read thus—"the highest," &c., to "a unit of," &c. This explanation is due to the enterprising publishers of this and numerous standard valuable works, Messrs. Atchley and Co., of London, W.C.

**NOTICE TO PUBLISHERS AND AUTHORS.**—Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MARBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Mr. Lyons also holds commissions for supply of Caen, Glasgow, Bath, Forest of Dean, and Welsh building stones.

# The Dublin Builder.

VOL. V.—No. 81.

## RENEWED CONSIDERATIONS ANENT THE REVIVED INSTITUTE.

**A**S full particulars as memory can supply relative to the latest proceedings of the first general meeting of the revived Institute of Architects in Ireland, are placed before our readers in this number. They must be viewed by every independent well-wisher of a project, set on foot under such peculiar circumstances, in a somewhat conflicting manner, between congratulations on the one hand for its having arrived at a climacteric point at all even after a tedious course of preliminaries; and regret on the other, for the various misgivings that accompany it in its earliest career.

On the 3rd of January last, the most important meeting of the architectural profession ever held in Ireland, assembled to protest against an alleged breach of good faith by a public board with certain of its members, and, as a consequence of this meeting it was resolved that, with a view to the future protection of professional interests, the Institute—which for six years previously had been in a lethargic condition—should be revived.

Then and there, and from the gentlemen comprising the meeting, a committee was nominated to effect this object (admitted by all as most desirable), and every possible exertion in that behalf was employed, successfully too, for the way was smoothed, and numerous acquisitions to the ranks of the revived Institute were secured, with the proviso, however, that such revival was to take place on a broader basis, and with a more enlarged sphere of action than hitherto.

The former Institute consisted of 40 members, but in addition thereto, owing to the representations of said committee, by circular and otherwise, thirty-three other gentlemen sent in their adhesion, and (from a personal acquaintance with the majority of them) we are enabled confidently to express a belief, that such would have been unanimously consummated, had the first proceedings of the Institute been encouraging. It is, however, otherwise, as we are prepared to show, and even already the returned spark of life in the Institute is flickering, so as to cause much apprehension. The general meeting above referred to was secured, mainly owing to the instrumentality and personal exertions of three eminent local practitioners—namely, Messrs. J. M'Curdy, E. H. Carson, and J. R. Carroll, who had distinguished themselves in the competition, the results of which were to form the subjects for deliberation at said meeting. Of the twenty-nine gentlemen who attended that meeting ten only were members of the former Institute, and nineteen were not; and of those who comprised the re-organisation committee six were members, and three were not.

We have before detailed the several proceedings of each as they took place, and need not now repeat them, but a passing reference thereto is necessary to the refreshment of our readers' memory. Two facts at least were established beyond controversy, viz., that there was a necessity for an Institute of Architects in Ireland, and, moreover, that the profession had within itself ample material for the maintenance of an influential and useful representative body, if same were put rightly to account. The initiative for its re-establishment had been assumed by a majority of gentlemen outside the former Institute, and who, during the comatose state of the latter, were pursuing their professional avocations successfully; and, therefore, it only remained for those within its pale to second their efforts, and adopt practical measures for its revival. Where may we ask would even now be the Royal Institute of Architects in Ireland were it not for the spur that was struck into it by the members of the profession generally on the 3rd January last? Undoubtedly nowhere!

It became indispensably necessary at the revival, for the pursuit even of preliminary business, to form some provisional government in connection with the Institute, and we should gladly have noticed the old officers resolve themselves into a temporarily useful position, and afterwards, respecting its permanent constitution, to have deferred to the wishes of the general body. Not so, however; the old council re-assembled on various occasions, ruled as suited their views, and, with but trifling exceptions, recommended—nay pressed—their own re-election for a period and at a period for which no precedent was afforded. Against this proceeding no demonstrative opposition was offered, but an unmistakable exception has been taken to it by the members of the profession generally, as evidenced by the handful that attended on Thursday evening last in obedience to the council's call for "general election." We should have infinitely preferred to have witnessed on that occasion the element of opposition, rather than the element of disgust apparent, for the former contributes healthiness of action more than otherwise; whereas the latter only tends to separation and final desertion. Twelve gentlemen out of forty, and (with three exceptions, viz., Barre, Astley, and Longfield) all interested parties as office bearers—clearly do not represent the opinions of Institute members respecting this election; nor—more clearly still—the opinions of the numerous applicants for admission, whose names were put forward. We strongly protested against the election being otherwise than temporary till November, and with partial success; a success, however, still requiring a little pressure from without to render it operative when the proper time arrives.

For our own part, while fully alive to the misgivings referred to, we still have some hope in the ultimate success of the Institute, if outsiders will come forward at once and consummate their proposals to join it; and if each individual will lend his aid and record his vote in such matters as must tend to re-establish and maintain it on an enlarged basis. Whatever the profession may object to in the proceedings so far, they have it in their own power to remedy, by joining, voting, and speaking their minds independently; whereas, if they decline doing so, they leave the Institute to—we apprehend—an ignominious and untimely fate.

Admittedly there is much strength in the present constitution of the Institute, but as far as the interests of the profession are concerned, and the usefulness of the body itself, it is truly the same inertia of matter which it always possessed.

A few desirable modifications in the bye-laws have received assent, but very much more in that regard still remains to be considered, and we would specially direct attention to the amendments proposed by Mr. Lyons relative to "the increase in number of council members from seven to ten;" to "the enlargement also of the council quorum from three to seven;" to "the institution, (and, what's more, the infliction) of smart fines on council members for frequent absence"—and to "the assistant secretary (an office for which only a member of the first class is eligible) being debarred from the right to vote at council meetings."

## THE EXHIBITION PALACE AND WINTER GARDENS.

THE preliminary works in the ere of Harcourt-street, are steadily progressing. The building itself has not yet been commenced, but tenders are being received for its erection. It is to be hoped (says the *Irish Times*) that the work, which is of a great national character, will be successfully competed for by an Irish contractor. A considerable number of eminent contractors from London, Birmingham, Glasgow, Liverpool, and other places, are competing. Messrs. Griselle and Pete, of London, and Eginton and Co., of Glasgow, who are the contractors for the building of the Paris Exhibition at present in process of erection, are amongst the competitors. During the delay in getting in the tenders for the main building, the earth-works have not been neglected. The old wall which divided the two fields, and stood there for centuries has been thrown down. A stately elm standing close by has been preserved. It is the only venerable relic in the new gardens. They will be of an ornamental and beautiful character, resembling in many of their decorations the celebrated gardens at Kew. Raised above the walks there will be a number of grassy mounds, adorned with flower beds, plants of rare foliage, and a collection of exotic trees and shrubs. Neither will it be destitute of ornamental waters. At the Harcourt-street side there will be a large circular basin with a crystal fountain now in course of formation. It will be tenanted by numerous specimens of gold and silver fish. Throughout will be a number of aquatic plants and interesting geological specimens which are being already collected by Mr. Henry Parkinson, the secretary. At the ere of Mr. Guinness' town residence, which extends to the palace grounds, there will be an ornamental sheet of water. In this

there is to be a small island, a miniature Innisfallen, devoted to the growing of ferns and ornamental shrubs. The portion of the ground facing Hatch-street will be devoted to a peculiar style of gardening. The ground is to be decorated with rough roots, rocks, ferns, heterogeneous plants, and also some beautiful geological specimens from Bray head, collected by Mr. Parkinson. A quantity of ornamental granite has also been procured from Dalkey for the decoration of the grounds. At the extremity of one of the principal avenues there is to be a labyrinth or maze, in imitation of one at Hampton court.

The walks if extended would reach a quarter of a mile, although the space to be occupied will be comparatively small. It is also in contemplation to have throughout the grounds a number of ancient temples, copied from original designs. The grounds will also be enriched with groups of sculpture, vases, and fountains. They will be also highly decorated with flowers and green embroidery. A number of rural seats will be provided for visitors, whose leisure hours can be passed with pleasure and profit in the contemplation of numerous works of art to be interspersed throughout the grounds. If the present intentions as regards the ornamentation of the grounds are successfully carried out, they will be almost equal in point of beauty to the grounds surrounding Hampton Court, although they cannot boast of their antiquity. The archery ground has been completed, and will be ready for the summer matches. It is 360 feet long, by 160 feet wide, surrounded by a sloping grassy bank, from which visitors can view the games. The sward has been beautifully levelled and the soil thoroughly drained. This will be one of the most interesting features in connexion with the new gardens, more especially as heretofore admirers of the ancient sport have had no regular arena on which to contend. The building known as the Winter Garden will be, in fact, a small Sydenham, a great part of the work being exclusively composed of glass and iron. The new palace will at last remove the reproach, so long cast on us, that Dublin, the second city in the empire, had no building of the character now about being erected. The levelling and preliminary arrangements of the ground are under the immediate superintendence of Mr. Henry Parkinson, the secretary, who is unremitting in his endeavours to have the designs faithfully carried out. The foremen of the earth and drainage works is Mr. Bowers, who has daily a couple of hundred men in his charge. The Duke of Leinster, Mr. Benjamin Lee Guinness, Mr. William Dargan, and other distinguished personages interested in national prosperity, recently visited the works and expressed themselves much satisfied with the progress which has been made.

## THE CONSTITUTION OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

CONCURRENTLY with the list of newly-elected Council and Officers of the Royal Institute of Architects of Ireland we give the names of the gentlemen constituting the direction of the contemporary institute at London, by which it will be seen that the Council of the latter is composed of ten to our seven, a precedent which should be imitated, as urged the other night, previous to the election of officers, by the conductor of this journal. It may be argued that the London Institute is the representative body of a much larger number of professionals than the Dublin, and, consequently, ought to have a larger Council; but this is, on the other hand, to be met with the reminder that, in London, there is also an Architectural Association, with ten Council members likewise, and that each principal city and town has its association or society, independent of the parent institute, whereas all Ireland has only one. The officers of the London Institute are all London practitioners.

### PATRONESS.

The Queen.

### COUNCIL:—

#### PRESIDENT.

W. Tite, F.R.S., M.P.

#### VICE-PRESIDENTS.

A. Ashpitel, Owen Jones, G. Gilbert Scott.

#### HONORARY SECRETARIES.

John P. Seddon, Charles Forster Hayward.

#### ORDINARY MEMBERS OF COUNCIL.

E. M. Barry, W. Burges, J. Fergusson, R. Kerr, T. H. Lewis, W. Papworth, J. L. Pearson, W. Slater, G. E. Street, J. B. Waring.

#### HONORARY SECRETARY FOR FOREIGN CORRESPONDENCE.

Francis Cranmer Penrose.

#### AUDITORS.

William White (Fellow), Wm. Lightly (Associate).

#### TREASURER AND BANKER.

Sir W. R. Farquhar, Bart., 16, St. James's-street.

#### HONORARY SOLICITOR.

F. Ouvry, 12, Queen Anne-street, Cavendish-square.

#### LIBRARIAN.

Francis T. Dollman, Conduit-street, Hanover-sq.

# THE ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

A GENERAL meeting for the election of officers and of new members, and for the consideration of proposed amendments of the existing bye-laws (as hereafter given *in extenso*), was held at the Antient Concert Rooms, Great Brunswick-street, on Thursday evening, the 23rd ult., at half-past seven, p.m. The chair was taken by

JACOB OWEN, Esq., V.P.

The other members of the Institute present were, Messrs. Charles Lanyon, J.P., James H. Owen (hon. sec.), F. V. Clarendon, C. D. Astley, W. G. Murray, S. Symes, J. M'Curdy, J. J. M'Carthy, W. J. Barre (Belfast), J. J. Lyons, and — Longfield.

The honorary secretary having read the minutes of the last general meeting, which were confirmed, the following list of gentlemen was submitted by the council to occupy the respective offices therein detailed, until the year 1864.

## PATRON.

His Excellency the Earl of Carlisle, K.G., &c., &c.  
PRESIDENT.

Charles Lanyon, Esq., R.H.A.

## VICE-PRESIDENTS.

J. Owen, Esq., P. Byrne, Esq., R.H.A., Sir T. Deane, R.H.A.

## COUNCIL.

F. Darley, Esq., F. V. Clarendon, Esq., G. Wilkinson, Esq., Sir John Benson, S. Symes, Esq., J. J. M'Carthy, Esq., R.H.A., P. Neville, Esq.

## SECRETARY.

James H. Owen, Esq.

## ASSISTANT SECRETARY.

J. J. Lyons, Esq.

## TREASURER.

W. G. Murray, Esq., R.H.A.

## AUDITORS.

N. Montgomery, Esq., J. M'Curdy, Esq.

Prior to proceeding with the election, some discussion took place as to its desirability in the manner proposed and at the present stage of affairs. Mr. Lyons objected to an election of officers for so lengthened a period, on the grounds embodied in the following resolution:—

"That considering that this Institute remained for such a lengthened period in a state of abeyance, and that its revival was suggested at a general meeting of the architectural profession in Ireland (held on the 3rd day of January last), at which a special committee for its reorganisation was appointed; and further, considering that owing to the exertions and representations of that committee, a number of professional gentlemen have been induced to apply for admission into the Institute as new members; also that, as according to the existing bye-laws, this is not the proper period of the year for a general election, it is desirable for this meeting now to proceed to the election only of temporary officers and council (for balloting purposes and general transaction of business), subject to approval and confirmation by a general meeting of both old and new members, to be held on the third Thursday in November next, the date appointed for the purpose."

Mr. Murray expressed himself dissatisfied with the words "temporary" and "confirmation" in the foregoing.

Several gentlemen having made various observations respecting it, Mr. Lanyon rose and said that he saw no reason why Mr. Lyons' amendment should not be adopted, inasmuch as that, speaking for himself with reference to the office of president with which his (Mr. Lanyon's) name had been associated, he should be unwilling to accept such an office, if he thought that his election thereto was not with the general approval of members of the profession in Ireland, as well as of the comparatively limited number that constituted the present meeting; and that, as several gentlemen not yet members of the Institute had applied for admission thereto, perhaps it would be only right to wait to receive their sanction to the election.

(We must observe that this is but characteristic of the impartial and independent expression of opinion manifested by the newly elected president on all occasions of his participation in the proceedings of the Institute.)

Mr. M'Curdy then alluded to the very gracious manner in which Mr. Lanyon deferred to the wishes of the gentlemen at present outside the Institute, as well as to those members not present, and expressed his opinion that as several very eligible applicants for admission would most probably be elected shortly, it would be the better course only to adopt the proposed list subject to the ratification of the general meeting in November next.

Subsequently this latter course (as first suggested by Mr. Lyons' amendment), was understood to be substantially adopted, and Messrs. Symes and Lyons having been appointed scrutineers, the ballot was opened.

Meanwhile the consideration of the amendment of the bye-laws was proceeded with, the hon. sec. reading aloud the several propositions in the paper (hereafter annexed).

Mr. Lyons wished to make some observations relative to the assistant secretaryship, as he was a specially interested party thereto, his name having been proposed on the balloting list for that office. He drew the attention of the meeting to the fact that a resolution passed at a council meeting held on the 12th day of February last, provided that "there should be a paid assistant secretary, at such a salary as the funds of the Institute would permit," and a subsequent resolution provided that there should also be a paid "clerk" at a salary not exceeding £20 per annum. Surely it was not intended to have two paid officers? (This observation elicited a general laughter). Mr. Lyons felt assured that he need scarcely remind gentlemen around him that the acceptance of the assistant secretaryship as proposed would be quite incompatible with his position, but he gave the gentlemen who framed these resolutions the credit of having perpetrated some misunderstanding unintentionally.

The hon. sec. explained that the assistant secretary and the clerk were intended by council to be two distinct individuals, and that in passing the latter resolution the existence of the former had been forgotten.

The misunderstanding being therefore cleared up, and its being shown that the office of assistant secretary was not to be associated with any conditions as to emolument, Mr. Lyons' name was by consent placed in nomination therefor.

Relative to same office Mr. Lyons also objected that the assistant secretary should not (as proposed) have a vote at council meetings as well as the secretary, the former being obliged to attend at council meetings in the absence of the latter; and he signified his intention of not retaining the office after the general meeting in November, in the event of that restriction not being removed.

Mr. Murray, Mr. M'Carthy, and others were understood to express their opinions that the assistant secretary should *not* have a vote at council, Mr. M'Curdy and others were for it.

Mr. Barre said he certainly considered that if the assistant secretary was to be chosen from amongst the members of the Institute, he should enjoy equal privileges with the hon. sec., and have a vote at council.

This question was not finally settled, but Mr. Lyons gave notice that he would bring forward the following amendments relative to it.

"That the proposed bye-laws, section IX., providing that the assistant secretary shall not be a member of the council, &c., shall be dispensed with."

"That the resolution of the council of the Institute, passed at the meeting of the 12th February last, to the effect that 'it is desirable that a paid assistant secretary be appointed at such a salary as the funds of the Institute will permit, to act under the directions of the honorary secretary,' be rescinded, and the following substituted, viz., 'That it is desirable to appoint out of the first class of members an assistant (or acting) secretary who shall act under the direction of the council.'"

Mr. Lyons afterwards announced the result of the ballot as follows:—

"That the several names submitted by council for election as officers were adopted by the present meeting, and that six absent members had voted therefor by proxy."

A letter was read from Mr. E. H. Carson, declining to vote, as the bye-laws provided for the election to take place in November, and not in April; also that being a member of the reorganization committee, he considered that the gentlemen applying for admission into the Institute through its medium ought likewise to have a vote at the election of officers.

A letter was also read from Mr. Parke Neville (late one of the honorary secretaries), stating his inability to attend, but enclosing the voting paper adopted, with the modest addendum "that the only objection he saw thereto was that the name of some more efficient member of council was not substituted for his."

The following gentlemen were proposed for election as new members and duly seconded, their respective positions in the Institute will be determined by the council:—

Messrs. John Lanyon and Edward Trevor Owen (put forward by the council); W. J. Welland, W. Gillespie, George Ashlin, J. S. Butler, T. Drew, W. R. Farrell, James Bell, jun., J. Boyd (Belfast), John Bourke, S. U. Roberts (Galway), W. Fogerty (Limerick), W. Hague, J. B. Farrell (Wexford), E. P. Gribbon, Isaac Farrell, Martin Morris (Cork District clerk of works, Board of Works), James Birmingham (Ballinasloe, do.), W. Gray (Belfast do.), J. C. Campbell, Charles Geoghegan and J. Rawson Carroll.

At the conclusion of the meeting it was arranged that the president should communicate with the Lord Lieutenant's private secretary, and ascertain at what date it would be his Excellency's pleasure to receive a deputation from the Institute, to ask the favour of his Excellency's acceptance of the office of patron, to which he had been unanimously elected.

A vote of thanks was accorded by acclamation to the chairman for his conduct in the chair.

The newly-elected president, Mr. Lanyon, took occasion, before the meeting separated, to express in brief but suitable terms his acknowledgments for the distinguished honour conferred on him, and trusted that he should be found worthy of it.

[We have reason to believe that a formal inauguration of the Institute, with some attendant *eclat*, will take place at an early date.—ED.]

## PROPOSED CHANGES IN THE BYE-LAWS.

The council beg to submit, for the approval of the Royal Institute, the following changes in the bye-laws:—

Section II. Clause 1.—For—fellows, associates, honorary associates, and honorary fellows; substitute—Fellows, students, associates, and honorary members.

Clause 2.—For—The fellows shall be architects of good repute, who have been engaged as principals for at least five successive years in the practice of civil architecture; substitute—Every candidate for admission into the class of fellows must be at least twenty-five years of age, and shall have been regularly educated as an architect, and have practised on his own account for at least three years, and have acquired a degree of eminence in the profession from his executed works, or he shall have been for at least five years the responsible conductor of an extensive practice.

Clause 3 proposed to be expunged as unnecessary.

Clause 4.—For the beginning of the clause down to the words "twenty-one years:" substitute—Associates shall be persons of twenty-five years of age at least, who are not necessarily architects by profession, but whose pursuits constitute branches of architecture, or who are by their connection with science or the fine arts qualified to concur with architects in the advancement of professional knowledge.

The following clause to be inserted for clause 3. Students shall be persons not under eighteen years of age, who shall not have been less than two years in the office of an architect, unless under particular circumstances, and whose papers and drawings shall have been well considered with a view to determine their fitness for election.

Clauses 5 and 6 to be expunged.

After clause 7 insert—

No person shall be eligible for admission into the Royal Institute who shall at the same time be acting in the double capacity of architect and builder, and this disqualification shall extend to cases where the candidate is acting for one employer as archi-

teet and for another as builder, it being a fundamental rule of the Royal Institute that it is contrary to the interests of the public and the profession that both capacities should be united in the same person.

#### Section III.—Of the officers.

The council recommend the consolidation of the two clauses of this section as follows:

The officers of the Royal Institute shall consist of a patron, a president, three vice-presidents, seven members of council, a secretary, a treasurer, and two auditors, who shall together form the council of the Institute, and an assistant secretary. All the above officers and council, with the exception of the patron, must be chosen from the first class of members.

Section IV. Clause 6.—For—"It being," substitute "Should it be."

Clause 7.—For "Associates" substitute "students."

Clause 9.—For "Fellow, associate, honorary fellow, or honorary associate," substitute "Fellow, student, associate, or honorary member."

Clauses 10 and 11.—The same alteration.

Clause 13.—For "or associate" substitute "or student."

Omit the words "for having engaged since his election in the measurement, valuation, or estimation of any works undertaken or proposed to be undertaken by any building artificer, except such as are proposed to be executed or have been executed under the member's own designs or directions; or"—

Insert after the words "professional character"—"or in the case of an associate for general loss or character, or for any conduct which may reflect discredit on the profession of the Royal Institute."

Section V. Clause 1.—Before "the president" insert "the patron." After "the secretary" insert "the assistant secretary."

Clause 2.—A similar alteration.

Clause 3.—For "fourteen" substitute "seventeen."

Clause 4.—To be omitted as unnecessary.

Clause 5.—Before "one member" insert "one vice-president," and at the end of the clause, but they shall be eligible for any other office than that which they vacate.

Section VI. Clause 1.—To be omitted.

Clause 2.—Omit "at his entrance."

For "ten guineas" substitute "fifteen guineas." Omit the rest of the clause and insert "and an entrance fee of one-and-a-half guineas."

After this clause insert the following—

The students shall pay an annual subscription of half a guinea, and an entrance fee of the same amount, or a composition of five guineas; provided always that in case of students being raised to a higher class, they shall pay at the time of their promotion the difference of the entrance fees of the two classes, and the annual subscription of the class to which they are promoted, or in case of a composition having been paid, the difference between the compositions of the two classes.

Clause 3 to be altered to

The associates shall pay an entrance fee of one guinea, and an annual subscription of one guinea, or a composition of ten guineas.

Section IX.—After clause 5 insert—

The assistant secretary shall not be a member of the council, but he shall attend all meetings in the absence of the secretary.

Section XVIII. Clause 2.—To be omitted as being inoperative.

Page 21.—At the end of the form to be signed by new members, insert "I also engage to present to the Royal Institute an original communication, drawing, plan, or model of architectural interest, or some work bearing on art or science, within the space of twelve months from my election."

The council beg further to submit, for the approval of the Royal Institute, the following resolutions adopted by them, viz.—

"That it is expedient that the president should be selected from the most eminent practising members of the profession."

"That the secretary be authorised to employ a clerk, at a salary not exceeding £20 a year."

"That as the present session is so far advanced, it is desirable that the officers and council now elected should continue in office until the annual general meeting in the year 1864."

By order,

JAMES H. OWEN, Secretary.

April 1st, 1863.

The following are several amendments to the above, suggested by Mr. Lyons during the reading of the proposed changes in the bye-laws, but some of which did not receive proper consideration, being hurried through. We, however, give them to our

readers, as they will form subject for discussion at next general meeting.

"That the constitution of the Institute be fellows, members, associates, students, and honorary members, instead of fellows, students, associates, and honorary members."

(In proposing the above, Mr. Lyons explained that many young architects, applicants for admission, might not be of sufficient professional standing to render them eligible for fellowship, while, on the other hand, they would deserve something better than associateship, which latter class included gentlemen not necessarily architects at all.)

"That from clause 2, section II., the words 'must be at least twenty-five years of age' be omitted; likewise that from clause 4 (same section) the words 'of twenty-five years of age at least' be omitted; and that the words 'not under eighteen years of age' be omitted from the clause proposed to be inserted for clause 3; and from same clause the words 'under particular circumstances' be omitted."

(The three first alterations were agreed to.)

"That the council of the Institute shall consist of ten members instead of seven, as at present."

(Mr. Lyons urged that, as the Institute of British Architects and Architectural Association of London had each ten members of council, this Institute ought likewise; besides, it would enable the members to gratify the wishes of some more gentlemen who might desire and be entitled to serve on the council.)

"That from clause 13 (bye-laws), the words 'or associate' be omitted at second line, and the words 'fellow, member, associate, or student' inserted between 'or' and 'for,' on the seventh line; and the following sentence added to the paragraph:—"But should any fellow hereafter desire to alter his course of professional practice, and attach that of building surveyor thereto, it shall be lawful for him to do so on notifying in writing his intention of same to the secretary, and he shall thereupon retire from the grade of fellow to that of associate."

(The reason put forward by Mr. Lyons for altering this resolution was, that probably owing to its present wording, many gentlemen might be deterred from joining the Institute, lest that hereafter, in the event of their wishing to unite the department of building surveying to their professional avocations, they would be liable to expulsion. The members present, however, seemed to think otherwise, but the amendment still stands for proposition.)

"That the council and officers shall be elected annually, by ballot, at the general meeting, to be held on the first Thursday in November instead of the third."

(This resolution was not brought forward. It seems, however, desirable to begin the work early instead of late in each November.)

"That clauses 2 and 3, section V., of bye-laws be dispensed with as unnecessary."

(These clauses refer to the council presenting "a list" of parties whom they recommend for election for ensuing year.)

"That the annual subscriptions of fellows shall be two guineas per annum, with composition for life-fellowship of fifteen guineas; of members one and a-half guineas, with composition for life-membership of ten guineas; of associates, of one guinea, with composition for life-associateship of five guineas (together with entrance fee of one guinea in each case); of students, half a guinea annually, and entrance fee of same amount."

(The present subscription of fellows is one and a half guineas, and Mr. Lyons expressed his belief that any gentleman holding that position in the Institute would not object to pay two guineas instead.—Mr. Murray, the treasurer, however, thought and knew otherwise, so the resolution was withdrawn.)

"That, in pursuance of existing bye-law, clause 4, section VII., it is required that the previous council and officers shall draw up an account of the state of the property and affairs of the Royal Institute, and present same, properly audited, at a special general meeting, to be convened at an early date for the purpose of receiving it."

(This resolution was anticipated by the honorary secretary who proposed one substantially the same.)

"That henceforward the council quorum (now provided by clause 2, section VII., of the bye-laws, to consist of three members), shall be seven, including the officers of the Institute."

(The value of this proposition is obvious, and will

ensure a more general accord in all the acts of council.)

"That, instead of omitting the clause 2, section XVIII., as being inoperative, the following be substituted, viz., 'That each member of the council, who shall absent himself from council meetings on three successive occasions, without showing just cause for his absence, and communicating same in writing to the secretary, shall pay a fine not exceeding one guinea; and any member who shall be fined twice in one session shall be deemed ineligible for re-election on the council at the ensuing general election.'"

(Some discussion followed this resolution. Mr. Lyons said that it was necessary to adopt some measures to have the regular attendance of council members, and that the course he proposed would attain that end. Gentlemen might continue year after year on the council without attending its meetings.)

Mr. Clarendon observed, with reference to being fined twice during one session, that there were only six meetings in the session, and that unless a gentleman absented himself from all of them, Mr. Lyons' resolution would be inoperative.

Might not there be necessity for many more council meetings than six during the session; and was it not a fact, that gentlemen did absent themselves from all and still retained office? The members have a right to call one by requisition when and as often as they please. The chairman objected to the proposed fines.)

#### VARIOUS PUBLICATIONS.

MR. S. O. Beeton of Strand, London, sends us the usual parcel of his valuable publications, minus, however, his dictionary of science, &c., the most valuable of the lot. The *Boys' Penny Magazine* (vol. i. No. 4) is instructive and interesting to juveniles. The *Anomaly*, a half sheet, discusses police questions, and especially that of the proposed amalgamation of the London city and metropolitan police under one government. The *Islington Gazette* is a marvel of news, price one halfpenny, and to exist at all must needs have a vast circulation. Will any venturesome speculator try if "a farthing journal might not pay even better? How far down in the scale of newspaper economy shall we go? "The Royal Dublin Society and its privileges versus imperial policy and Irish public right," is the title of a recently issued pamphlet (Webb and Son, printers), having for its object the denouncing of the proposed abolition of the Museum of Irish Industry and transfer of its collection to the Royal Dublin Society. As this subject is treated of on another page in this issue we dwell no further upon it at present; the pamphlet, however, is clearly and forcibly written. Part ii., No. 2, Sessional papers of the Royal Institute of British Architects (London: J. H. and James Parker) contains a most learned and interesting paper by Mr. J. H. Parker (honorary member) on "the Abbey Churches at Caen,"—together with illustrative lithographs and woodcuts—and read at an ordinary general meeting of the Institute on the 26th January last.

#### ILLUMINATED ADDRESSES.

THE recent marriage of the Prince of Wales has given a slight impetus to "illuminated art" in Ireland, and has served to bring the talents and taste of its professors more prominently forward than opportunity had hitherto afforded. The address from the City of Dublin Corporation to the Prince and his bride was beautifully illuminated by Mrs. Henry Gonne, of Clare-street—a lady who for many years has followed that art as a profession, combined with the no less delicate and interesting production of artificial flowers in wax and coloured papers; and at Belfast we find that the eminent firm of Messrs. Marcus Ward and Co. have produced the "illuminated address" presented to their Royal Highnesses by the inhabitants of the great commercial capital of Ulster. The title page of the latter is brilliantly illuminated in gold, silver, and colours. At the top, supported by the Prince of Wales's feathers, is the coat of arms of his Royal Highness, viz.:—Quarterly; first and fourth grand quarters, the arms of England, with a label of three points; second and third grand quarters, the arms of the late Prince Consort (Saxony). In pretence, over all, Cornwall, Chester, Rothsay, and Dublin, quarterly, with the insignia of the Lord of the Isles, charged on an inescutcheon. We should wish to see this branch of art more sought after than it is, not alone in the mere purchase of specimens from London houses, but in studying the art of design under competent professors.

## RECENT DISCOVERIES AT JERUSALEM.\*

THE chief interest that attaches to the discoveries lately made at Jerusalem by Signor Pierotti, corroborated, as they doubtless will be, in all main points, by the still more recent investigations of the Count de Vogue and M. Waddington in the course of last year, is derived from the remarkable confirmation which they afford to the received views of the topography and archaeology of the Holy City, in the case of those sites which are of greatest importance in connection with its sacred history. I gratefully accept all the facts brought to light by Signor Pierotti, while I differ considerably from his inferences and conclusions. Here I shall state my own views, without entering into controversy.

As it would be impossible to do justice to all these discoveries in the course of a single lecture, I propose to confine my remarks to the site of the Temple and its contiguous fortress, Antonia. The situation of the former appears to be fixed beyond all possibility of doubt by the recent discovery of Signor Pierotti of the complete water system connected with the Hebrew temple, still existing as entire as when it was in daily use during the period of the Jewish commonwealth. The perfect preservation of this complicated system of aqueducts, drains, and reservoirs, is owing to the fact that they are all excavated in the solid rock, and therefore have not been affected by the demolition of the structures above, except so far as they may have become partially blocked up by the accidental falling in of debris of the ruined buildings.

Had history been silent on the subject, yet we should have been forced to conclude, from the account of the various sacrifices connected with the Jewish ritual, especially from the description of the numerous victims offered by Solomon at the Feast of Dedication, that there was a very complete system of sewerage connected with the Temple, introducing a large quantity of water to dilute the blood, which would otherwise have had a tendency to coagulate, and carrying off the blood and offal from the sacred precinct.

This, history tells us, was actually the case. The fullest account which is preserved of these waterworks is contained in the description of the Holy City and of the Temple worship, in a tract of Aristæas, who visited Jerusalem during the reign of Ptolemy Philadelphus, and who describes a vast series of reservoirs beneath the area of the Temple, supplied by a copious spring of living water, and connected together by pipes and conduits extending over a space of five furlongs. There were many openings to these hidden depths from the area above, the secret of which was known only to the ministers of the Temple; and the supply of water was so managed as to flush the whole court, and carry off the blood of the numerous sacrifices. This description is fully confirmed by the Mishna and other Jewish authorities.

This language, which might formerly have appeared exaggerated, is now proved to be literally correct; for those cisterns have been actually explored, and the conduits and drains traversed in all directions by Signor Pierotti; so it is no more matter of conjecture, but of ascertained and positive fact.

It was the happy suggestion of Professor Willis, and a striking example of that marvellous intuition for which he is so remarkable in investigations of this nature, that the hole in the sacred rock of the Moslems under the well-known dome of their Moske, and the cave in that rock, now so familiar to all from the frequent descriptions of many travellers, but especially from the drawings of Mr. Catherwood, were the drain and cesspool of the Jewish altar; and that the round hole in the centre of the rocky pavement of that cave was the mouth of the channel by which the blood, poured out at the horns of the altar, flowed off, according to the Mishna, to the valley of the Kidron. The theory of Professor Willis readily implied the condition that, if ever the hollow in the rock under that circular stone should be explored, there would be found an aqueduct for bringing in a supply of water on one side, and a drain for carrying off the blood and water on the other side. Now such is really proved to be the case; and Signor Pierotti has actually entered that lower cave by one channel, and quitted it by the other.

The supply of water, which no longer flows in these channels, owing to various obstructions, was derived from the celebrated Pools of Solomon on the road to Hebron, south of Bethlehem, and was brought to Jerusalem by an aqueduct which still exists. It crosses the Valley of the Tyropean by the artificial embankment which joins Mount Sion to the Temple Mount—the *bridge* of the Jewish historian. It was then received into a well, sunk in the rock immediately in front of the Porch of El-Aksa, from whence it was distributed according

to the exigencies of the Temple worship; for the supply could be regulated according to the requirements of the season. The channel for the supply of the Temple ran northward from this well, under the wide causeway which leads from the north door of El-Aksa to the south gate of the Dome of the Rock, passes under the stairs opposite the Gate of Prayer, and so through the rock of the raised platform into the lower cave, as already described, which marks the site of the altar of the daily burnt-sacrifice. When this is once ascertained, the whole Temple can be laid out, with the help of the tract Middoth (measures) in the Mishna; and it is a curious and interesting fact, that when the various parts of the Temple are distributed and adjusted according to these measures, the interval between the western wall of the holy of holies and the boundary-wall of the inner Temple, is exactly what it ought to be, supposing the western limit of the inner Temple to correspond with that of the raised platform of the Haram, which, as being cut in the live rock, has probably remained unaltered from Jewish times.

The drain from under the Jewish altar then runs northward for a distance of 120 ft., to a large double cistern, hollowed in the rock of the raised platform of the Haram. The Jewish authorities inform us, that the place where the victims were slaughtered, the hooks to which they were hung for the purpose of being flayed, and the marble tables on which they were dressed, and the parts appropriate for the sacrifice separated and prepared, was to the north of the great altar. Here, therefore, would be the greatest effusion of blood and other matter connected with the slaughter of the beasts; and here, accordingly, were these large receptacles, with an arrangement for a fresh supply of water coming in from the west, the source of which has not yet been fully investigated.

From this point the sewerage took an easterly direction, and ran through a triple rock-hewn tank under the lower area of the Temple, about half way between the raised platform and the eastern wall, where it was further diluted by a fresh supply of water introduced by an aqueduct from the enormous tank outside the northern wall of the Temple Close, known as the traditionary Pool of Bethesda. The drain then passes under the wall of the Haram, and skirting it on the east side, along the narrow ridge now occupied by a Moslem burial-ground, descends steeply to the Fountain of the Virgin, in the valley of the Kidron, where, according to the Mishna, this sewerage from the Temple was disposed of as liquid manure to the market-gardeners.

So much of the water from Solomon's Pools as was not required for the use of the Temple, flowed off from the well in front of El-Aksa to an enormous rocky reservoir, called the Royal Pool in the Chronicles of the Crusades, from whence it ran by a channel traced by Signor Pierotti to the same Fountain of the Virgin.

The next point of interest in these recent discoveries, is the secret passage which Herod the Great made, according to Josephus, for the purpose of connecting the fortress of Antonia with the eastern gate of the *inner* Temple—as the present text of the Jewish historian reads. Such a passage has been found by Signor Pierotti, extending from the Golden Gate in a north-westerly direction. But unhappily he has not been able to follow it along its whole length, only one section from the Golden Gate, about 130 ft. long, and another fragment of about 150 ft. in length, being at present practicable.

It is true that this would connect Antonia with the eastern gate of the outer, not of the inner Temple. But in the first place, it is obvious that if the passage had been designed to communicate with the inner Temple, it would have to run to the northern, not to the eastern gate, which was much more distant from the fortress; and further, as one object of Herod was to provide for his escape into the country, in case of a sedition in the city, that purpose would not have been answered by securing a hidden access only to the gate of the inner Temple. When then, it is considered that the change of a single letter would obviate these difficulties, and place the passage precisely where it is found, it is perhaps not taking too great a liberty with the text to propose to read the *outer* Temple in the passage in question, instead of the *inner* Temple as the text now stands.

The course of Herod's passage is of great importance for determining the position both of the eastern gate and of the fortress Antonia. It has been much disputed, whether that fortress stood entirely without the present area of the Haram, or entirely within it; or partly within, partly without. Light may be thrown on this question by an angle of massive masonry, which has been found embedded in the rock towards the north-west corner of the great court of the Moske, between the raised platform and that corner which presents along its north side a wall of solid rock rising to a height of from twenty

to twenty-five feet. Indeed, the whole area in this quarter bears marks of the rock having been worked down to its present level by artificial means; and corroborates the account given by Josephus of the operations of the Jews under Simon the Maccabee, after having driven the Macedonian garrison out of the castle built on the Temple-mount by Antiochus Epiphanes. He tells us that they not only demolished the castle, but rooted up the very rock on which it was built, in order that they might never for the future be subjected to like annoyance. It was a great work, and occupied them three years and six months, although they worked at it incessantly night and day.

It is not likely, then, that this angle of solid masonry can have belonged to a building, not only destroyed to the foundation, but the very site of which was removed. It was more probably connected with the fortress Antonia of later times; and, if so, may serve to explain a perplexing passage of Josephus, who, in speaking of the portents which preceded the destruction of Jerusalem, says that the Jews, by the destruction of Antonia, had made the Temple quadrangular; while it was written in their oracles that the city should be taken when their Temple became quadrangular. It is vain to inquire to what oracle he refers; but it is obvious to remark that Antonia was not demolished by the Jews, for there is constant reference to it during the siege of Titus. Josephus can only refer to the destruction of some part of the buildings of Antonia contiguous to the Temple, and projecting into the area, the demolition of which made the enclosure quadrangular. The massive masonry lately discovered probably marks the south-east angle of this projection.

That the greater part of the fortress Antonia stood without the Temple Close seems to be proved by another important work which has lately been brought to light.

This is a subterranean passage of noble proportions, partly cut in rock, and partly constructed of very solid masonry, which joins the Haram enclosure near the north-west angle, just east of the minaret, at a depth of about 20 feet below the surface of the rocky pavement of the court, or more than 40 feet below the surface of the wall of rock, which, as has been already stated, bounds the Haram in this quarter. The direction of this stupendous gallery is northward, bearing slightly to the west. It extends in length 224 ft., passing under the Via Dolorosa. It is 22 ft. wide, 29 ft. high; covered in at the top with long slabs of stone. There is a door in the side wall, 17 ft. high and 9 ft. wide, blocked up with solid masonry; and high up in the side walls a row of small openings, as for windows, which seem to be of later date than the gallery itself. Two narrower passages open out of the main vault, one running east, the other west. At the south end of the passage, where it joins the Haram enclosure, is an ancient door, now blocked up; but Signor Pierotti could discover no corresponding door in the rocky wall or pavement above, by which the vault might have had egress to the Temple Close. It is, therefore, very probably the entrance to Herod's secret passage, leading to the eastern gate already noticed, the direction of which, as far as it can be determined by the parts already explored, is towards this doorway.

The great gallery itself must certainly have belonged to the fortress Antonia, or, perhaps, rather to its predecessor, the Baris, or castle of the Asmonean princes, as it answers very closely to the description of the dark subterranean passage which Josephus mentions as the scene of the murder of Antigonus by the guards of his brother Aristobulus, under the tragic circumstances detailed by the historian. This passage was called Strato's Tower, and was so closely connected with the Baris that the sounds from the vault reached the ears of the high priest, Aristobulus, who was lying ill in the castle. It was doubtless a covered way designed to connect one part of the fortress with another, for greater security in the case of siege. A little beyond the northern extremity of this passage, but near the surface of the ground, Signor Pierotti accidentally tapped what appeared to be a tank of rotten water, but it continued to flow on, and has never ceased, thus proving itself to be an aqueduct, probably part of that great work of King Hezekiah, recorded in the 2nd Book of Chronicles, xxxii. 3, 4, 30, and referred to in his eulogy in the Book of Ecclesiasticus, xlviii. 17.

Another remarkable confirmation of the hypothesis that the fortress Antonia occupied the site determined by the subway just noticed, is found in the situation of the Roman arch, commonly known as "the Arch of the Ecce Homo," which spans the Via Dolorosa about 90 feet west of the point where that street passes over the subterranean gallery. It had long been doubted whether the arch in question was a Roman arch. That doubt has now been removed by the accidental discovery of the north side portal of the gateway. It had been covered for centuries by debris, and was accidentally

\* Read before the Royal Institution, by the Rev. George Williams, B.D., Senior Fellow of King's College, Cambridge.

brought to light by a landslip, occasioned by an excavation being made in the neighbourhood, for the foundation of buildings connected with the establishment of the "Filles de Sion." This portal is unquestionably of Roman workmanship, as is also the larger arch; and there was, no doubt, a corresponding portal on the south side, which may still be discovered. Thus the gateway would resemble those ancient arches which are still found in Rome, imitations of which were not unfrequent in the provinces—which also furnished models for Temple Bar and the Marble Arch!

Such a gateway in this situation could be nothing else than the communication between the city and the fortress Antonia, or the successor of that fortress, which may possibly have been erected when Jerusalem was restored by Hadrian, under the name of *Elia Capitolina*.

From this it results that the house of the Turkish Pasha occupies the site of the official residence of the Roman Governor, and that the barracks of the Turkish troops are in the same position as that occupied by the Roman garrison at the era of the Gospel narrative. Nothing changes in the East.

#### STAINED GLASS.

A new window has been lately put up by Messrs. Casey, of Dublin, in the Roman Catholic church of St. Nicholas, Dundalk. It consists of five lights, and contains, in the lower part of the centre ope, St. John baptizing our blessed Lord in the river Jordan; and, in the two opes at the left side, figures of St. Joseph and the blessed Virgin. In those to the right are Zachary and St. Elizabeth, and immediately over them, and occupying the centre part of the window, is a representation of our Lord, with his right hand raised, in the act of giving his blessing; and in his left he holds the globe surmounted by a cross. On either side are the Evangelists, each having a book and pen; St. Matthew and St. John to the left, St. Luke and St. Mark to the right. In the upper part of the centre ope is the crucifixion of our blessed Lord, the figure being surrounded by a rich ruby aureole and elaborate border on a back ground of antique blue; the intermediate spaces between the figures are furnished with Gothic canopies of the most elaborate design and richest colouring—the entire, when looked at as a whole, producing a solemn, grand, and instructive picture for the teetotallers of Dundalk, by whose contributions solely (headed by the Very Rev. Dean Kieran) this window has been erected. We trust that many others will follow the example of the Very Rev. Dean, by encouraging our native art, which, in this branch especially, has of late years been comparatively little patronized.

#### THE WATERWORKS ARBITRATION.

MR. J. FISHBOURNE, the arbitrator in reference to this matter, sat on the 6th ult. at the City Hall, and resumed his inquiry as to the claims of the Messrs. Bentley.

Sergeant Armstrong stated that no further evidence would be given on behalf of the Messrs. Bentley. They would rest their case on the evidence given on the last day the arbitrator sat.

Mr. Barry, Q.C., on behalf of the corporation, contended that as the corporation had abandoned all intention of interfering in any way with the Messrs. Bentley's land, and as they had taken other land, and were actually building the reservoir thereon at Stillorgan, the arbitrator had no power to award compensation for injury to Messrs. Bentley's land from works which would never be executed. It would be, besides, most unjust to the corporation to make the award upon such an assumption, unless it was intended to force the corporation to do the injury by constructing the works which they were determined not to construct on Messrs. Bentley's land. That being so, all the alleged injuries were purely imaginary, and the arbitrator ought to deal with them as such. He might make an award as to the one rood and a half of land which it had been intended to take, because he might be of opinion the corporation, having served the notice to treat for the purchase, thereby entered into a contract, and were bound by it. Counsel contended that as to the £2,000 claimed for injury to the Messrs. Bentley's building speculation by the delay since the passing of the act, the arbitrator had no power to entertain such a claim at all; and next, that even if it were entertained, it was without any foundation. It was, he said, important to observe that Mr. Bentley, an experienced house and land agent, and the best witness as to his own case, both as to the alleged contract and as to the nature of the land, was not produced. He was himself to blame for the delay, and any injury caused, in consequence of his having asked the corporation

about £40,000 for what was now valued by his own witnesses at something over £8,000.

Mr. Neville, C.E., proved that the corporation had a deviation bill before Parliament, and had altogether abandoned the Messrs. Bentley's land. They had taken Mr. Wilson's land by agreement, and the reservoir was considerably advanced.

Mr. Duncan, the engineer of the Liverpool water works, on examination stated that if the reservoirs were properly constructed, it was idle to apprehend any danger from them, and the bursting of a pipe was a thing of very rare occurrence. Practically no inconvenience whatever was experienced from the pipe track. On the Liverpool pipe line not one pipe burst for the last twelve months. At Liverpool, Prescott, and other places, valuable houses were built just beside the reservoirs. He valued the Messrs. Bentley's land at £12 an acre and 20 years' purchase, and the way leave at 3d. per lineal yard.

On cross-examination by Sergeant Armstrong, he stated that the Holmeirth reservoir burst because of the grossest neglect of the simplest precautions.

Mr. Jackson, an eminent waterworks engineer, was also examined, and gave evidence corroborating Mr. Duncan's on all points.

At the close of the evidence, Sergeant Armstrong addressed the arbitrator on behalf of the Messrs. Bentley.

The arbitrator will make his draft award in the course of a fortnight.

#### THE SCIENTIFIC INSTITUTIONS OF DUBLIN.

THE following is the text of a petition on the above all-important topic, proposed to be submitted to Parliament—a copy of which lies for signature at the offices of the Hon. Secs., Messrs. M'Evoe and Woodworth, 25, D'Olier-street, and of J. J. Lyons, architect (DUBLIN BUILDER), 26, Lower Gardiner-street:—

That in August of last year the [Lords of the Treasury appointed a commission of inquiry into the working of the scientific institutions of Dublin in the receipt of parliamentary aid:

That those institutions are chiefly—1. The Royal Dublin Society, incorporated in 1749 as a private association or corporation, to "promote," in the words of the still-existing charter, a knowledge "of husbandry and other useful arts" in Ireland, and "to civilize the natives of our said kingdom, and to render them well-affected to us and our royal family;" and 2. The Museum of Irish Industry, a governmental institution, under the complete control of the responsible advisers of the Crown, founded under the administration of the late Sir Robert Peel, in 1845, to promote industrial knowledge among the people of Ireland, irrespectively of class distinctions and of political considerations:

That the commission of inquiry was composed of Sir Charles Trevelyan, Captain Donnelly, the Hon. Judge Blackburne, and Sir Richard Griffith, all gentlemen of high official position, and fully conversant with public affairs, but representing in this matter no other department of the government than the Treasury and the Science and Art Departments, London, with which the two first-named commissioners were officially connected, and no other body or section of the public than the Council of the Royal Dublin Society, of which Sir R. Griffith and Judge Blackburne are leading, active, and influential members:

That this commission conducted its enquiries in October last on the premises of the Royal Dublin Society, in Kildare-street, and no where else in Dublin, and examined no witnesses (Sir R. Kane only excepted) save those who were connected with the Royal Dublin Society, either as officials or as members:

That we have learned with surprise that the commission thus constituted and thus conducted recommends the abolition of the Irish Industrial Museum, and the transfer of the collection therein, for the greater part, to the Royal Dublin Society, with residues to another institution in Dublin, and to the Queen's Colleges of Belfast, Cork, and Galway respectively:

Your petitioners respectfully submit that compliance with recommendations such as these, counselling the closing up of our only governmental school of practical science, and the handing over of the public property therein to a private society, is altogether opposed to the constitutional maxim that Government should have no favourites or pets in dealing with public funds; is a reversal of the just and equitable policy inaugurated by Sir R. Peel in 1845, and wholly inconsistent with any impartial application to Ireland of the views recently enunciated in Scotland by the eminent statesman now at the head of her majesty's government, to

the effect—that on the study of chemistry and kindred sciences depended "the industry, wealth, and prosperity of nations:"

We further respectfully submit that the investigation conducted before a select committee of your honourable house, in 1836, led to the adoption of certain important changes in the constitution, mode of admission to, and general management of the Royal Dublin Society, all of which changes tended to extend the advantages of that institution to a larger number of the population, to render it less exclusive and more national, and to place it upon a sounder and more lasting foundation in that of public utility for all classes, secured under a system of supervision by the responsible executive:

We, your petitioners, therefore pray your honourable house to reject the recommendations contained in the report of the Treasury commission aforesaid; and should it to your honourable house appear fit and proper to order enquiry to be made into the subsidized scientific institutions of Dublin, with the view of rendering the grants now given them more efficacious in the promotion of science and art in Ireland, we humbly pray that such enquiry may be conducted before a select committee of your honourable house, a tribunal which, we are assured, will deal out impartial justice as between institution and institution, and secure from the recipients of public money for the public, all the advantages to which they may be fairly entitled.

#### THE ROCK MONUMENT AT DRUMCLIFF.

DURING our investigations into the antiquities at Drumcliff, we were shown a rock monument, a short account of which may prove acceptable.

This monument is in a field, a little way below the bridge. It is in a very disarranged state. There appears to have been originally a row of large flagstones, set upright, enclosing a space of about thirty-three feet by eighteen; these stood some three or four feet above the surface. A little way within the enclosure thus formed is a second row of flag-rocks, which formed the walls of a chamber, the roof of which consisted of large flags. The size of the largest now remaining is nearly seven feet long by six feet wide, and a foot in thickness. The material is the sandstone of the locality. The whole of this structure is in such a disordered state that the exact dimensions cannot be made out correctly; but the size originally of the chamber inside was, perhaps, eighteen or twenty feet long, by less than half as much in breadth.

Rock monuments, such as the one at Drumcliff, are found very widely diffused in Europe and Asia. Sometimes they are of a small size, but generally they are of gigantic proportions. Some we have examined in the county of Dublin have chambers as large as this one at Drumcliff, and are covered with a single roof-rock, which, being of considerable thickness, must weigh sixty tons or more! These gigantic monuments are known by the name of Cromiechs, in accordance with a theory which supposed them to be altars dedicated to the service of Crom, a Pagan god. Another name they are known by is that of Druid's altars, from the idea that they may have been used by the Druids for religious purposes. Latterly the view adopted generally is, that they were constructed for sepulchres. That religious ceremonies may have been performed at them, is quite consistent with their sepulchral character. It is known that most Pagans performed funeral rites at the sepulchres of their friends, and even offered human as well as other sacrifices at them; but the quantity of human bones which have, from time to time, been found within them—these bones being arranged in a systematic way—clearly indicate that the main purpose of the rock monuments was for depositing the bodies of the departed. As these rock chambers are found isolated from each other, and from any religious structure, and often in wild, out-of-the-way places, it seems reasonable to conclude that they were raised only on special occasions, such as when a battle was fought, they would be made for the purpose of receiving the bodies of the fallen chiefs.

All antiquarians agree in referring the rock monuments to Pagan times; and as there are several of very large dimensions in Ireland, and to raise a rock of sixty or seventy tons in weight, so as to make it a roof, to a chamber with walls, some eight or ten feet high, would require great mechanical power, the fact that many such gigantic rock monuments are in Ireland is, we hold, ample proof of the mechanical skill possessed by the Pagan Irish. —O'Neill's "Fine Arts of Ancient Ireland."

It has been decided not to open the Edinburgh Botanic Gardens on Sundays; immense pressure by petition having been brought to bear against the project.

### A PROPOSED CENTRAL METROPOLITAN HOTEL.

THE prospectus of the Imperial Hotel Company (Joint Stock, Limited)—a view of whose intended new building we give herewith—refers to the want of improved hotel accommodation in Dublin, in accordance with the tastes and habits of the present day, very long felt, and says that few situations afford such facilities for carrying out that object as the locality in question, viz., Lower Sackville-street.

It is proposed to raise a capital of £30,000 in 1,500 shares of £20 each, about one-third of which will go towards purchasing the existing interest in the hotel as it at present stands, and the other two-thirds will be applied in securing the adjacent premises, in new buildings, furniture, and other expenses incidental to an undertaking of the kind; and when it is considered that more than half the project is already in existence by the superior advantages of the present concern, which was specially built for the object in view, it will be found that the projectors have only to unite the new buildings to the old, so as to form one of the most commodious concerns in the kingdom.

Plans of the entire, and accurate calculations have been made, by which it appears that the following accommodation will be provided, viz. :—

The ground floor will consist of a public reception and news room approached from Sackville-street, and leading to a table d'hôte saloon, capable to accommodate 200 persons at dinner. The large yard, where the coaches used to assemble formerly, will be covered over with glass for the special accommodation of those frequenting the hotel, who will reach the upper, state, and family rooms by a special staircase and two spacious halls, totally distinct from the public department. The first floor will contain a coffee room as at present, looking out upon Sackville-street, also a family saloon and dining room, for the special accommodation of parties residing in the hotel, and their friends; private sitting rooms, and consultation rooms for business. The kitchen, bar, and waiters' offices will also be situated on this floor to the rear, removed from the family apartments; and two large commodious billiard rooms will be also provided for the use of those frequenting the hotel. The second and third floors will contain first-class sitting rooms, with dressing rooms attached, mostly looking into Sackville-street; bath rooms, and convenient accommodation for servants, &c., where required. The fourth floor, to be newly erected, will be chiefly for the accommodation of single gentlemen, at a reduced scale of prices; the luggage to be raised and distributed by a lift from the covered area below, and every comfort and attention will be provided which the taste and habits of modern times so imperatively demand.

The following is the estimated capital required for completing the whole concern, viz. :—

Cash to proprietor for moiety of purchase money ..	£9,000
Do. for purchase of adjacent premises, say ..	3,000
Estimated cost of new buildings ..	10,000
New furniture, decorations, and extra expenses, say ..	6,000
	£28,000

Plans and estimates of the proposed undertaking, together with full particulars, can be had on application to the promoter, by whom every information will be given, either by letter or otherwise; and a prospectus of the direction will be issued without delay.

Mr. William D'Esterre Smith is the architect.

### OUR MEAT, FISH, AND VEGETABLE MARKETS

CARE of the outer man is one of the primary ordinations of nature; his necessities first—his luxuries afterwards. The one, however, as well as the other, require suitable appointments to ensure their respective ministrations becomingly, and in no department are those more specially necessary than where they relate to animal food. Attention has somewhat recently been awakened to the extremely defective, nay the unprecedentedly bad accommodation for the sale of live stock in this city, resulting in two separate and distinct projects for remedying it.

An independent company, promoted by a gentleman who, to use a vulgar phrase, always keeps his

\* This sum will include proprietor's whole interest in the concern, including furniture, plate, wines, &c., and a parliamentary title from the Landed Estates Court to the purchaser.

weather eye open for a pecuniary chance, assumed the initiative (a laudable step, no doubt, were its objects less imbued with interested and opposition spirit); but while he and his confederates were consulting about things *in futuro*, the leading member of our municipal corporation, by a skilful *detour*, ensured the practical commencement of that structure destined to attain all the desired objects, which is far advanced towards consummation, while not one sod of the other is yet turned. To the features and particulars of the former our readers' attention has been directed in a recent special article.\* May we not therefore now hope that the equally defective (if not the infinitely worse) condition of our meat, our fish, our vegetable markets, as compared with Smithfield in *its* department, will receive from corporate legislators immediate consideration likewise. We have urged this over and over again, but we do so now more specially and with more confidence, inasmuch as that one of two responsible tasks having been disposed of, the other reasonably puts in its claim for next consideration. Much more laudable questions than the mere convenience of vendors and vendees respectively, induce to the immediate consummation of an arrangement whereby better market accommodation may be secured for our city. The public health is the first; the dispensing of a state of things revolting to the senses, the second; decent regard for cleanliness the third. Who that has ever passed through Moore-street market and its tributaries; through Leinster market, which is in immediate contiguity with a central and most important thoroughfare; through Cole's-lane, (the Dublin Billingsgate *par excellence*); through Castle market, off William-street, but have had their optical and olfactory organs most unpleasantly assailed? If there be another veritable illustration desired for the portfolio of those who treasure sketches of Irish delinquencies, here is, indeed, an invaluable acquisition within reach. Compare any of the localities named with the market place of the pettiest town in England, and mark the contrast. In the one there is accumulated offal of animal and vegetable matter, bloody pools, fragments, and entrails of fish, decayed vegetables, &c., strewn indiscriminately about, and in narrow rookeries, in which, like so many effluvia traps, the poison is concentrated to a focus, and emitted through the adjoining localities; in the other order cleanliness and regularity prevail; everything is in its proper place, and laid out to the best advantage; the fish is separated from the butcher's meat, the fruit, vegetables, &c., occupying—as is right—a distinct compartment; there are ample facilities too for immediate removal of offal, and an abundant supply of water. Indeed the most partial palate to fish would be disgusted from its use by the soiled timber slabs of our fishmongers, whereon the goods are exposed for sale, not unfrequently side by side with a filthy rag or basket covering. In green-grocers' it is no uncommon thing to see the animal and the vegetable foods huddled together, for example, sausages, trotters, black puddings, oysters, prawns, and cooked meats, on the same shelves with potatoes, cabbage, cauliflowers, &c., &c., producing an intolerably odiferous perfume. To this general rule there are but few exceptions (still there are a few); the majority even of our well-to-do fishmongers and hucksters having most ill-appointed establishments, which a trifling outlay would remedy. We decline now to point out specially, either the notorious delinquents on the one hand, or the exceptions on the other, but trust that these general references may be of some service.

### NATIVE MANUFACTORIES.

EVERYTHING connected with the advancement of Irish industry, or with Irish enterprise in pursuits, having reference to the constructive arts or sciences, demands a special notice in the columns of a periodical of such peculiar province as ours; and it is with pleasure that we accord such notice when legitimate opportunity offers, and all circumstances justify it. In some departments of building, machinery has of late years worked a complete revolution, and still continues to do so, but in others, even outside that sphere—but nevertheless somewhat allied to it—we find its influence also predominating. Our cabinet makers, our carvers, turners, frame and window blind manufacturers, &c., &c., also occasionally adopt mechanical appliances to assist the still indispensable hand labour, but the employment of the steam engine to aid them is of remarkably rare occurrence in this city. Perhaps the only exception in the case of window blind manufacturers to that rule is the establishment of Mr. P. M'Keon, at 15, Aungier-street, which we visited this week, and found that the proprietor had recently expended a large sum in the erection of extensive concerns at the rear of his neat but unpretentious house of business, ensuring complete accommodation and facilities for extending the several

branches of his manufacture. On entering, the visitor might reasonably assume that he was in a saw-mill—such as we have recently described—for here is the same puffing of the engine, the same kind of shafts and driving straps, the same hum and buzz from the several sawing, planing, moulding, morticing, tenoning, grinding, and punching machines; but while the appointments are similar, their purposes are obviously different. The first process in the construction of Venetian blinds—after the timber, yellow-pine invariably, has been for some time stacked and seasoned by the atmosphere in the yard—is to put it in lath form into a drying-stove, capable of holding upwards of 800, and these laths, we must add, are turned out of the planing machine most delicately finished, and wider than those of any other manufacturer, consequently occupying less space in the folding than the laths of ordinary width; they are then cut to the necessary lengths, and punched, morticed, &c., as required. The painting and graining, and mahogany polishing (for zinc framed blinds) operations have each their separate apartments; and for each class of manufacture there is a special store provided. Indeed it is refreshing, after the constant cry of "bad times," "things are dull," &c., that greet our ears outside, to walk inside through this busy hive—a native manufactory—with a fellow citizen at its head, and see the pile over pile of goods prepared to order, and ready for transmission to their respective destinations. We wish that we could congratulate more generally on this point, but here, at least, is one evidence of Irish industry being appreciated; for, in addition to the patronage of our first local commercial houses enjoyed by this establishment, we find that those of corresponding eminence in the provinces are largely in its books, and that Mr. M'Keon is an extensive importer to the principal cities of England, and elsewhere as well. To such enterprise, therefore, this notice is but a duty, and we heartily wish that it may progress and multiply, as it deserves.

### COUNTY OF DUBLIN PRESENTMENTS.

ON 27th ult. Mr Justice Fitzgerald sat in the new court, Four Courts, for the purpose of fiatting the county of Dublin presentments. A presentment was made for the erection of 42 perches "of a wall on the bank on the south side of the river Dodder, opposite Beaver-row cottages, Donnybrook, from the first bridge to that part of the road leading to Clonskeagh, opposite Mrs. Byrne's gate." The Presentment Sessions passed the presentment for £100, provided £50 were subscribed before the 15th of April. This presentment was rejected, with leave to apply again at the session.

An application was made for the setting aside of a contract entered into by Mr. John Williams to erect a bridge known as Waldron's Bridge on the Dodder river, and to grant a new presentment for £100 to complete the bridge, the contractor having failed to carry out his contract which he had commenced. The application having been heard, and the contractor having stated that he had been unable to carry out the contract because he did not get instalments from the Grand Jury as they gave him on former occasions. His Lordship directed the Grand Jury to set aside the contract, and pass the new presentment. He considered it most objectionable for a man to take a contract without having the means to carry it out. It might be a great hardship now on the contractor, but it was his own fault to enter into a contract when he was not able to proceed with the work.

### FINN VALLEY RAILWAY COMPANY.

ENGINEER'S REPORT.—The line is so far forward that the permanent way has been laid throughout from Strabane Junction to the Stranorlar platform. All the stone bridges and culverts are completed to their copings.

*Finn River Bridge.*—The masonry of the east and west abutments and west pier is complete to the level of the ashlar coping, and the foundation piles of the remaining pier will be all in place on the 22nd inst. The superstructure, consisting principally of a pair of continuous lattice girders, each 222 feet in length, is in progress of erection at the site of the bridge.

*Stations.*—All the passenger buildings are ready for roofing, and the goods store at Stranorlar may be reported complete.

*Signals.*—These are erected at all the stations except at Stranorlar, and the

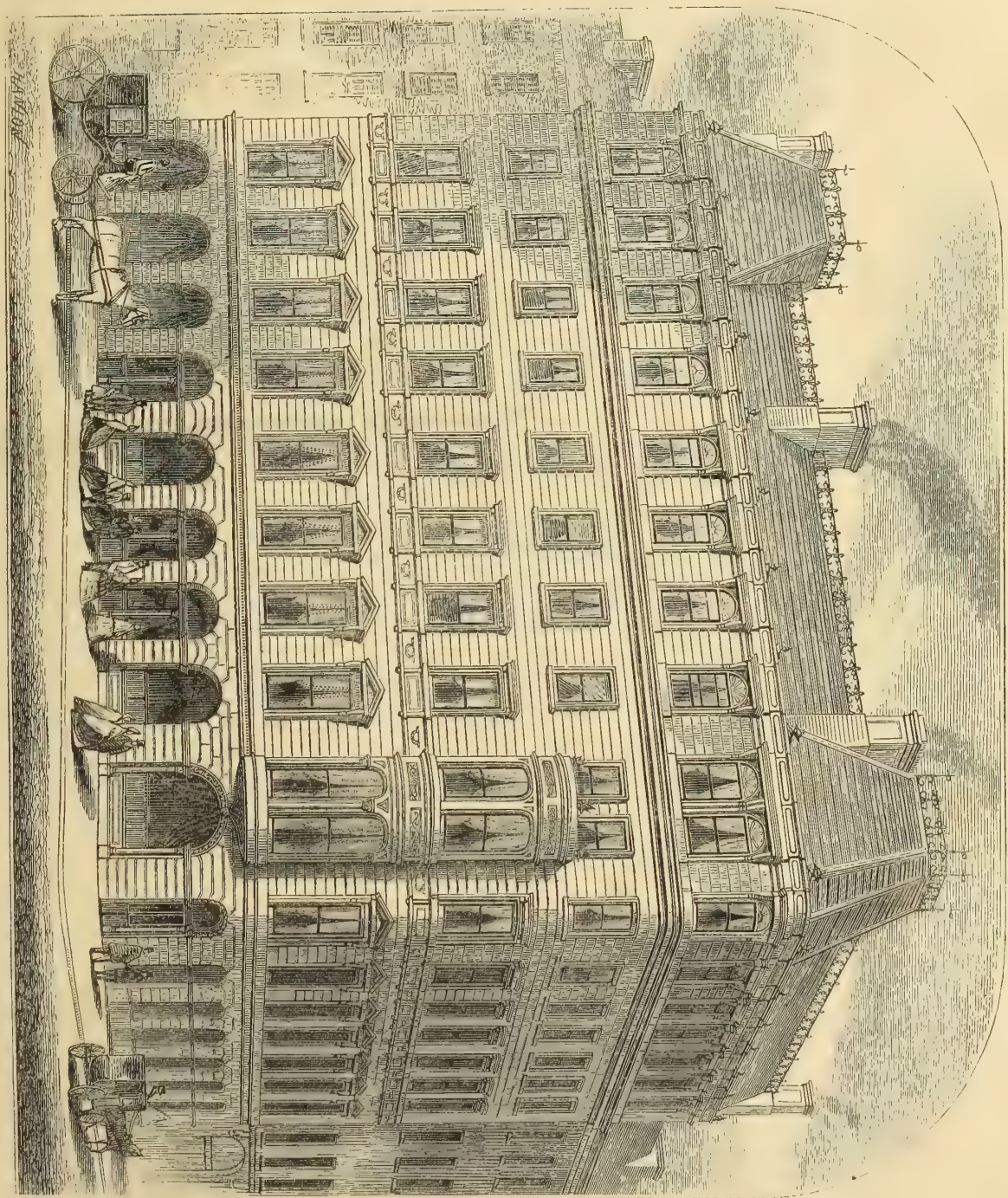
Telegraph arrangements are nearly complete.

*Miscellaneous.*—The miscellaneous works at stations and sidings, viz., permanent way, platforms, approaches, walls, tanks, and turn-tables, are in very forward progress. Indeed, the works under all the contracts are so far advanced that, with energy and favourable weather, the line could be ready for traffic next month.

JOHN BOWER, Engineer.

Strabane, April 18th, 1863.

\* Numbers for December 1st and 15th, 1862.



A PROPOSED CENTRAL METROPOLITAN HOTEL.—MR. WILLIAM D'ESTRINE SMITH, ARCHITECT.

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## THE PROPOSED NEW LUNATIC ASYLUM FOR MONAGHAN.

THE following is an abstract of the principal particulars connected with the coming important competition for this intended building, and which will be found useful to those who purpose making designs for it:—

The architecture should be as plain as may be consistent with a slightly appearance. General plan of main building should be a combination of the block and corridor systems; the Auxiliary House at the Cheshire County Asylum being an example of the first, and the Derby County Asylum of the second. Night accommodation above stairs, day accommodation below: single rooms for about 100 patients in main building, the rest of patients to be in rooms with from three to forty beds: accommodation for helpless, *i. e.* paralysed or cripples below stairs, in well-warmed cells, opening into a roomy corridor or large hall on the south front, and for the refractory in retired wings. Sunny aspect as far as possible for the patient's apartments: main entrance, board-room, and apartments of those officers whose duties do not lie constantly among the patients, should be to the rear. Superintendent's house at one side, detached, affording a commanding view of airing yards, and ready access to buildings. Buildings mainly two storied above ground: where towers are introduced, they would constitute a third: if a basement storey, it should be for stores and other inferior purposes: airing yards for all to front or sides, not in enclosed quadrangles, and those for the harmless, and perhaps all but the epileptic and helpless, to be separated from general grounds by a ha-ha, as at Derby Lunatic Asylum. On corridor plan a separate inexpensive covered way or passage behind cells for attendants, at all events on the ground floor. Infirmary to adjoin main building, in quiet position as possible, and built to admit communication being cut off if necessary. A room, hall, or corridor for harmless of both sexes, for exercise indoors, and open verandahs, roofed with glass, so managed as not to darken the interior, on front for exercise and shelter, as at Cheshire Asylum. Detached cottages, both near and at a distance from main building; intended to serve for working patients, or for such as it may be thought desirable to remove from main building. A tank, at greatest height possible, for rain water: also one over the laundry. Sewerage not too deep, and produce conducted to some part of the grounds where it could be conveniently used for farm purposes, and be deodorized. Grounds should be enclosed either by a high wall or a ha-ha. Passages so contrived that servants be able to pass under cover from the working part of the house, *viz.*, the kitchens, store-rooms, &c., to patients' apartments, without intruding at the moment they have no business. Staircases broad and not winding. Baths together, and nearly all on ground floor, excepting for infirmary; should be placed away from wall for convenience of cleaning them, and of lifting sick or refractory patients in and out. Lavatories to be near where patients sleep, and plenty of them: some also near day-rooms. Reading-room for quiet male patients, and a retired reading or working-room for quiet female patients. Place of worship and recreation-room, and dining-room so placed as that the quiet patients of both sexes can readily have access to it, for the purpose of dining together, if desirable. Each room, corridor, cell, kitchen, office, &c., to be supplied with separate means of ventilation, by outlets for foul air and inlets for fresh (for size and arrangement refer to pp. 68 to 82 of the Report of the Commission for improving the sanitary condition of Barracks, dated 1861). Further means for warming than by ordinary open fireplaces must be provided for large rooms and cells at least. Pipes running from back of open fireplaces might be employed with effect in some rooms and galleries, and the heat given by open fireplaces increased by projecting them somewhat from wall of rooms. If bath rooms should be near cells, pipes from their heating apparatus would be a ready means of heating the cells. Inside walls to be painted with oil 4½ feet high from floor. Doors to open flatly back against wall, and outwards: those between day-room and day-room, or between day-room and corridor, should be so adjusted as to bolt back to the wall. Shutters for windows of all cells intended for violent patients, and for most of other sleeping-rooms also, contrived to fasten securely from patients' interference. Circular hole of 2½ inches diameter at top, to let in light when the shutter is shut, gradually enlarging towards inside, and lined with metal. If either side of windows is close to a side wall, the shutter can be locked back (as at Ramhill Asylum) into a frame set in wall: if window is not so placed, shutter can be made to slide back in wall, and be there secured. Windows to be large and lofty: metal sashes not necessary except in cells where violent patients sleep, and (if used) of wrought iron.

Sashes to open above and below by rising and falling: the extent of the opening can be regulated by a fixed stop, or by lock and bolt fitting into a shot-hole in window-frame, and by other means when they open sideways. Bars not required except in rare instances. The windows at the Auxiliary building at Cheshire are on a good plan. Architects are referred to the Derbyshire County Pauper Lunatic Asylum, the Auxiliary House to the Cheshire County Asylum, and the New Cumberland and Westmoreland Co. Asylum, plans of which will be seen in the following publications:—In the published Report of the Derby Lunatic Asylum, for the year 1853; in the Fourteenth published Report of the English Commissioners in Lunacy, and in the Sixteenth Report of the same, in which also will be found a plan of the Bristol Asylum, which offers some points of arrangement worthy of consideration. As regards detached cottages, see pamphlet of Mr. Fairless, of Montrose Asylum, and Sixteenth Report of the English Commissioners, in which are plans of cottages proposed for the Bedford, Hertford, and Huntingdon, Lunatic Asylums, at Arslay. These works are in the Secretary's hands, and can be consulted. The Committee, in supplying this statement of their views, do not intend to intimate that none but plans conforming strictly to them will obtain the premium: their meaning is merely to convey that, in their present state of knowledge, such appear to them the main requisites in buildings to suit the site chosen, and the inmates they are intended to accommodate. The committee are of opinion that the maximum of all expenses, including the cost of land (which will be about £5,000), boundary fences, furniture, &c., should not exceed £100 per patient. Plans must be sent prepaid.

The building resources of the neighbourhood are the following:—Within 700 yards of the building, on same side of Canal, is an excellent limestone quarry: on other side of Canal, immediately opposite, is a quarry of limestone stratum, merging into greywacke, and, as a first-rate quarry, there is one within one mile, at Cortolvin Bridge, from which the stone of the recent beautiful masonry of Rossmore Park Castle was procured. Lime and sand in abundance. Lime in the town of Monaghan at 1s. per barrel: sand for the Roman Catholic Cathedral (in progress of construction close to the town), is got about three miles off, on the Tedavnet side, and there is another very fine sandbank just beyond Brandrum Bridge, west 1½ miles from the Asylum. The ornamental stone for quoins, &c., is to be had at Donagh, just 4½ miles from this town. Timber and slates can be got with facility from Belfast, either by rail or canal, and from Newry or Dundalk by rail.

### ROYAL HIBERNIAN ACADEMY OF ARTS.

RELATIVE to the architectural department of the coming Exhibition, the following circular has been addressed by the secretary of the Academy to the principal practising architects in Dublin and throughout Ireland:—

Sir,—I am directed to acquaint you that at a meeting of the Academy, held on the 18th instant, it was resolved that the rule respecting white margins does not apply to architectural designs, which shall be placed by themselves in the sculpture gallery; but such as are framed up to the edge without mountings, will be placed with the water-colour drawings in the ante-room. M. ANGELO HAYES, Sec.

April 20, 1863.

[We are informed that the architectural display this year will present a happy contrast to those of previous years, and will comprise some beautifully finished drawings of designs, either submitted in competition or for executed works.—ED.]

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

### THE ARCHITECT OF ST. SAVIOUR'S CHURCH.

TO THE EDITOR OF THE DUBLIN BUILDER.

Offices, 183, St. Brunswick-street, April 25th, 1863.

SIR,—I perceive the misstatement that the late Mr. Pugin was the designer of St. Saviour's Church, which first appeared in a letter published in your journal, and signed "An Architect." has been repeated in the *Freeman's Journal*. Although I know the author of the letter containing the misstatement, I would not condescend to notice anything coming from a person who had not the

manliness to give his name, and whom, on other accounts, I deem beneath my notice. But as the unfounded statement has made its way into the columns of a widely-circulated daily newspaper, I think it necessary to give it the enclosed contradiction, which I request you will publish, with this letter, in your next issue.

J. J. M'CARTHY, R.H.A.,  
Architect of St. Saviour's Church.

TO THE EDITOR OF THE FREEMAN'S JOURNAL.  
Offices, 183, St. Brunswick-street,  
April 25th, 1863.

SIR,—In your notice of the Oratorio in St. Saviour's Church yesterday, I find you describe that "splendid church" as "perhaps the *chef d'œuvre* of the lamented Pugin, its designer." While I feel extremely flattered by any work of mine being mistaken for the "*chef d'œuvre*" of so consummate a master of ecclesiastical architecture as my lamented friend, I must remind you of the truth of your often repeated statement, that the design, in every, even the minutest, detail, is due to one of your own countrymen, my "unlamented" self.

J. J. M'CARTHY, R.H.A.,  
Architect of St. Saviour's Church.

The following on same subject was also addressed to the editor of *Freeman*:—

In the notice which you were pleased to take of the Oratorio given here on Friday last, this church is mentioned incidentally as an object of admiration, and, by way of high eulogy, it is added that it may be considered the *chef d'œuvre* of the lamented Pugin, by whom it was designed. I am bound to correct that statement, and I am sure it will not appear to you that I am detracting from the merits of the illustrious deceased in publicly announcing that the designs for this church were *not* furnished by him, but by Mr. J. J. M'CCarthy, of this city, now Professor of Architecture in the Catholic University. The reputation of a man who has earned such distinction in his profession as to be mistaken for Pugin, is only less dear to this community than it must be to himself; and as I happen to hold, at the period alluded to, the office which I fill at present, it will be admitted, I trust, that my word is sufficient assurance as to the fact that Mr. M'CCarthy was the sole architect employed by us in designing and erecting the sacred edifice in question.

ROBERT A. WHITE, Prior.  
Church of St. Saviour, Dominick-street,  
April 27, 1863.

TO THE EDITOR OF THE IRISH TIMES.

PERHAPS you will permit me to correct an error contained in your very complimentary notice in this day's publication on the progress made by the above company in the formation of their new gardens—namely, that all the arrangements as to building of ground, &c., are under my superintendence.

This is not the case. The works are carried on under the constant supervision of Ninian Niven, Esq., according to his very beautiful design, adopted by the directors.

HENRY PARKINSON, Secretary.

### NEW CHURCH OF LADY'S ISLAND.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Having had tracings of the plans of the above building in my possession for a few days, a brief notice of it may be of some interest to your readers.

The site of Our Lady's church is situated on the well-known peninsula, between Lough Togh and St. George's channel, about ten miles south of the town of Wexford. The present humble chapel was built in 1803, but not on the site of the ancient ecclesiastical ruin. Rodolph de Lambert, one of the early Norman settlers, erected a castle on the island in 1238. During the revolutionary wars in the reign of Charles I., this lonely little spot did not escape the fury of the parliamentary troops. A vandalism unknown except in the days of the Goths succeeded, keeping side by side with a military despotism during the Reign of Terror, of him who assumed to be protector of the commonwealth.

The plans of Lady's Island Church are by Messrs. Pugin and Ashlin. The extreme length, from the tower in centre of west end to the apsidal eastern termination, is 100 feet; the breadth 40 feet, exclusive of side chapels and porches; the height of clerestory walls 31 feet 6 in.; and of walls of aisles 14 feet 6 in. The aisles are divided from the nave by an arcade with five columns on each side, exclusive of the abutting columns connected with the inside walls of the tower. The columns have bases of Bath stone;\* the shafts (1 foot in diameter) are to be of Kilkenny or Cork marble; the caps of Caen stone; the arches and walls of brick (for the clerestory); the height of

\* I understand the architects have consented to use a stone of more enduring quality for the bases of the columns in the arcade.

the tower and spire to the top of the cross is 102 ft.; the north and south aisles are lighted by five lancet windows to each aisle. The clerestory wall is perforated by twelve lights (on each side), being alternately of a quatrefoil and trefoil outline. Provision is made for a sacristy and two porches at the south-east angle, and two side chapels on a line with the aisles.

The apsidal projection is of a very limited depth, being not more than 6 ft. 6 in. If the designs are successfully carried out, the result will be that of a new era in church building in Ireland. All the examples we find, ancient and modern, the walling is found to be at least 2 feet 6 in. thick.

The arrangements of the sittings appear highly satisfactory, doing away with that most objectionable railing abutting against the columns, always found to mar the general effect, allowing the parishioners to take their places in the house of God irrespective of worldly grandeur. Small marble columns are introduced in the windows of the porch stage of the tower, and also in the windows lighting the sanctuary. I much fear the use of Bath stone externally as proposed for the spire is a dangerous experiment, especially in a locality in the vicinity of the sea. The design of an inner roof groined in plaster may create surprise as coming from the Messrs. Pugin & Ashlin, but after all it may be found to assist acoustic arrangements. Perhaps the idea of the architects to protect the Bath stone from the corroding influences of our humid climate, was the introduction of the process followed at the Houses of Parliament—in the use of silica brushed over the external surface, but there is clearly not experience enough to test its utility. There is a startling difference in the tenders for the erection of the church, one being under £2,000 and two over £3,000 each—an intermediate tender being about £2,300.\* For my own part I would say £3,000 is very near the mark; but time, that decides most things, will present the proof in the brief period of two years.—J. K.

Wexford, April, 1863.

(It should have been noted by our correspondent that Mr. Richard Pierce is the contractor for this work.—Ed.)

## Law Intelligence.

*Sir Charles Domville, Bart. v. Sir R. Shaw.*—This case came before the Court of Exchequer on motion by defendant to set aside some of the replications filed by plaintiff to defence. The application was made on the ground that the replications were calculated to prejudice and embarrass the fair trial of the case. The action has been brought in reference to the removal of the defendant, who claims a right to do so, under lease of a quantity of limestone and gravel from the river Dodder, near Templeogue, county of Dublin. The case of the plaintiff is, that amongst other things the lease reserves to him the stone and gravel in question. The pleadings were of a very extensive and difficult character, and the court felt considerable difficulty in arranging them so as to procure a proper trial. It was finally agreed by the parties that the summons and pleadings should be amended in a way to directly raise the question of the defendant's right not alone to take the sand and gravel but his right to convert them to his own use and sell them, the two latter branches of the claim, viz., the right to convert to his own use, and the right to sell, being especially disputed by the plaintiff. The summons and pleadings were accordingly amended, and three of the plaintiff's replications were set aside. The costs of the defendant to be costs in the cause.

## General Items.

The town commissioners of Gorey have decided on erecting a number of public lamps in the town. These, and the public fountains lately erected, will be a lasting comfort to the inhabitants.

Sir John Benson, C.E., has been appointed arbitrator on behalf of the Corporation in the case of Daniel Tighe and the Corporation, to settle the amount of compensation to be paid under the articles of agreement to arbitrator, *in re* Dublin Corporation Waterworks.

The claim of the Messrs. Bentley for compensation for loss and damage sustained by the Dublin Waterworks has been amicably arranged for £1,300, the original demand having been £39,900.

The sum of £50,000 has been voted by the House of Commons towards the completion of the national memorial to the late Prince Consort. The estimated cost is £100,000, of which £60,000 has been raised by private subscriptions. It is proposed that the memorial should be after the form of an Eleanor Cross, and be erected near the site of the Exhibition.

\* This statement does not correspond with our list of tenders herewith.

Ventilation on a new principle has been applied by Mr. Turner, the master shipwright, to the Caledonian, iron-clad, building at Chatham. A powerful force-pump is to expel the vitiated atmosphere, and supply every compartment with pure air.

A parliamentary paper, moved for by Sir Henry Stacey, gives a return in detail of £450,000 estimated for commercial harbours. This sum is to be devoted not to the formation of harbours, but to the erection of coast batteries at or near commercial harbours. Of this sum, approaching to half a million, but £47,000 is to be expended in Ireland. Kingstown is to have £7,000; Belfast, £15,000; Galway, £15,000; and the Shannon, £10,000. No extensive fortifications could be erected for such inconsiderable sums. Holyhead is to have £25,000; the Mersey, £40,000; the Clyde, £40,000; the Firth of Forth, £40,000; and the Humber, £70,000. The grants to English harbours are supplemental—considerable works existing at present in each, but in the Irish harbours, with the exception of Kingstown, no works exist which could oppose the assault of an enemy for a moment.

The large piece of ground, on portion of which the convent and schools, at Harrington-street, for the Christian Brothers, will be built, is situate in a central and favourable position. On three sides it has thoroughfares, viz., on the east side, Synge-street, on the south side, by that portion of the Circular-road called Harrington-street, and on the west-side Heytesbury-street. At the latter side stands the wooden church of St. Kevin, which will, in the course of some time, be replaced by a handsome stone structure. The new schools and convent, which will be at once proceeded with, will cost about £3,500, the expenditure of which sum in the present season will afford a large amount of employment. The convent will be on the south-east side, and will contain on the basement the refectory and culinary apartments. On the principal floor will be a reception room and the community room. On the drawing-room floor will be a chapel and library; and on the next storey will be infirmary accommodation. This storey will correspond in height with the upper storey of the schools building, on which there will be a lofty corridor with dormitories at each side. The schools will be on the first and second floor of the second building. There will be four school apartments, each 40 feet by 30, which, together with the class rooms, will be capable of accommodating about 800 children. Mr. John Bourke is the architect. The foundation stone was laid by the Most Rev. the Archbishop Cullen, on the 28th ult.

## Miscellaneous.

ROYAL IRISH ACADEMY.—A meeting was held on the evening of 27th ult., the president occupied the chair. Dr. Wilde proceeded to describe certain antiquities presented by Lord Farnham, embracing objects of silver, bronze, iron, stone, and jet, a French coin of the reign of Louis XIII., also a very perfect antique bronze leaf-shaped sword, found in Kildallum bog. He also presented an ancient single piece oaken canoe 15 feet long, together with three paddles, and a curious antique anchor found in the evacuation at Toombar, on the Lower Ban, in 1848, and presented to the academy by the Board of Works. Dr. Wilde drew the attention of the academy to another presentation from the Board of Works, the stones which composed the entablature containing the inscription and effigies on the southern parapet of the old bridge of Athlone, removed in 1843 by the Shannon commissioners. He presented from Mr. Andrew Armstrong two antique earthen vessels called crachins, found at Callernish, in the Hebrides, and from Mons. Le Men some bronze Celts, and casts of Celts, found in the department of Finistre. He also presented on the part of Dr. Hanley, of Thurles, an Egyptian idol, found in a field near Nenagh, county Tipperary, and remarked that its being found in that place was quite accidental. The thanks of the academy having been accorded to the donors, Mr. W. H. Hardinge read a paper on photographs of Down survey maps, and a second paper was read by Sir Wm. Hamilton on "Gauche Curves of the Third Degree." Both papers were referred to council for publication. Earl Belmore was unanimously elected a member of the academy, and the proceedings terminated.

"WHAT AM I WORTH?"—A few months ago, a poor working mason, a foreigner, and a Frenchman, a stranger in London, went to a builder's yard, in that city, and requested work. The foreman to whom he applied hesitated at granting his request, but the foreigner persevered. "If I am not worth sevenpence an hour," said he, "give me sixpence; if I am not worth sixpence, give me fivepence; if I am not worth fivepence, give me what you think I am worth, only let me have some work." He gained his point, and received work, at first at a

low rate of pay, but proving himself to be a good workman, his wages were advanced, and he is now getting on very well. This man knew what he was worth, and felt sure that if he were tried, others would soon know also. He was willing to stoop at first that he might rise at last. His example appears to me worthy of imitation, and that we may gain something by asking the question, "What am I worth?" Perhaps the answer may not be so favourable as we expected, but let us be honest and willing to work for what we are worth. False appearances never answer; if we try to pass off ourselves at more than our real value, we shall soon be detected. False coin will not long pass as genuine, and we shall soon sink to our true level. But let us not be discouraged, even if we are not worth so much as we thought we were—"It is never too late to mend." Every day we may learn something, no matter how little; and as "many a little makes a mickle" we may soon find our value to ourselves and to others greatly increased.—*British Workman.*

IODINE MANUFACTORY IN GALWAY.—The extensive yard and premises lately taken by the company for carrying out the manufacture of this useful article are undergoing vast repairs. Several carpenters and masons are already at work there building new sheds, and repairing others which were already on the premises, but lying idle for years, as several other large and convenient stores are at the present time, and for years past, for the want of men of capital and enterprise amongst us. There is not in Ireland a town which affords a finer field to a capitalist than Galway, with its vast water power, and large population, anxious and willing to work for moderate wages. Mr. M'Ardle, the patentee, is here himself at present superintending the works, and so satisfactorily are things progressing, that he expects in a short time to be in full working order. The company were very fortunate in obtaining so favourable a place for the factory. It is situated just on the verge of the old dock, and boats with the sea-weed can come up to within ten feet of the works, which will save a great deal that would otherwise have to be expended in cartage. There will be no harbour dues paid, as they will avoid going into the new docks. So far, the company have been fortunate in the selection of a place for carrying out this great project. The coast around will supply at a cheap rate an inexhaustible quantity of the raw material. This enterprise, at the present time, will confer great benefits on the poor people around the coast, who are in a very destitute state, worse than they have been since '47; they are largely in debt for the manure which went to fertilize their ground for the last two years and for the meal they ate. Heretofore the seaweed collected by the people around the coast during the summer months was manufactured into kelp, and they had to wait for months before they could obtain the price of their labour. That will not be the case in future; they have only to collect the weed, stow it in their boats, and take advantage of the first propitious gale that will waft them into Galway, dispose of their weed, and obtain a more remunerative price than if they went through the tedious process of manufacturing it into kelp. They can also buy meal for ready money, and not be paying an exorbitant price by getting it on credit. A few more such enterprises in Galway would relieve a great deal of the destitution which at present unhappily prevails. Mr. M'Ardle may rest assured he will receive all that support here which he so well deserves, and which a grateful people can give.—*Cor. Irish Times.*

## TENDERS.

For building a new Roman Catholic Gothic Church at the Lady's Island, Co. Wexford; Messrs. Pugin and Ashlin Architects:—

Redmond .. .. .	£3,200
Sinnett .. .. .	3,120
O'Connor .. .. .	2,120
Pierce (accepted) .. .. .	2,088

NOTICE TO PUBLISHERS AND AUTHORS.—Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABOTT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET.

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons's office. Mr. Lyons also holds commissions for supply of Caen, Glasgow, Bath, Forest of Dean, and Welsh building stones.

# The Dublin Builder.

VOL. V.—No. 82.

## RAILWAYS VERSUS ART.

**W**HAT matter to us—a noble committee of “my lords” honourable house—the boasted beauty of your Dublin architecture, or the symmetry of your Dublin streets! Down with your public buildings—churches, chapels, all alike — “at one fell swoop;” bridge over your thoroughfares, at what level and as we please; demolish whole blocks of dwellings; cut up your river and do aught else which seemeth to our enlightened minds most fit, that “the iron horse may be secured a passage way to a central station!

Sheer twaddle say “my lords” Llanover, Bristol, Saltoun, Blantyre, and Northwick, are the remonstrances of our noble brethren Clanricarde, Gort, &c., of such individuals as a lord mayor, a Guinness, a Halliday, a Codd, a Martin, a Hemans, a Neville, against this most utilitarian project, which hath for its object the centralization of the great arteries of railway traffic in Ireland into one metropolitan focus.

Actuated by such sentiments, the lord’s committee, to whom the consideration of the proposed metropolitan railway was entrusted, have practically passed the bill; and whatever doubt we entertained of the likelihood—if even it should go through that ordeal successfully—of becoming at any time *un fait accompli*, has been quite dispelled by the character of the evidence, and the peculiar position of most of the witnesses put forward by the promoters. There can now be hardly a doubt upon any reasonable minds but that directly or indirectly the all centralizing government have favoured this scheme, to ensure increased facilities for military transports to and fro the various towns of Ireland. The same hands that niggardly dole out paltry allowances for the maintenance of our public buildings, and which penned a flat refusal to grant us a small portion of *our own money* out of the overloaded imperial exchequer for the rebuilding of a bridge, obstruction to a great and greatly growing traffic, have placed their fiat on this most diabolical design to denude, under spacious pretences, our city of its fairest features.

To those who conducted this well organized—but unhappily unsuccessful—opposition, the utmost credit is due for their firmness and ability, but against such a formidable array of influential witnesses as was brought into the committee-room, all effort was doomed to be unavailing.

It seems to be admitted on all sides, that a junction of the several railways branching from the metropolis, and having a common central station therefor, would be a convenience. To this we most willingly give adhesion; but with the qualification, however, that *now* is not the time to effect it, after the lines proposed to be joined have been fully formed, and vast sums of shareholders’ money expended on important and handsome termini. Moreover, the distance between each is so inconsiderable, that the advantages likely to result from consummating such a project *now* would be much more than amply counterbalanced by the injuries to the appearance of the city *sure* to be inflicted by the *very best* scheme that could be contrived.

Railways, like every other species of structure, can be made to serve the two ends of *utility* and *art*, if plans be well conceived, and in *proper time*; but afterclaps are at all times almost unexceptionably pernicious.

There seems to be even still a slight glimmering of hope that some of the objectionable features may be modified before the company proceed to execution; but we place very little reliance on it, unless considerations of cost may prevail, and we doubt if it would be within the range of possibility to construct a more inexpensive line than the one proposed; for, though a more circuitous route would, doubtless, save cost of purchasing up much valuable property, cen-

trally situated, its additional length would be more than equivalent as regards expenditure.

For what other new device will gentlemen of “enterprise” next cudgel their brains?—the more utilitarian the better; but let there be, at least, *some* regard for *art* considerations.

## NEW ROMAN CATHOLIC CHURCH, SNEEM, COUNTY KERRY.

**THE** Right Honourable the Earl of Dunraven has munificently undertaken the erection of the above church to be completely finished at his lordship’s sole cost. To this he has added his well-known taste and judgment in ecclesiastical buildings, by the selection of the design which has been finally decided upon. It is by Mr. P. C. Harwicke, of London (also the architect of the R. C. Cathedral of St. John’s, at Limerick), and a contract has been entered into with Mr. D. W. Murphy, of Bantry, for its erection as well as for extensive additions and alterations to his lordship’s marine residence at Garinish Island, near Sneem. The style of the church is quite different from that now so usually adopted for ecclesiastical structures, being of an Italian character with low-pitched roof and appropriate details. It is stated to be quite as effective as the Gothic, without the same amount of expensive ornamentation, and is a style remarkably well adapted for country churches. The windows are narrow lights with semicircular heads, and those in upper part of gables, which are round, are pierced with circular tracery. The most striking part of the elevation is the tower—a square one, 65 feet high, with low-pitched cut-stone covering, and surmounted by a stone cross. It is devoid of the heavy ugliness so common in towers of this class, being relieved by arched openings with cut-stone dressings, where the bell is to be placed, and having a suitable cornice, dentil course, &c. The plan is cruciform, comprising nave, transepts, chancel, sacristy, side porches, &c. The length of nave and chancel is 100 feet, and the breadth of a section through transept is 74 feet. The chancel, nave, and transepts, are of equal breadth, being each 30 feet in the clear. A pair of arches at each side, resting on circular stone columns, with moulded caps and bases, separate nave from transepts. The roof is to be of open timber work, stained and varnished. There will be two handsome cut-stone altars. All the quoins, eave courses, barges, window and other dressings, &c., are to be of cut stone, and the work is to be finished within fifteen months.

## CRYSTAL PALACE.

**THE** Great Flower Show is invariably a red-letter day at the Crystal Palace. Apart from the magnificent collections of flowers, brought into competition from all parts on these occasions, the beauty of the Palace and its convenient arrangements for seeing the flowers, and equally important—for visitors seeing one another, renders it always a day of great attraction to the fashionable world. This is not to be wondered at, for it is without question that the *coup d’œil* of the Great Transept, as seen from the Handel Orchestra, is one of the most magnificent which can be witnessed. The beautiful condition of the extensive grounds of the Palace, and the display of fountains, are also important features of interest.

This year’s Show will be held on Saturday next, the 23rd inst. From the unusual forwardness of the season the Show this year promises to be of surpassing beauty, particularly as regards the azaleas and other large and magnificent flowering plants, which the principal growers state are unusually fine this year. So much is this already acknowledged, that at the Botanic Exhibition last Wednesday, the coming Crystal Palace Show on Saturday next was spoken of as “the great azalea Show.”

## LIVERPOOL ARCHITECTURAL AND ARCHAEOLOGICAL SOCIETY.

**ON** the 6th instant the concluding meeting of the fifteenth session of this Society was held; Mr. W. H. Weightman, the president, in the chair.

From the report of the council it appears that the number of the members now on the books of the society is 157, ten having been elected during the year. The attendance at the meetings of the society has not been quite so numerous as in some previous sessions. In consequence of the unwillingness of the students to compete for the prizes offered in the last session and recess, the council have not thought it advisable to offer any prize for competition this session. The treasurer’s statement showed a balance of 15s. 7d. to be due to him, and the council urged upon the members the prompt payment of subscriptions.

Mr. W. H. Weightman was unanimously elected president; and Mr. Kilpin and Mr. Boulton, vice-pres-

sidents for the ensuing year; and the council and officers for the ensuing year were appointed.

In the course of his annual address, Mr. Weightman referred to the progress which had been made in the town during the session of the society; also to the competitive designs for the new Exchange-buildings being a meritorious order; and that they will be exhibited shortly in the old Sessions-house. He added that the most costly works in progress at the present time in the neighbourhood of Liverpool are the engineering constructions on the Birkenhead side.

“Though we have reason for some degree of gratification,” said the president, “there is abundant room for improvement in such towns as Ashton, Blackburn, and Oldham, and, indeed, almost all the manufacturing centres, in the execution of works of public utility, co-existent with a sad lack of occupation for their inhabitants.”

On the motion of Mr. Picton, seconded by Mr. Kilpin, the thanks of the Society were unanimously voted to the president, and a similar compliment having been paid to the council and officers for their services, the session was brought to a close.

It was resolved that the excursion this year should be to Chester and Eaton Hall.

## DR. DENHAM’S CHURCH, LONDONDERRY.

**IN** a limited competition of architects, the plans of Messrs. Boyd and Batt, of Belfast and Londonderry, for remodelling this church, have been approved of, and are to be carried out under their directions.

## NEW PATENTS.

**LETTERS PATENT**, which have passed the Great Seal since the 17th April, 1863. Byrne and Lambert, Agents; Office for Patents, 4, Lower Ormond-quay, Dublin.

William A. Turner, for “Improvements in apparatus for measuring cloths and other fabrics, parts of which are also applicable to indicating distances travelled by vehicles.”

Horace L. Emery, for “Improvements in propelling machinery actuated by the application of animal power.”

Charles George Clarke, Jun., for “Improvements in garden shears.”

Cooper Tress, for “Improvements in hats, caps, bonnets, and other coverings for the head.”

James Easton, Jun., for “Improved machinery for sawing wood.”

Harry Ree, for “Improvements in apparatus for exercising the human body.”

George Luke and William Luke, for “An improved stirrup.”

Edward D. Johnson, for “Improvements in pocket watches.”

Thomas Pilgrim, for “Improvements in locks, bolts, latches, and other fastenings.”

Paul Emile Placet, for “An improved process of engraving.”

William Clark, for “Improvements in castors, and in the manufacture of the same.”

Henry J. Ferdinand Marmet, for “Improvements in the construction of lamps.”

Frank Endorff Walker, for “Improvements in the construction of breech-loading firearms.”

Edmund Small Cathels, for “Improvements in apparatus used in the manufacture of gas.”

William Clark, for “An improved apparatus applicable as a pump, water-meter, hydraulic-meter, or a steam-engine.”

A copy of the specification of any patent, describing the nature of the invention, and the mode of carrying it into effect, can be had at the office for a sum not exceeding five shillings.

**SELF CONTROL.**—A merchant in London had a dispute with a Quaker respecting settlement of an account. The merchant was determined to bring the account into court, a proceeding which the Quaker earnestly deprecated, using every argument in his power to convince the merchant of his error; but the latter was inflexible. Desirous to make a last effort, the Quaker called at the house one morning, and inquired of the servant if his master was at home. The merchant hearing the inquiry, and knowing the voice, called out from the top of stairs, “Tell that rascal I am not at home.” The Quaker, looking up at him, calmly said, “Well, friend, God put thee in a better mind.” The merchant, struck afterwards with the meekness of the reply, and having more deliberately investigated the matter, became convinced that the Quaker was right, and that he was wrong. He requested to see him, and after acknowledging his error he said, “I have one question to ask you—How were you able with such patience, on various occasions, to bear my abuse?” “Friend,” replied the Quaker, “I will tell thee. I was naturally as hot and as violent as thou art. I knew that to indulge this temper was sinful, and I found it was imprudent. I observed that men in a passion always spoke aloud; and that if I could control my voice, I should repress my passion. I have, therefore, made it a rule never to let my voice rise above a certain key; and, by the careful observance of this rule, I have, by the blessing of God, entirely mastered my natural temper.” The Quaker reasoned philosophically, and the merchant, as every-one else may do, benefited by his example.—*British Workman*.

## THE MARKET VALUE OF AN ARCHITECT.\*

IN these revolutionary days—when the great purpose of a man's life seems to be, if not always to leave the world better than he found it, certainly to leave it upside down—whilst the map of the earth is changing, the map of history changing, the map of society changing, the map of science changing, day by day, we cannot be surprised to see changing with the rest the not unimportant map of that division of labour by which human energy conducts its material and intellectual operations. Old agencies become effete; new take their places. Vocations which were important yesterday, were superfluous to-day. Our old men, like our old muskets, are behind the age.

Now, amongst other honourable callings in art and science which have existed time out of mind, one of the most ancient—in fact, we can follow its history by infallible records for three thousand years—is the vocation of an *architect*. And this vocation, I may fairly affirm, has, all through these thirty centuries, received from public opinion respectful recognition—at least in the great centres of intelligence for the time being. But within the last few years, in this metropolis of London, it really seems as if the proposition were being advanced that this recognition is a mistake—that this architect, in a word, is a myth.

There are some who have put the matter in the form of a puzzle, desiring to know whether any one can inform them what an architect is. No one can, of course. Gentlemen of learning in that way, who consider themselves behind the scenes, applaud the cleverness of the hit. They have heard of the name, it is true. They have a vague idea of large pretensions attached to the name. They have heard a good deal lately of one Sir Charles Barry, an architect. With regard to St. Paul's Cathedral, also in the city, they have heard of one Sir C. Wren, an architect, whose fame is supposed to be an honour to his country. They have travelled all over the world, one or another of them, and have looked at all the lions of the world. A very large proportion of these lions are certainly architectural lions—objects of much pride to the people, subjects of books, pictures, medals, histories, poems, researches innumerable; mighty and venerable works of marvellous human skill—by the Nile, for instance, by the Ilissus, by the Tiber, by a hundred such old rivers to whose silent flow these works of the architect seem to give a voice, recalling the memories of ages otherwise lost. No doubt, all this is so; but yet, when the question is put in its plain, prosaic simplicity, What is an architect? gentlemen of education really cannot readily tell. There are even gentlemen of the House of Commons who have suggested the answer, in a vague and pleasant way, that an architect is a nuisance, reminding one of the time when a similar puzzle was proposed, "What is a pound?" There was the same quandary then. Some gentlemen had vague ideas about twenty shillings, but further than that the puzzle has never been unravelled to this day.

Let us take another instance. There exists a certain artistic society of well-known name, professing to exercise great influence in architecture—indeed, dealing with church architecture largely, and that not only religiously, but technically and practically too. Its criticism is furnished by gentlemen of whom probably not three could make a passable drawing of the back leg of a chair; and yet before these empirics prominent architects numbly present their designs for judgment, thankfully accept faint praise, submissively endure dogmatical, almost discourteous, rebuke.

Once more, when the Great Exhibition building of last year had to be planned, the Royal Commissioners, peremptorily rejecting the suggestion of having an architect, employed a sapper and miner. The Crystal Palace of 1851, none the less, was the work of a gentleman's gardener.

Now, "the value of a thing is what it will bring." What, then, is the value of an architect? Not much, one might feel inclined to say; in point of fact, at the present day, nothing apparently—nothing, at least, but romance—nothing worth paying for in the eyes of Parliamentary critics, royal commissions, ecclesiastical societies; and, so far as these dignified authorities are exponents of general opinion, nothing worth paying for in the eyes of the sovereign public. But hold; if it comes to a question of what is worth paying for, a question of market value, whether of broadcloth or brains, the public of this country are given to judging by their own instincts altogether independently of dignified authorities. Walk through the City of London, therefore, through Liverpool, Manchester, Glasgow, and many another busy hive of industry, and take the effectual suffrage of the every-day works of every-day streets—the property of men with whom market value is everything, and romance

nothing: do these employ sappers and miners and gentleman's gardeners? If the House of Commons find it so hard to tell the market value of an architect, suppose they consult some shopkeeper in Cheapside? Perhaps he may be able to solve their other puzzle too, and tell them what is a pound.

The value of a thing is what it will bring. I propose to embrace this proposition, as you see, in its hardest and most prosaic sense, What is the *market value* of our profession? I propose to answer the question in the hardest and most prosaic manner,—by weighing the practitioner against *cash*. Rely upon it, John Bull's purse is not opened, as it is to us, to those who do him no service.

It is possible to ask—and it would only depend upon a peculiar kind of moral courage how long one might persist in affecting not to know—What is a *lawyer*? There is a certain grim pleasantry, however, which goes for an answer—it is perfectly intelligible—He who is his own lawyer has a fool for his client. Even affectation must ultimately yield to the strength of this simple reasoning, if the querist has any experience of business at all. Now, he who is his own architect, what sort of person has he for his client? Perhaps statistics might furnish an answer here no less conclusive than the former.

What is a soldier, by the bye, in these days of Garibaldi and Polish scythemen? What might be the answer of the wits of Westminster and South Kensington I cannot presume to say; but a plain man of business might venture to suggest that he is still an expert, trained to do with every advantage that which your Garibaldi and scythemen, for want of training, can only accomplish under much disadvantage. And in these days of capitalist builders, ecclesiastical amateurs, sappers and miners, and gentlemen's gardeners, what, in like manner, is an architect? A trained expert, none the less, who, by reason of his training, and in exact degree according to the measure of his training, performs with facility and honour a difficult and delicate intellectual task which the Garibaldi and scytheman of the arts, for want of training, only bring dishonour on their age by pretending to attempt; dishonour even in the eyes of those who put them forward; whose want of knowledge is on a par with their own want of skill; for, after all, who amongst the very men who cannot tell what is an architect will have the hardihood to suggest the creation of one worthy the name out of a sapper and miner or a gentleman's gardener?

I do not forget that, in former lectures in this very place, I have traced the history of two of the most remarkable architects of all time, with whom architecture was not apparently the subject of youthful study. Michael Angelo was a sculptor. Wren was a mechanician. It is true, therefore, the argument has run, why not make another Wren out of "a clever young officer of Engineers," another Buonarrotti out of a distinguished horticulturist? Well, little Sir Christopher was a gentleman, and member for Windsor; we can fancy him speaking very civilly to the sapper and miner; but, in the name of all rugged memories! what would he say to the gentleman's gardener who struck at the Pope with a scaffold board? Again, the argument runs on, in the middle ages the architects of marvellous works were untrained priests; why not, therefore, out of a clergyman at large make a useful juriconsult of the Ecclesiastical Society? The inference here, I reply, is even more hollow than the former. Were the priest-architects of the middle ages untrained? Certainly not; the clerical experts of that time, in all departments alike, were doubtless not only carefully taught, but carefully selected both before and after. Nor was Wren untrained, after the manner of his time; it is unquestionable that he had studied anxiously for years. As for the magnificent intellect of Michael Angelo, if there be anything that we can suppose impossible with it for lack of training, it would be architectural design; and more, if there be anything in which even training proved inadequate to constitute him so much a wonder of the world as in all else, critics agree that it is in this art alone that he is scarce himself.

An architect, then, is a public practitioner who, by means of a certain training which is peculiar to him (based of course upon a certain aptitude which is not every one's gift), is qualified to administer building operations with peculiar skill. And the value of such a public servant is to be judged of by two facts at the outset, which are to be taken for granted. First, it is the fact that within the last fifty years the members of the profession, at first in London and the great towns, but latterly throughout the country at large, have been steadily increasing; and this in an advancing ratio, which at the present moment is almost incredible. This is proof which statisticians would pronounce indisputable that the English public, appreciating very highly the character of the supply, are thus induced in a corresponding degree to augment the demand. Secondly, it is the fact that while the profession of architects

have been so vastly increasing in numbers, the position of its numbers socially, educationally, and pecuniarily, has not only continued satisfactory, but has materially advanced. This is good evidence, again, that on the whole the public pay the architect well; there is even reason to believe that the public at this moment are perfectly prepared to pay him better. We are, therefore, already entitled to affirm that the market value of the architect is a matter upon which there need be no feeling of discouragement; if we have detractors, they are certainly not the English public at large.

In proceeding now to examine more in detail the functions of the architect as a public servant, I need scarcely remark that in every-day practice he frequently diverges into business which is not strictly architectural; it being always the rule that, as every vocation is continuous with, or, as we say, abuts upon a variety of other vocations which may be said to surround it, there are, in every direction, recognized combinations of vocation effected upon border ground. And thus there constantly come before certain classes of architects, a mass of questions of survey, valuation, purchase and sale, legal and other controversies of many kinds, in which, as adviser, negotiator, skilled witness, advocate, or arbitrator, the experienced architect is able to render to the public such service as no one else could pretend to offer. That it is most useful work we must never forget; and the fact that it is handsomely paid for, is no doubt, in many cases an important element in the pecuniary success of the profession; but nevertheless we need not shrink from surrendering this ground in our present inquiry, so as to confine our attention to what may be called the more peculiar and exclusive province of the traditional architect—in other words, divest the question of all this useful, profitable, but not purely architectural skill, and there remain these three great departments of our craft pure and simple, each one essential to the character of a perfect architect, and each one bearing a market value, namely:—

*Building contrivance*, or the contrivance of plan;

*Building science*, or the science of construction;

*Building art*, or the fine-art architecture.

The master architect is master of all these, and he alone is master of them all. I will go even further, and assert that he alone is master of any of them, as mastery should be.

The raw material for all this exercise of intellectual endeavour is the builder. He supplies the bricks and mortar, the timber and deals, the journeyman and the labourer, the trowel and the hammer. Occasionally he is bold enough to profess to supply the architecture too; he is a practical man, and an ounce of practice is worth a pound of theory; he has had great experience, from the bench upwards, and could take off his coat and turn to at his trade yet, if occasion required; he keeps his own draughtsman, perhaps, and can turn out a drawing as well as any architect in London; and soon. This gentleman is the raw material. Give him an architect and he owns it frankly—"I always prefer to work under an architect, if it's only a £5 job; because then I know it *right*; I have no trouble and no responsibility." "The only thing that puzzles me," he will say confidentially to the architect, "is this—how, in the name of wonder, you can do so much work for so little pay; what's 5 per cent.?" He may go on to hint that the five ought to be made up to ten; but the market value of an architect depends upon the stolidity with which he listens to this suggestion without having the faintest idea of what it means.

Look, now, at what I call building contrivance—I mean the skilful adjustment of everything to the end of convenience in respect of the arrangements of plan, the choice of appliances, and the ordinary construction. We may safely say that if the architect be not able to profit his client in this matter alone to the full extent of his commission, he is not worthy of the name. I might even assert that, as a rule, the difference of palpable value between, for instance, a Westend dwelling-house carefully compacted by an experienced architect, and the equivalent pitchforked together by any one of a hundred builders who would cheerfully dispense with all professional aid, is, in respect of mere contrivance, not simply 5 per cent., but five times 5, and without the necessity for a single shilling of additional outlay on this account.

But, in order that the architect may really be of service to the public in this important respect, it is obviously essential that he should study with attention the subject of plan. Nothing can be a more fatal error as regards the value of the architect than a notion which pervades the mind of many of our students, to the effect that artistic design is the one thing needful. Let it be distinctly understood that an Englishman is very easily overdosed with this artistic design. In dwelling-houses, for example, English gentlemen, not of the Hebrew per-

\* First Lecture at the Architectural Exhibition, delivered by Professor Kerr.

suasion, will be found to refuse anything beyond a very modest minimum of it. The dislike of obtrusiveness is, in fact, so decided amongst our better classes that it frequently leads to an archaic poverty of design much to be deplored. But convenience of disposition is quite another thing. In this there is no limit whatever to the exercise of skill: and the high esteem in which this kind of architectural merit is held may, without hesitation, be instanced by an allusion to certain gentlemen well known, who have built up thus, with little pretension, if any, to either science or art, a reputation which secures, without an effort, the most liberal returns in the profession. In a word, the high market value of such practitioners is one of the best possible illustrations of the degree to which the item of building contrivance is practically appreciated by the public. As another notable instance, there are not wanting cases in ecclesiastical practice in which a valuable connection is kept up on the strength of similar merits of plan,—where not only an unpretentious, but even an absolute manner, is accepted, in respect of style, for the sake of sound experienced common sense in general contrivance.

Take, now, the second department of the architect's province—namely, building science, or construction. It is in respect of this that the clever young officer of Engineers and the gentleman experienced in greenhouses were put over the heads of the entire architectural profession. It is in respect of this that the Civil Engineers as a body are supposed to affect contempt for the architects as a body, although I question, for my own part, whether they really do. It is in respect of this that the late Prince Consort pursued that course which, I fear, will render his memory somewhat less popular with architects than otherwise it would be. When anything novel is required, he said, the architect hesitates and interposes objections, whilst the engineer simply proceeds to accomplish the end. In a word, it cannot be denied that particular attention is at the present moment demanded to the study of scientific construction, as the best means by which the architect can recover any prestige which of late years he may think he has lost.

However, I have none the less emphatically to point out the fact that, if for a time the architect lags behind the pace of other professors of science, it is only in respect of such questions as apply to magnitude of scale and novelty of principle. In his ordinary beaten track, he is still unrivalled. Neither the practical builder with his empirical instinct, nor the engineer with his mathematical elaboration, can either dispossess the well-trained architect of his common constructive ground, or even aid him where he may be at a loss.

It may be again affirmed, in the formula already adopted, that if the architect does not benefit his client peculiarly in this respect alone to the full extent of his commission, and a good deal more, he is not an apt and well-trained man. His market value, therefore, is again clearly before us; the man of business, in building a residence for himself, or a church or school for his neighbourhood, or a warehouse or factory for his trade, not only feels that the ingenious and practised contrivance of all arrangements, at a cost of 5 per cent., is a thing that *pays*, but perceives also that the science which is brought to bear upon the construction is a second thing that *pays*, even if it cost another 5 per cent., which it does not. For, argues common sense, how far would 5 per cent. go in waste of material and labour? how far would 5 per cent. go in remedying inconvenience? how far in repairing structural weakness? What is 5 per cent. in business? A bagatelle. There is many a warehouse in London where 5 per cent. pays for little more than wrapping a thing up in brown paper.

To relieve for a moment the tedium of sustained argument, let me relate an anecdote. Some years ago a party of gentlemen, chiefly architects and builders, were invited to dine together. The architects arrived in public cabs; the builders in their private broughams. The contrast was pointed out, and the explanation asked for. "It is the difference," was the reply, "between five per cent. and fifteen."

By way of mentioning, in passing, a matter which must not be forgotten, let me here remark how important a point in the practical value of an architect to his client is the matter of a correct calculation of cost. It is not too much to say, that, in a certain sense, all other qualities of excellence are vain, unless this truly British principle be fairly met. An architect's estimate has been allowed to become a by-word. This ought not to be. I believe in the case of every one of our profession, whose career has been signally fortunate in public works, such as Soane and Smirke, this one merit has been the foundation of success. An Englishman, in a word, will always pay liberally for a reliable estimate; and he will always com-

plain bitterly of any disappointment in this respect, refusing to take any excuse whatever.

We may now turn to our third department—building art. Here the accomplished architect is supremely master of the situation. This is the art of the beautiful in building; the long celebrated and right-royally cherished fine art architecture—queen amongst the arts—enthroned from the very dawn of civilization—to whose majesty the rest are hand-maids—beside whose monuments all through the ages the common works of man's genius are but toys, and man himself a pigmy—working, one might imagine, under the behests of some Titanic agency unseen, leaving in tremendous ruins, scattered across the globe, that which is a puzzle really hard to be solved by thoughtful men.

The abstract origin of this fine art is no more than this. Look at it as a first principle in all intellectual work, that grace and beauty must assuredly find a footing somewhere. Owen and Huxley may theorize for ever about the microscopic anatomy of monkeys and men; but, if the real difference between the lower intelligence and the higher intellect is to be actually understood, we must, I think, start from this one point, and this alone. No bulk of brain, no conformation of skull, can ever cause a gorilla to see the beauty of the brightest flower of the woods; and no degradation of species, short of occasional disease, can ever deprive a man, be he but a Hottentot, of that relation to the multifarious beauty of the universe around him out of which come all his best enjoyments and all his aptitudes for mental development. It is a first principle, I therefore repeat, in the operation of human intellect in all works of design, that it shall combine with the useful the graceful; and in building, as may safely be said, grace of every kind, from playful prettiness to solemn majesty, seems to force itself upon the attention of the intellectual designer, more, perhaps, than in any other sphere of the kind whatever. Hence, then, architecture—the fine art. It began with the beginning; it has never wearied in its pleasant way from that beginning till now; it will never weary from now to the end. Five thousand years ago the savage decked out his wigwam as daintily as a savage could; and five thousand years to come, in the last and dreamiest age of the perfectibility of the species, when the world is too refined to be worth living in any longer—when humanity, having nothing further for which to keep awake, can only yawn and snuff itself out—the last attenuated lord of the creation will sink to rest in some pleasant chamber of design, on whose placid features the Battle of the Styles has imprinted neither a frown nor a scar.

But, at all events, here we are, in the very fever heat of the world's progress, about equally removed, as perhaps everybody will acknowledge, from savagery on the one hand and perfection on the other; and it is not too much to say that these are the times of all times, and England the land of all lands, in which it would be voted a perfect anomaly for building to go without fair garments. That in this very age, and in this very country, there should be found people sufficiently perverse to raise a cry for the contrary, is at the same time to be expected. The curious mental law here exemplified has frequently been under discussion before now; and it is well understood that when any principle is most full in the ascendant, then is the time for some one most flatly to deny it; so that the present universal popularity of architectural art is a thing not at all at variance with the enunciation of the riddle—What is an architect?

In this last of our three forms of the question of money value, it is certainly most remarkable how decidedly the general public of the present day signify their cordial appreciation of the architect's services. The demand for what is called a "neat elevation," governs every little shop front in our back streets; our very workhouses are notoriously made matter of artistic effect; even police courts and prisons are tricked out with their modicum of ornament, lest discipline itself should be too dismal to bear, or the felonious part of the public have reason to complain that we do not regard them as men and brethren.

It would be wasting your time to enlarge upon the market value of our agency in fine art. The historical monuments, of which there is not a country of the civilized world but possesses its share; the great public buildings of the day, laboriously rising up in every centre of population; the temples of divine worship of whatever faith, from primeval antiquity to the passing hour; the cenotaph of sorrow and the tower of triumph; the gigantic theatre and the pettiest restaurant; the palace of imperial receptions; and the wayside cottage of modest retirement—all these are but the universal testimony of our race to the purchase of architectural art.

I ought to have included with these our theatres

and palaces, churches and cottages, the noble bridge in its fifty forms, the grand quay wall, the mighty breakwater, the lighthouse of many welcomes, but you all know I cannot. Art has not yet reached these—the works of our engineers, marvels of science, have not yet bowed to the more fascinating yoke. But presently they will; inevitably they must; and we may, therefore, be satisfied meanwhile to wait. Still here lies the germ of a future conflict. That our engineers, as a profession, will adopt the practice of artistic design I hold to be impossible; the elementary organization of the craft prevents it; the class of mind involved is not the artistic class; but whether the architects, as a profession, will embrace the practice of the more ponderous kind of construction, is a question of doubt. I hope they will; but to be done effectually, it must be done by numbers. In a word, if our rising architects would at present turn their attention earnestly to the study of the building works of the engineer, I think the whole of these might before long be conquered by the authority of art. Can anything be conceived more grandly suitable for architectural design than our Thames bridges? Why should they be so inevitably helplessly barren of endeavour after elegance or ornament? Look at the nakedness again of our lighthouses; why cannot the architect weave a little of the beautiful into the naturally graceful forms? To those who profess so much now-a-days to seek for novelty style, let me say a word on this. For novelty style, the best of all foundations is novelty in purpose. Suppose we try the architectural hand on a few bridges, lighthouses and piers, for an experiment, and see what will come out of the effort. But let this be borne in mind, there must be no sham and pie-crust, no adaptation of mere cast-off clothes, no designing in such and such a style, no attempting to follow so-and-so's manners. At all events, what more prominently concerns us in this suggestion at the present moment must be put thus—so well and widely acknowledged is the market value of the architect in respect of his charming artwork, that, if he will but offer to apply it to engineering, I undertake to say the universal voice of the country (except, perhaps, the voice of the engineer) will applaud and encourage on every hand.

I now come to the least pleasurable portion of my inquiry—namely to ask how it happens that at the present moment persons of education and good taste are found to come forward and assert roundly that the architect is of no market value at all? I must answer the question briefly, and you must excuse me, therefore, if I speak to the point. I blame the archaeologists. It may be laid down as a rule that so long as the trained expert keeps to business, the untrained amateur will be his respectful admirer; but that directly he turns his speciality into a popular recreation, hundreds of idle intellects will cluster round him and contest with him the possession of his very skill. As mere illustrations of this question of policy, note how carefully the medical and legal professions keep their science out of what is called the "popular" form. Ask military men what they think of the present fashion of soldiering for amusement; look even at our shrewd half-brothers, the engineers, and see how they fight shy of noble patronage and public debating clubs. I think it has been a most mistaken policy in the mediæval architects to encourage, as they have done, the empirical and superficial sciolism of fashionable antiquarianism. The old *dilettanti* had their faults, but they were men of polish, and if their sentiments were somewhat affected, they were at least both graceful and harmless; but these new-fangled *savants*, mild country curates, Roman Catholic priests, the reverse of mild, rubbers of brasses, collectors of china, dealers in curiosities, pre-Raphaelite house painters, ecclesiastical milliners, glaziers, and candlestick makers, the more sincere their admiration, the more hurtful their help. Fifty years ago architecture was, at the worst, the plaything of Egyptian explorers and Greek scholars; now it is the prey of a host of black-beetles from Wardour-street.

The enmity of amateurs (I use the expression advisedly) is the basis of all the opposition which the architect of the present day has to contend with. Amateurs are always a professional encumbrance; and if a profession makes pets of them, they become pests. In precise proportion to their earnestness, so are they pernicious. Of necessity shallow in their knowledge, they are of necessity self-satisfied in their opinions; and the more it is necessary to conceal their ignorance, the more they have recourse to arrogance. As regards architecture, in whatever branch, I contend that we have no need for any amateur element whatever; and I unhesitatingly assert that, when we encourage what is called the praiseworthy interest taken by the educated public in our beloved art, and so on, in the expectation, that the market value of our craft is being raised thereby, we are really establishing a

partnership with any one who has an unfurnished head to let, by which we both depress the standard of criticism and lower the market value of skill. He who respects himself the world respects him; he who underrates himself will find himself accepted at his own valuation.

I have thus set forth for your consideration the way in which I think the shrewd distincts of the English people are to be confidently relied upon by the architectural profession as appreciative of the value of professional services. I have asserted that the present affectation of contempt for our profession is only the ephemeral arrogance of petted archæologists and amateurs, in direct opposition to the views of the public at large.

I have also endeavoured to explain that, in order to uphold our pretensions to public usefulness, we must, of course, maintain carefully and, indeed, elevate still more our standard of knowledge. I have ventured to direct attention especially to science as a field of profitable study and profitable practice. I have only to urge farther that, for the sake of our market value, if no more, we ought to contrive to keep our æsthetic disputes to ourselves, and to avoid seeking help from the Philistines—to agree to differ in taste without surrendering brotherhood—and, above all, to come to a determined understanding to allow no more architectural amateurs—in fact, to tell such people plainly to mind their own business, as they would very soon tell us if our positions were reversed.

As a last word I have this to say.—There are tricks in every trade; but I know of no profession of men in England, who, as a rule, more honestly and anxiously perform their duty, doing a large amount of work for every modest payment, than the architects; and I take the opportunity of winding up the practical suggestion that, although we do not complain, it would be well-merited compliment if the public would take the first opportunity of augmenting the money standard of our market value above the 5 per cent.—in fact, in plain English, to signify their sense of our high merit by raising our wages.

#### PROPOSED FURTHER IMPROVEMENTS AT CLONTARF.

THERE is quite a reactionary spirit just now apparent in this neighbourhood, both on the Howth and the Vernon estates, and we feel bound to publish every item of improvement proposed or accomplished therein, so as to relieve it from the imputations of that "proverbial slowness" to which it was our duty in earlier numbers to direct attention most specially—not, however, without much reason—and, as the result has proved, to the advantage of one of the most healthful and beautiful of our suburban outlets. Foremost amongst present works of progress is a magnificent mansion in course of completion on Lord Howth's property, and situated on the main road from the city to that ancient peninsular and picturesque town, from which his lordship derives his title. It is a model of the genuine baronial type of domestic structures—unhappily few and far between in this land of absentee nobility—the style of architecture being that popularly known as "Elizabethan," and which presents generally bold, effective, and symmetrical forms with broken outline and pleasing grouping, when skilfully treated by its architect. That the building in question has been so it is only sufficient to mention the names of its designers, Messrs. Lanyon, Lynn, and Lanyon, and, though we postpone a detailed description of its features till the works arrive at a more advanced stage, yet we cannot withhold from the distinguished architects a passing word of congratulation at the success and beauty of their design, nor from the builder, either for the excellent manner in which he is carrying out his instructions. Close by, a few less pretentious, but spacious and suitable suburban residences, have been or are being erected, and occasionally through the localities of Coolock, Artane, Raheny, &c., some dots of building progress are visible. Turning towards the time-honoured "Sheds," we see now ready for occupation a range of five recently-erected commodious terrace-houses, with red brick fronts and fine oriel windows, four of which the enterprise of a fellow-citizen, Mr. Tickell, has raised on a site which, but a comparatively short time since, was occupied by cabins of a most paltry and ruinous character. It is to be noted that Mr. J. J. Lyons, of Lower Gardiner-street, was Mr. Tickell's architect for these as well as for the new villa in Seaford-avenue, and the extensive improvements at Mr. Tickell's own residence, "Mercham," in Vernon-avenue. For the fifth, merit is likewise due to another citizen, Mr. Kenny, Mr. Bourke being his architect, and Mr. Hughes his builder. Such a class of house is much wanting here as well as elsewhere, and doubtless will amply repay the respective proprietors for their investment.

There still exist remnants of a miserable block of

dwelling, on the town side of the chapel house square, which it affords us peculiar gratification to record, are now all ordered to be demolished; the tenants having received peremptory notice to quit. Here is a site about the best in the county of Dublin for the erection of dwellings for people of moderate means, and we confidently expect that it will be eagerly snatched at. The lord of the soil of Clontarf, Mr. Vernon, has been himself engaged in adding to and improving his own palatial residence, "the castle," than which, for its extent, there is not in Ireland a more truly architectural structure. May we not here again appropriately suggest that as the bathing season is at hand, some better and decenter accommodation might, at a trifling outlay, be provided along the main road for female bathers, and at "the bull" for males, respectively. We believe that if such were that streams of visitors, now, of necessity, seeking the luxury of a bath in other marine outlets more distant, would patronize Clontarf instead, and most materially increase the traffic of the locality. The enterprising omnibus proprietors, Messrs. O'Neill, who "command the road," might note this, and act upon it with undoubted advantage to their own undertaking. The construction of the proposed new road from the Clontarf road to the Howth road, which would open up some most desirable building sites seems to be adjourned *sine die*; a recently erected substantial wall presenting a barrier thereto. However, we are not so unreasonable as to expect everything to be done at once, and we await this improvement too in due course.

#### THE PRESIDENCY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

It is with much pleasure we notice that the distinguished honour of a unanimous election to fill the presidential chair of the Institute of British Architects, London, has been conferred on that ever zealous votary of art, and distinguished veteran professor—Donaldson; Mr. Tite, M.P., retiring in rotation from the office which he too so worthily filled last year.

The President is the author of several learned standard works on architecture, and a devoted disciple of the classic school. He has for many years ably filled the architectural chair at the London University, and is an eminent practising architect likewise.

#### THE DUNDRUM LUNATIC ASYLUM.

SOMEWHAT more than ordinary interest has for a short time back been attached to the expected decision of the Board of Public Works as to the contract for the intended extensive alterations and additions to the District Lunatic Asylum at Dundrum, near this city; but all doubts, fears, and hopes, respectively, were dispelled by the official announcement on the 13th inst., that the Board had decided on accepting the tender of Mr. John G. Meighan, of King's Inn-street, builder, for the execution of the works at a sum exceeding 4,000. The additional works consist of day rooms, dormitories, and baths, at the male and female side respectively. The present kitchen and cooking departments are to be removed, and converted into dining halls; and a new and improved kitchen is to be erected adjoining the old one. We understand that a Turkish bath is also to be erected. Alterations are to be made in the out-offices and enclosure walls. We may here mention that with the public board in question the accepted contractor had already established his skill and character, by his successful fulfilment of a most important contract for a coast guard station on Dalkey-hill—now approaching to completion—of which we may perhaps have occasion to speak more hereafter.

#### THE DUBLIN BUILDERS' ASSOCIATION.

ARE we to assume that this body has altogether ceased to exist, or that it is only chronically affected with the "comatose" complaint of its contemporary Institute of Architects; and that, like the latter, it may at some time or another, when the interests of the building trade are encroached on, spring to its feet to resist the aggressors? We have always held both with reference to this and the other association referred to, that there was ample material for their maintenance in a useful collective capacity for the protection of just rights, for excluding abuses, and for ensuring uniformity and steadiness of action on questions affecting the community; and we therefore regard with much concern the present inefficient condition of the latter especially. Since the last report of its proceedings that appeared in this journal, we are given to understand that two or three meetings, purporting to be meetings of the Dublin Builders' Association, were held, but the attendance of a mere trio or quartet of members must not be taken as an evidence of the action of a most numerous constituted and important body; and we attach no importance to any little business that may have been transacted thereat. We are at a loss to conceive

what misgivings are the cause of this, what petty jealousies or personal piques can have interfered to prevent the wholesome, the united, and the vigorous action that characterised its earlier career. If such there be (but we sincerely hope not) there are nevertheless still very many gentlemen of eminence in the building trade of proverbial honour and intelligence quite above paltry considerations, and to them we should certainly look for another effort to revive their representative association, and place it on a better footing even than before.

It is really an unpleasing reflection, to say the least, that disunion, apathy, prejudice, or aught else, amongst gentlemen pursuing an occupation which renders their interests identical, should present impediments to the healthy existence of a tribunal for their general government; and, as in the case of the building trade, such tribunal is a consummation devoutly to be wished for, we trust that this little reminder, suggested in good spirit, will have the desired effect, and that hereafter, as heretofore, we shall be permitted the pleasure of recording in our pages many active and beneficial proceedings of the periodical meetings of the Dublin Builders' Association.

#### MEDIAEVAL STUDIES IN PALESTINE.

MR. G. J. WIGLEY delivered a lecture on the above subject on Tuesday evening last, in the Theatre of the South Kensington Museum. He said that the latest illustrations of this interesting subject were the complete set of photographs by Salzmann, taken in the year 1854, and afterwards publicly exhibited at the Crystal Palace. There was also a very beautiful set of photographs of some interesting mediæval monuments in Palestine, taken by Mr. F. Bedford. There was at the present day quite a constellation of authors who had written, not only about the Holy Land, but more particularly about the remains of ancient architecture which were scattered over it. Amongst these the work by the Rev. George Williams, of King's College, Cambridge, entitled, "The Holy City," was especially worthy of being noticed as containing a description of some of the mediæval monuments in Palestine which possessed the greatest amount of interest for the student, the architect, and the antiquary. The crowning work, however, upon the mediæval architecture of the Holy Land was, undoubtedly, that of Melchior de Vogue. First, as to the architectural importance of the Holy Land. People who were not well acquainted with the subject were under the impression that it contained a great many ruins, but was a country that was of very little importance, architecturally speaking. That was a great mistake. It was in the Holy Land that the Christian School of architecture was first developed. From the time that our countrywoman, the Empress St. Helena, visited the Holy Places, in the beginning of the fourth century, until the conquest of Syria by the Mahomedans in the beginning of the seventh century, the Holy Land was jewelled all over with Christian churches; and if but few of them, comparatively speaking, were remaining, it was because the power of destruction possessed by the Turks was greater than the power of construction possessed by the Christians. At Bethlehem, the birthplace of our blessed Lord, there still stood a basilica, containing vestibule, transept, nave, and double aisles on both sides, with columns. An able writer attributed the basilica to Justinian; but on comparing the masonry, the style, and the details with the well-known church of Justinian at Jerusalem, there could be no doubt that the basilica of Bethlehem must be attributed to a much earlier period, and most probably, as was the almost universal opinion, to the reign of Constantine. The basilica possessed all the most admired features of the Roman school, with others which were peculiar to itself. Its columns were of the red marble found in that country. The length of the church was about 200 feet; and an additional proof as to the time of its construction was furnished by its straight cornice supported by columns, as was common in the time of Constantine, and not by arches, as in the time of Justinian. The basilica had been adorned in many parts with mosaics by Greek artists. The roof was originally open, as in the case of the basilicas at Rome. The roof had, however, been frequently renewed, the last time with the assistance of Edward IV. of England, who furnished the lead for the purpose, the Duke of Burgundy paying the residue of the expenses. The lead had long since gone into the melting-pot to make bullets for the Turks. It was last repaired in the year 1842. This was the first and earliest Christian monument in the Holy Land, and perhaps in the world. Of all the objects which are invested with a great amount of attraction for European travellers in the Holy Land, the foremost

• Might it not be more prudent to term it the "Irish Builders' Association," and thereby secure the co-operation of the trade in the provinces, which the present *local* term may possibly preclude?

is the Holy Sepulchre. There was much reliable information extant as to the different churches that were raised on its site or in its immediate vicinity. It was stated by Eusebius that Constantine built there a large basilica, very much of the same character, doubtless, as that erected at Bethlehem. It had, according to him, double aisles on both sides, and also a magnificent gallery over those aisles, of which the triforiums in our cathedrals represent a feature, but on a very small scale. According to generally received opinion, the Holy Sepulchre must have been in the very centre of the basilica of Constantine. The basilica was destroyed in the seventh century. The first basilica is spoken of by Antoninus of Piacenza, as having had its altar in front of the Holy Sepulchre; so that the latter was not left in a kind of churchyard, an opinion which some persons entertained. Such was its position at the time of Constantine, and for some centuries afterwards. After the destruction of the building in the seventh century, the Holy Sepulchre became the centre of a group of detached chapels, covering different sanctuaries. They were the small chapel over Calvary; the rotunda over the Holy Sepulchre; the little church of St. Helena, stretching out at a much lower level, and several others. So they continued until the eleventh century; but in the year 1010 many of the churches of Palestine were destroyed by order of the Caliph Hakem. The churches of the Holy Sepulchre were, however, afterwards restored very much to their former state. On the arrival of the Crusaders in 1099, the several churches underwent a complete renovation. The Crusaders did not destroy anything they found; on the contrary, they restored and completed that which had been wholly or partially destroyed. They used the rotunda of the Holy Sepulchre as the nave of their new church, and added a sanctuary and transeps, which it might well be conjectured occupied the position of the nave and aisles of the basilica of Constantine. The Holy Sepulchre stood at the west end of the present church; and there was good reason for that arrangement. When Constantine built the church there, the whole of the rocks which surrounded the hill of Calvary, and the rock in the flank of which the Holy Sepulchre had been cut, after the fashion of Jewish sepulchres, was almost all carved away; and the Holy Sepulchre, in fact, remained merely as a shell of rock; and it was impossible that the excavation could have been carried farther westward for the purpose of placing the nave and aisles in that direction, as the level would have been much higher than the sanctuary itself. For these reasons the great body of the basilica of Constantine and of the present buildings were placed to the east of the Holy Sepulchre. The style of the church built there by the Crusaders corresponded with the European style of that date. It is conjectured to have been opened about the year 1140, and it possesses all the characteristics of the Romanesque style of that period, more particularly as it was adopted in the erection of French churches. It had, however, a marked characteristic, which distinguished it from the churches of Europe, namely, that its arches were pointed. This example of the pointed arch was not by any means unique, as pointed arches were to be found in almost all the churches of Palestine, even in those which were built at a very much earlier period than the time of the introduction of the pointed arch into Europe. There were, he believed, only two churches in Syria and Palestine in which semicircular arches were to be found; but in these cases pointed arches were also to be found. At the time of the Crusaders the pointed arch was universally used throughout the East; numerous instances of it were to be found, for instance, in the mosques of Damascus and Cairo. The Crusaders adopted the prevailing fashion, and in the carrying of it out they employed the workmen of the country; nor did they confine their adoption of the style of the country to the pointed arch; they extended it also to numerous details of ornamentation. On this subject of the pointed arch he was somewhat at variance with his author, M. Melchior de Vogue, who evidenced in his work in this respect a little feeling of nationality, and had a leaning towards the Gothic of France, and he took him to task for asserting that the pointed architecture of the twelfth century proceeded from the Holy Land. It was admitted in the volume that all the buildings erected by the Crusaders had pointed arches throughout, but it was asserted that the pointed arch existed partially, at least, throughout Europe at the same period, and that even if it had not existed at all in the Holy Land, it would have grown up in Europe as it has done. It was much to be doubted whether facts warrant such a conclusion. The churches of the East built at the commencement of the twelfth century were filled with pointed arches,—in a whole series of churches to the number of sixty, that existed still of the time of the Crusades, they were to be found. At that period the attention of Europe was directed to

the Holy Land, and the result was the introduction, to some extent at least, of Eastern customs, policy, and laws; and he had also come to the conclusion that it resulted also in the adoption throughout Europe of the pointed arch. He was aware that the Gothic style, so far as it could be called a style, was chiefly made up from the Romanesque school. Its plans, arrangement, and outlines certainly proceeded from that school; but it seemed to have received from the Holy Land its finishing touch and impulse, namely, the pointed arch. The church of the Holy Sepulchre was not the only example of mediæval architecture in Jerusalem. Count Beugnot mentioned in his work on the Assizes of Jerusalem that he found amongst the MS. of a French library records of no less than twenty churches built by the Crusaders in Jerusalem, and the whole or portions of each of them could still be identified. The next in point of importance to that of the Holy Sepulchre was the church of St. Anne, at the north-eastern extremity of Jerusalem. It is supposed to have been built very soon after the church of the Holy Sepulchre, and is 120 feet long by 60 feet wide, the centre nave being 24 feet, and the aisles 18 feet wide. It had no triforium, which hardly existed in the case of any church of the twelfth century throughout the Holy Land. The vaulting was groined without ribs, with plain wagon vault in its transepts. It was only towards the end of the twelfth century that ribs were introduced in vaulting. Over the centre of the transept the church was lighted by a cupola. The cupola was to be found in many of the churches of the East; it was borrowed from the Arabs, and afterwards introduced into southern Europe. The adoption of terraced roofs allowed the architects to treat their space much more agreeably than was found to be the case in the churches of the West. It was seldom that any sign of a belfry was to be found. In the church of St. Anne a tower or minaret now existed, which did not form part of the original structure. It was, in fact, built in the year 1842, while the church was used as a mosque. He was happy to say that it had ceased to be a mosque, as in the year 1856 it was presented by the Sultan to the Emperor of the French, and it was likely soon to resume its character as a Christian church. A French architect had been sent out with a view to its restoration, and it was to be hoped he would treat it in a conscientious manner, so that in truth it would be a complete restoration. After the church of St. Anne, the building that attracted especial notice from all European visitors in Jerusalem was all that now stood of the Great Knights' Hospital of St. John. Very little remained of it. The church which was originally attached to it was nearly destroyed. There were a few arches still to be seen, but they were disfigured by being not only the ruins of a Christian church, but also of a mosque, into which it had been turned. The space occupied by the Great Hospital stretched right into the town. It now looked like a field covered with grass, which covered arches and architectural remains. The hospital was a large square double-storied cloister, around which the buildings extended; the entire occupying a very considerable area. It is said by historians to have afforded accommodation to 2,000 sick persons and to 400 knights. The only striking architectural features to be seen at present of the Great Hospital were a series of five or six arches that now formed a part of one of the streets of the bazaar, and also some curious arches, evidently belonging to the Great Hospital, but now forming a part of the little Greek church, called the Church of St. John the Baptist, which was erected, as the Greeks contend, on the spot where the town house of Zacharias stood. The Church of St. Mary the Great, so called to distinguish it from another church, called the Church of St. Mary the Less, is supposed to have been built by the community from which the Knights of St. John ultimately arose. Towards the beginning of the eleventh century, certain merchants of the town of Amalfi, in the kingdom of Naples, who were in a very prosperous position, rebuilt the hospital close to the Church of the Holy Sepulchre, and called it the Church of St. Mary the Latin. They built also a place of residence for female pilgrims, which was in the hands of a community at the end of the twelfth century. There still remains part of the north wall, and also of the cloister adjoining it, though it has been very much altered in character by the repairs which, from time to time, it underwent. The peculiar characteristic of that church, by which it is distinguished from the Church of St. Anne, is that, although the greater number of its arches were pointed, the side window on the north side, as well as the doorway, were semicircular, and it also displayed a greater amount of ornamentation than any of the other churches of Jerusalem. The Church of St. Mary the Latin, which stood in the immediate vicinity of the Holy Sepulchre, consisted of a single nave and apse, of very plain kind of architecture, but not at

all uncommon in the Holy Land. This was the case of one of the earliest churches in Jerusalem, where, according to local traditions, the faithful met, on the spot on which it stands, in the time of the apostles—the Church of St. John Mark. The word “basilica” included not only buildings used for public purposes, such as halls of justice, but it was also applied to the chief hall in Roman mansions, a fact which seemed to be forgotten when the basilica was spoken of as the type of all Christian churches in the East and throughout Christendom. The development of the type was mistaken for the type itself. At the outset of Christianity public worship was conducted in the houses of Christians. Afterwards, as the numbers increased, single-nave churches were built; and they were still to be found in many parts of the Holy Land and the East. With respect to the buildings which occupied the Temple area, very little remained to mark their use as Christian churches. The Church of the Presentation of Our Blessed Lady, erected by Justinian, consists at present of a nave and no less than three aisles on each side. Two hospitals were added to the church, which may be believed to have occupied the space of the two aisles erected by the Mahomedans since. The ruins of the hospitals probably suggested the erection of the two additional aisles. In the north-east part of the town stand the remains of a very interesting church, that of St. Mary Magdalene. It was very much like the Church of St. Anne, and was especially plain and without any display of ornamentation. It had the additional feature of a more prolonged choir, and also shows some remains of wall painting. In the same part of the town the remains of several small twelfth-century churches are to be found. Amongst them the Church of St. Peter, now a mosque, and also a tiny church about 20 feet square, but which, notwithstanding its diminutive size, contains nave and aisles, and all the features of a mediæval church. It is said by the Greeks to have been erected on the spot where the Blessed Virgin was born. M. de Vogue's volume contained not only a full and most interesting description of the churches inside, but also of those outside Jerusalem; as, for instance, the church which stood on the spot from which our Lord ascended, and full detail and accurate drawings of the churches are given. Following the Crusaders to Cyprus, most interesting remains of mediæval architecture would be found there, in which the Eastern character was less mingled with European features. There were in Nicosia and Famagosta several examples of the churches of the thirteenth century, and also remains of the monastery of Lapaia, containing cloister, refectory, with stone pulpit for the reader, chapel—consisting of nave and aisles—all most completely built. To this building there is a local tradition attached, to the effect that our blessed Lord resided there for some time. Very few buildings of a later date than the thirteenth century were to be found in Cyprus. The cathedral of St. Sophia, at Nicosia, was a magnificent specimen of European architecture. In Rhodes, many remains of the architecture of the fourteenth century were to be found, not scattered at considerable distances from each other, but grouped in the immediate vicinity of the quarter where the knights resided. The Mahomedans have altered very little; they built very little, but what they found they allowed to remain as they found it. The Grand Hospital of the Knights consists of a large quadrangle with double cloister, beyond which is the street in which the knights lived. At the lower part of the street, which is paved with white marble, an interesting church—now used as a mosque—was to be found. It was dedicated to St. Catherine, and is in good preservation. The Priors of England, France, Spain, Portugal, &c., are also to be found in the same street, as well as the great Church of St. John, which was a very stately structure, although not so considerable as was afterwards erected by the knights in Malta. It was of Italian Gothic style, while the greater number of other churches were of French Gothic. The roof was open and plain. Unfortunately it and the buildings in the vicinity have recently been very much damaged by the explosion of several barrels of gunpowder, which had been stored in it by the Turks. Some of the old fifteenth century guns were still to be found standing on the ramparts, and he (the lecturer) saw, covering the touch-hole of one of them, a piece of a breastplate which had been used during the last siege.

ROYAL ACADEMY EXHIBITION.—The annual exhibition of the Royal Academy is now open in the National Gallery, London. Amongst the architectural drawings are Mr. Burgess's, Messrs. Pugin and Ashlin's, and Mr. W. A. Carter's designs for Cork Cathedral, submitted in the recent competition. The collection, however, is comparatively meagre.

## THE INSTITUTE.

THURSDAY, the 21st inst., is the day appointed for the next *general* meeting of the revived Institute of Architects. We are not aware that any paper is to be read, or any very specially important business is proposed to be brought forward, except that some of the resolutions which we printed in our report of the last meeting *may* be submitted for consideration, or possibly their postponement to a future date may be deemed prudential.

The desirability of this Institute joining the "Architectural Alliance"—which is already composed of representatives from the Associations of London, Liverpool, Glasgow, Edinburgh, Birmingham, Manchester, Bristol, Newcastle-on-Tyne, &c.—will be moved for by Mr. Lyons; and it would seem to be highly desirable that the architects of Ireland should send a delegate or two to the next annual conference of the Alliance in London, on the 1st July. It should be remembered that, on the occasion of the last conference, while the Institute was in abeyance, Mr. Lyons *did* attend thereat, but *unofficially*; however, such need not be now, as the Institute being fully formed and in working trim, can, like the contemporary associations, select a representative for itself, and afford to pay his expenses out of its surplus funds.

Some more new members will, probably, be introduced into the Institute on Thursday, and we must again earnestly beg of *all*, both old and new, to qualify themselves for voting, by *immediate payment of their subscriptions*, else they may—as according to the bye-laws provided—find their election to be declared "null and void," at a time when their counsel and presence will be rendered most desirable. Two or three council meetings—but very limited in point of attendance—have been held since our last publication, and some routine business was transacted.

For the information of those who may not be exactly aware of the nature and objects of "the Alliance," we attach them hereto, and ample time is afforded for their consideration between this date and the coming meeting.

## OBJECTS OF THE ALLIANCE.

"That its objects shall be to promote united action among the otherwise isolated architectural societies, and to aid the establishment of new local societies where not now existing.

"That it shall take cognizance of all matters affecting the interests of the profession. That for this object it shall especially direct its attention to the present unsatisfactory mode of conducting competitions, and shall endeavour, by the publication of a scale of charges, to regulate the rates of professional remuneration.

"That all architectural societies giving in their adherence at or before the first meeting shall constitute the nucleus of the Alliance; and in future all architectural societies shall be eligible for election in the mode hereafter provided.

"That any society wishing to join, shall be proposed, in writing, by a society already in the Alliance, through their secretary; that such proposal shall be sent to the secretary of the Alliance at least one month before the annual meeting, and shall state the title of the society proposed, and the names of its chairman and secretary. The name of the society so proposed shall be inserted in the notice convening the meeting, when the election or rejection of such society shall be decided by ballot.

"That the business of the Alliance shall be conducted by a president, vice-president, treasurer, honorary secretary, and delegates, from each society in the Alliance.

"The delegates shall consist of the chairman of each society in the Alliance (*ex officio*), four members appointed by the Royal Institute of British Architects, three members by the Scottish Institute and by the Architectural Association of London, and two by each provincial society, or any less number they may see fit to appoint; all to be appointed annually.

"The president, vice-president, treasurer, and honorary secretary to be elected annually by ballot by the delegates. All correspondence shall be conducted by the secretary of the Alliance and the secretaries of the various societies composing it.

"That the annual meeting shall be held on the first Tuesday in June in each year, and other meetings may be held as hereafter provided for.

"All members of each society in the Alliance shall have the right to attend the meetings of the Alliance on introduction personally by any delegate,

or by a card of introduction from one of them; but delegates only shall have the power to speak or vote.

"Questions may be brought under the cognizance of the Alliance by any society writing through their secretary to the secretary of the Alliance, who shall then ascertain the views of the other allied societies, and report to each the general feeling. On the requisition of a majority of the councils or committees of the various allied societies, the secretary shall call a special meeting of the delegates for the consideration of any question that may arise. To such special meetings provincial societies may send all their delegates, or one delegate with three votes, or may exercise their three votes by proxy through any other delegate.

"That the officers of the Alliance shall prepare a report of the proceedings of the Alliance for each year, to be laid before the annual meeting, and it shall be competent for such meeting to alter or amend it, and to order it to be printed if they see fit, in which case a copy shall be sent to each member of every society in the Alliance.

"That every society publishing a report of its proceedings, or of any paper read before it, shall present a copy to every other Society in the Alliance.

"That any member of a society in the Alliance shall have the privilege of attending (but not of speaking or voting) at the meetings of any other society in the Alliance, provided such member be introduced by letter from one of his own delegates, or personally by a member of such society.

"That each society shall pay the expenses of its own correspondence, and shall make arrangements with its delegates as to their expenses, and the expenses of the Alliance (stationery, postage, printing, &c.) shall be borne equally by the allied societies."

## MINUTES OF FIRST GENERAL MEETING, 1862.

At a meeting of delegates from the various professional architectural societies, held in the rooms of the Architectural Union Company, 9, Conduit-street, Regent-street, on Wednesday, July 2nd, 1862, Thomas Austin, Esq., in the chair.

## Present:

London Association—Thomas Blashill, Esq.; T. Roger Smith, Esq.; and W. W. Bunker, Esq.  
Institute of Scotland—John Lessels, Esq.  
Institute of Ireland—J. J. Lyons, Esq. (unofficial).  
Birmingham Association—J. H. Chamberlain, Esq., and A. B. Phipson, Esq.  
Bristol Association—H. Lloyd, Esq., and Edward W. Godwin, Esq.  
Liverpool Association—W. Weightman, Esq., and S. M. Hay, Esq.  
Glasgow Association—Angus Kennedy, Esq.  
Manchester Association—Lawrence Booth, Esq., and Alfred Darbyshire, Esq.  
Northern Association—Thomas Austin, Esq., and J. P. Pritchett, Esq.

It was resolved—That the isolated character of the existing architectural societies throughout the kingdom renders it desirable that an organization should be formed, whereby they could be rendered united in their action, and whereby the establishment of new local societies, in connection with them, might be aided.

The above programme was then considered in detail, the delegates remaining several hours in consultation.

## HARBOURS OF REFUGE.

A PARLIAMENTARY paper, just issued, gives a detailed statement relative to the condition of harbours of refuge, their estimated cost, and the amount already expended on them. There are, however, but three harbours of refuge on the list, Dover, Alderney, and Portland. The estimated cost of Dover Harbour is £650,000, the sum already expended is £549,000. Alderney, intended to be a check on Cherbourg, under the name of a harbour of refuge, has already cost £1,027,000, and the entire estimate for the works is £1,300,000. On Portland there has been spent £983,000, and the estimate to complete it is £1,207,125. Upwards of two millions and a-half have been expended on these harbours, two of which are pronounced by those best qualified to form an opinion, to be failures; the third, Portland, may prove useful. While such vast sums have been cheerfully voted for these three works, the harbour of Howth, in the vicinity of the Irish metropolis, and the resort of fleets of Cornish, as well as Irish vessels, has been suffered to become useless, and even dangerous, for want of a common dredge-boat.

The estimate of the sums expended on Holyhead Harbour is not included in the return, but the correspondence between the Government and the City of Dublin Steam Packet Company reveals an extraordinary amount of indecision and carelessness on the part of the Treasury and Admiralty.

## THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN.

It is generally expected that on this day the decision of the directors of the above project relative to a contractor will be made known, and even in anticipation of the result rumour is most busily engaged as to the probable individual or individuals on whom the choice is most likely to fall, whether their estimate be the lowest or not.

We are informed that the tenders, which are very numerous, were formally opened on Tuesday, the 12th instant, but that, owing to various causes, the consideration of them was postponed to this date, and that even possibly a further adjournment may take place. We have no wish to prejudge the result to the detriment of any one party submitting a tender, but we emphatically urge that as this is an Irish project, as the shareholders are mostly all Irish, as it is consequently money made in Ireland that is to be expended in its erection, that expenditure should as far as possible consistent with fair dealing towards others, be reserved for Irish tradesmen and manufacturers. It has been too much the habit of late, especially for our public boards, to give preference to everything—both as regards material and labour—anti-Irish; but with such noble-minded, liberal-hearted men as "Ireland's only duke," as Mr. Guinness, as Mr. Dargan, and others on this directory, we confidently hope that our Irish contractors' claims will not be disregarded. Let us not be misunderstood; we most warmly respect the enterprise of our English and Scotch neighbours; we are admittedly inferior to them in many of our resources; we are glad to avail ourselves of their capabilities when legitimate opportunity offers; but we hold that when our own countrymen can be dealt with in an equally advantageous footing, they should not be shelled to give place to strangers, however respectable. This is a principle in which every enlightened Englishman or Scotchman would coincide with us independently, although even it might not be his pecuniary interest to do so.

## WORKS IN THE PROVINCES.

## GALWAY.

THE road in the line of the proposed breakwater is still in active progress, and the work has commenced on the new line of road between Galway and Headford, for which a presentment was passed last assizes and a loan obtained from the Board of Public Works. These are being executed under the superintendence of Mr. S. U. Roberts, C.E., and give employment to a large number of the starving population of this district, which was never more required than at present.

## CONG.

The work so generously undertaken by Mr. B. L. Guinness, in the restoration of the ruins of the ancient abbey at Cong are drawing to a close. The original stonework of the ruined doorways and windows have been carefully collected and reconstructed, and all defects in moulding and carving have been made good with correct and faithful judgment. Mr. Foy, of Cong, has executed the stone-cutting in a most workmanlike manner. The abbey grounds have been considerably improved by the removal of a large dwelling house and offices with which they were formerly occupied, at a considerable expense to Mr. Guinness; they—beautifully as they are situated on the banks of the Cong river—will now, we believe, be thrown open to the public, and will, no doubt, be appreciated by the numerous tourists who will visit this interesting locality, now that perfect steam communication by Lough Corrib is established between Galway and Cong.

A glebe house, in the Elizabethan style, is in course of erection at Clonberr, Co. Mayo, for the Rev. J. O'Callaghan, from the designs and under the superintendence of Mr. S. U. Roberts, architect; Mr. Connack, of Cong, is the contractor.

THE IRISH BUILDERS AND CONTRACTORS' PRICE-BOOK.—I beg to remind those who may wish to have a copy of this work, that it is necessary that I should have a *written order* in each case. Most of the leading architects and builders, besides many others connected with the trade in Ireland, have already signified their intention of supporting me in this undertaking, which all admit is a *move in the right direction*.

Order forms, either attached to the prospectuses or separately, may be had from me on application.

JOHN J. LYONS, Architect.

26, Lr. Gardiner-street.

P.S.—My Price-Book will be about the same size superficially as Laxton's, and I have no doubt that, in anticipation, I may claim credit for the style of its production being suitable.

## DRAWING SCHOOLS.\*

THERE should be no difficulty in establishing drawing classes, and making them nearly self-supporting, in any town where rooms can be obtained without much expense. It is to the interest of all classes to aid in the formation of such schools, for drawing is one of the most useful arts to the manufacturer himself and every one about him.

Working men, after the labours of the day, prefer any kind of amusement to study; and drawing classes are sufficiently attractive to collect many hundred students in a town like Birmingham; very few of them, however, persevere like the lads from the warehouses and mills of Bradford, who rival the pupils of the Royal Academy in excellence of drawing. These students work every evening for two and a-half hours, and continue as pupils for two or three years, whilst in many of the published returns of Government schools those who only receive one hour's instruction per week are counted as students.

Inquiries into the teaching of modelling and designing in the English schools lead me to conclude that these branches are taught in a very unsatisfactory manner. What progress is made there is almost entirely by pupils who at their daily work have the instruction of competent artists who direct the art department of the manufactories in which these pupils are employed as workmen. The teachers in the schools of design may be clever as artists or sculptors, but they rarely know anything about the application of art to special manufactures; but a movement has begun, especially at the Potteries, to teach practically the modelling and designing of a class of objects which will convey useful instruction. The same difficulties were experienced in France; it was only when the teacher descended to common things, and taught whatever the trade required, that the schools of design became really important educational establishments for industrial purposes.

The Birmingham School Report for last year states how many pupils have gone up to the Royal Academy, but says not a word about the number of those who have got appointments as designers in the staple trade of the town. It has been remarked in all countries that the working men who learn drawing for its own sake, or to qualify themselves for their own line of business, add greatly to their stock of knowledge, and are improved in all ways by the study; while those who are tempted by a little success in schools of design to attempt to become professional artists, find it a very badly remunerated employment, and often lead very unhappy and useless lives.

There is some merit in everything that sells well, and the object of the master of a school of design should be to teach his pupils how to design articles that will please and improve the public taste. No sudden change is acceptable to the purchaser, and it must be a long and difficult task to improve bad patterns into good. No country has succeeded in creating a national style which has not taken the current fashions of the day as a basis, and gradually transformed them into more beautiful shapes. The Greeks not only took the rude ornaments which all uncivilised nations seems to invent for themselves, and gave them so much grace and beauty that the Greek version has superseded its rivals wherever it has penetrated, but they appropriated every original idea that the inventive genius of the Egyptians had worked out; and there is hardly a Greek moulding or column which does not carry with it some trace of an Egyptian form, or of some well-known ornament used by people in the infancy of civilization.

The artificers of the Cinque-cento period began to work with a very inferior type of production before them, yet they have produced metal work which it seems hopeless to be able to rival. We ought to follow the plan that has answered so well on other occasions, try and improve the patterns we have in ordinary use, and not imitate the French, the Italians, the Germans, or the Greeks. To do this we must put designers who have proved their power of producing improved work at the head of our schools of design as soon as we can find them.

The test of the success in design of any work in any country is that it should furnish a model to other countries, who may imitate but cannot surpass it. This has been the case with many nations in different branches. In the last twenty years the models produced by machine makers in England have been copied and certainly not improved on the Continent. Artistic work of English manufacture is certainly advancing in quality. We may expect soon to find invention replacing imitation in this branch of business, so that we may by slow degrees arrive at a style of our own. This can only be done by the combined efforts of purchasers and ma-

nufacturers, and nothing would help so much as a wide-spread knowledge of drawing and design, and a taste for the fine arts among the public.

In 1858, some of the leading gentlemen of Bradford, taking an interest in this subject, and in the diffusion of art knowledge generally amongst the working classes, determined to establish, with the commencement of the following year (1859), a school for teaching the principles of art and their application to design, without connecting themselves in any way with the Government School Department. A brief sketch of the course of education adopted, and other measures made use of for promoting this object and advancing the education of the working classes, will not be without interest.

From the time of entering the school, the students have kept steadily before them the end, whether special or general, for which the education is sought; and towards that end the progressive tendency of the course is explained at every stage. The subjects for illustrating the principles taught being selected, as far as possible, from such natural objects as are most likely, either in their real or conventional shapes, to constitute leading features in their after practice; success in every case being insisted on, not as the result of mechanical repetition of exercises, still less of inspiration or genius, but of thorough knowledge of the causes producing the effect aimed at, and the means essential for its reproduction.

The principal details of the plan pursued are the classification of forms into two comprehensive kinds, for the easy and accurate imitation of which, two methods, ever applicable, are devised. Surfaces, plain and spherical, in their leading varieties of bright, semi-bright, and dull, are made the exponents of the action of light in its two conditions—positive and diffused—in producing effects of relief; and substances, transparent, semi-transparent, and opaque, are made to illustrate the modifications of colour, by the reflection, refraction, and absorption of light. The best methods of manipulation are first imparted, and succeeded by the most facile.

In the examples selected for developing the principles advanced, due regard is paid to their being of an agreeable kind to impart the greatest interest to the studies.

After sufficient mastery has been obtained over imitation, the study of construction commences, and embraces a thorough analysis of the elements executive of impressions of strength, richness, luxuriance, delicacy, sadness, frivolity, gaiety, grossness, weakness, purity, action, and repose, as exemplified in shapes, surfaces, and hues, in existing examples, new combinations, and in nature.

This excellent course of tuition is already bearing satisfactory fruits, and the delicacy, power, and precision of the students' works have, on more than one occasion, elicited the marked admiration of Mr. Ruskin. Still it was felt, on the first adoption of education, that the benefits resulting to the trade, even under the most favourable circumstances, would for a time be prospective rather than immediate; and as it was considered very important that the influence of the institution should be brought to bear on the passing requirements of the trade, an effort was made to connect with the school the existing designers, who, from feelings easily understood, had kept aloof from the ordinary classes. It was therefore determined, after an interview with several of their number, to establish a Designers' Art Association; by this arrangement recognizing the position and knowledge possessed by the designer, and through its agency to furnish facilities for the acquisition of such further information as his daily practice demanded, unimpeded by school routine, or the humiliation of having to associate with youths of various ages and acquirements. A gardener was employed to collect wild and other plants, in bloom, which were distributed about the room at the weekly meetings. From this store each member was at liberty to select such as seemed most likely to be useful or suggestive to him. Papers on ornament and the harmonies of colour were read and illustrated by the master.

Specimens of goods were obtained occasionally for their inspection. It was also intended to take advantage of the facilities which have been mentioned as existing for obtaining specimens of manufacture, not for imitation, but for the purpose of keeping the members well informed of the progress making by competing towns. It was further arranged to have competitions, at the end of each year, in applied design. The first of these took place, and upwards of sixty woven designs were sent into it by the members. Beyond this stage, however, the committee hardly felt justified in incurring the expenses which would be involved in conducting it; more especially as, with but few exceptions, the association had received nothing but discouragement from the manufacturers, who, yielding to their jealousies of each other, were in continual fear lest the process of manufacture and finish, which each had proved by experience the

most profitable to himself, might be communicated to his advantage during conversation or discussion. The association is therefore in abeyance for the present. Its promoters, however, have the satisfaction of believing that some good was effected through its agency, both with the designers and the trade. They were surprised to find that there had been so much trade jealousy, and that the designers did not associate together, and consequently have had no opportunities of a mutual improvement.

It is to be regretted that so valuable a lever for cultivating the skill of our designers should be condemned to inaction; for the time is approaching when, through the rapidly increasing acquisition of the best machinery by countries already highly talented in design, the struggle for supremacy in manufacturing will have to be fought on other grounds than mechanical power or novelty of material; and should narrow jealousies and false notions of economy operate against the skill of our artisans being cultivated, in at least the same proportion as other countries amass mechanical aids, many towns may have to realize in sorrow the narrow views and im-providence of their prosperous season.

At a meeting held on the 14th October, 1862, it was decided to make another attempt to establish a school of design in Bradford.

A. Harris, jun., banker, Bradford, the president of the school, and an excellent artist himself, has for many years tried to unite all classes in the work of forming a Bradford school of design by local effort alone. We hope it may now succeed.

I observe that those designers who have learnt drawing in the Birmingham School of Design, and afterwards acquired the art of designing and modelling in manufactories, and who understand the question thoroughly, agree in opinion with the French artists practising the same art in Birmingham. They all remark upon the want of sufficient models (in that school) of a kind that would illustrate the different styles and objects on which pupils are afterwards to be employed, and complain that the teaching is dry and uninteresting. This probably arises from it not being sufficiently acknowledged by the teachers that to produce good designers of bronzes, clocks, metal furniture, lamps, &c., in the style of particular periods, the student must have examples of good models of such articles to guide him.

The advantage of having a master who understands the trade as well as the principles of drawing is, that he teaches the pupils from those examples which will furnish a fund of knowledge of the required kind to them, and he avoids those examples which are useless for their special object, thus saving the time of the students and concentrating their attention on what is most useful to them in after-life. At Bradford there are no persons who can teach drawing and are practical designers; but there are many in Birmingham, so that there is no excuse for the state of that school, or indeed of most of the schools of design.

The manufacturers at Birmingham subscribe to the School of Design in their capacity of private gentlemen to help a school for teaching drawing, and train the pupils afterwards in their own workshops into designers. This is not so convenient a plan as the French, where the pupils are taught designing in an evening school, with the advantages of the best models and instruction, and of the emulation created by a number of competitors. If the department for teaching drawing to students intended to follow the fine arts was completely separated from that intended for training designers,—and if the latter was placed under the direction of one of the distinguished artists in metal work, residing and practising the higher branches of artistic metal work in Birmingham,—it is probable that manufacturers would soon have tangible proof of the practical character of the school, and would assist it by their personal attention, as is the case with the bronze manufacturers at Paris. This has been accomplished in another branch in England.

The great improvement in the sculpture and ornamental stone-work of modern buildings in London, is due to the conduct of the architects, who collected good specimens for imitation, and arranged an evening school for masons. These examples are now deposited in one of the galleries of the South Kensington Museum; but now that Mr. Gilbert Scott, Mr. Hardwick, and others who have taken an active part in these schools, have turned the matter over to Government, the vitality of the movement is suspended, as it depended greatly upon the personal interest shown by the committee in the work.

**DUBLIN COFFEE PALACE.**—It is proposed to establish in this city a coffee palace, or working men's hall, after the model of some of those now being successfully worked in London. Amongst the promoters are several ladies, clergymen, and others. Such an establishment is certainly much wanting.

\* From Mr. Alfred Taylor's (Deputy Chairman and Reporter of Class XXXI., International Exhibition) Report upon Education and Manufacture.

## PROPOSED ABOLITION OF THE IRISH INDUSTRIAL MUSEUM.

[COMMUNICATED.]

In his recent address to the students of Glasgow University, Lord Palmerston, as Lord Rector, dwelt in eloquent and forcible terms on the importance of a knowledge of chemistry and kindred sciences as an indispensable adjunct to a people's progress in wealth, happiness, and civilization.

But strangely enough, at the very moment these words were falling in Glasgow from the lips of the chief of the Government, a commission, appointed by a department of Government, was engaged in the task of devising how the Governmental school of practical chemistry in Dublin might be best closed up, and an end put to the hopes of young Irishmen desirous of acquiring that knowledge upon which admittedly so much individual and national prosperity depend.

We now appeal from Mr. Commissioner Donnelly or Lord Justice Blackburne to Prime Minister Palmerston, and ask, in common with the Irish press, irrespective of party (with one solitary exception), are not the words spoken in Glasgow as true in respect to Ireland as they are to Scotland or England? And if the Government think it its duty to maintain a College of Chemistry in Jermyn-street, London, and an Industrial Museum in Prince's-street, Edinburgh, why should it destroy the School of Chemistry and Museum at Stephen's-green, Dublin? Some may be disposed to conjecture the step as perhaps forced upon the Government by the failure of the latter Institution, and by the indifference displayed by Irishmen to scientific pursuits.

The precise contrary is the fact. The Irish School of Chemistry has achieved more than the boasted London College in Jermyn-street. In 1855 the latter had 104 students; in 1861, 140. The former had 17 only in 1855, but increased to 50 in 1861 (an obvious evidence of growing utility); and then for the results of the teaching in the two Institutions. Secondary schools, taught by gentlemen who had been educated respectively in Jermyn-street and Stephen's-green, have been established in many of the large towns of England and Ireland. Of these schools Clonmel occupies the first rank in regard to prizes—her thirty-six pupils in 1860 winning twenty Queen's prizes. Halifax, in England, being next—her thirty-four pupils winning ten prizes, or half the number only of the Irish school. In 1861 the superiority of the Irish school was made yet more apparent. The Department of Science and Art, in that year, gave four exhibitions, at £50 per annum each, to be held for three years, to be competed for by the students, about 1,500 in number, in the Schools of Science throughout the United Kingdom. Now, what was the result? Two out of the four of these grand prizes were won by Irishmen—one by Bandon, and the other by the city of Cork (both the latter in same county). And this is not all. The Department, requiring a residence in London during the three years the exhibitions were to be held, our countrymen were obliged to relinquish their prizes, which were again put up to competition, and again won by Irishmen.

Could anything more clearly demonstrate the success of the Industrial Museum as a College of Chemistry, and the aptitude, nay the superiority of our despised people for scientific pursuits?

The Industrial Museum was founded in 1845 by that great statesman, the late Sir Robert Peel. All that can now be said in favour of making the Royal Dublin Society the Alma Mater of Science and Art in Ireland was said then; and with this additional and all but irresistible argument, the Royal Dublin Society, exists, while anything else must be created, and at a great public expense. Even this consideration did not induce Sir Robert Peel to turn aside from the path he had entered upon. He felt that no private club, conveticle, corporation, or society of citizens, however respectable, ought to be permitted to perform the duties which appertain solely to the responsible advisers of the Crown in this constitutionally-governed country. The diffusion of a knowledge of science and art among the people was not, he thought, to be farmed out to any associations of "farmers general," or the grants for the purpose given as subsidies to any incorporated body, however high and lofty its pretensions.

Sir Robert Peel has left "his mark" in the noble Institutions founded by him in Ireland, and in the just and liberal policy inaugurated by him in social and commercial questions. He did justice to Ireland by opening schools and colleges of science, art, and literature, throughout the land. Does the "justice" of the present ministry consist in closing those schools and colleges? Is their idea of governing Ireland, and promoting her peace and prosperity, the reversal of the policy tending to establish equality among all classes and creeds, and the rehabilitation of the exploded dogmas of class ascendancy and irresponsible corporate monopoly?

These are the issues—the true issues—involved in the proposed abolition of the Irish Industrial Museum,

and the transfer of its collection to the Royal Dublin Society. Our statesmen cannot serve two masters—the old and the new; they must in this, as in greater matters, choose their side, declare—"Under which king, O Benzonian; speak or die."

## PRIZES FOR ARTIST WORKMEN.

In addition to the prizes recently offered by the Society of Arts to Artist workmen, the council of the Architectural Museum now offer the following prizes:—

For wood-carving, two prizes, of £20 and £5, as first and second premiums to competitors who shall most successfully execute a Miserere seat such as is found in the stalls of cathedrals; the subject to be a profession, trade, or occupation, treated in modern costume; the composition to consist of not more than two figures, or one figure and one animal; to be completed by November the 2nd next. A lithograph of the size for the work may be obtained by written application to the hon. sec., J. Clark, Esq., 13, Stratford-place, W. Casts from one or both the successful works will be taken as subjects for the colour prize, undermentioned.

The committee of the Ecclesiological Society offer, through the authorities of the Architectural Museum, a prize of five guineas for coloured decoration, to which Mr. Beresford Hope will add three guineas for one or more extra prizes. Instead of an ancient subject, as before, the above-indicated wood-carving prize will, as soon as adjudicated, be employed. Casts of this will be ready within a reasonable period after the decision is made; the coloured specimens must be ready by March 1st next. Candidates may adopt what medium for application of the colour they please. Casts will be obtainable, for 5s. each, at the museum, or 2s. for packing and case, from the hon. sec. of the Architectural Museum. Duplicates allowed. The Ecclesiological Society's Council will adjudicate. Certificates of merit and a minor prize of one guinea will be given for fit examples.

## "MALLET'S FOLLY"—THE NORTH CITY MILLS.

ONE of the most prominent objects, in or near Dublin, was "Mallet's Folly," a huge oblong building standing on the south bank of the Royal Canal. It was a kind of petrified "cold water" to be thrown at and on everything mere Irish—even by Irishmen themselves, and year after year it was allowed to dream away on the banks of the canal as a kind of pillory, in which some person of the name of Mallet was always to be held up as an example to all who would be guilty of the transgression of seeking to develope the resources of Ireland. Summer after summer the swallows came and built their nests beneath the eaves of "Mallet's Folly," and within its naked walls they hunted the vagrant flies, and shrieked in joyous triumph in the evening sun that gleamed through the shattered lintels of the mouldering windows of "Mallet's Folly." The waters still flowed on, and murmured at the wrong done to Mallet, and, as if indignant at no one understanding what they said, they tumbled themselves over the neighbouring lock of the canal, as if they were determined to commit suicide. However, two Irishmen heard the waters, and understood what they said, and they took "Mallet's Folly," which from henceforth was to be the scene of active and busy life and health-giving labour. The Irishmen were Messrs. Murtagh, Brothers, who took this vast pile of building, of which nothing remained but the four bare walls and the roof. They set about the work of renovation, and soon "the wear and tear" of time began to disappear, lofts capable of sustaining ponderous weights, supported by metal columns, were erected, and from basement to roof the hum of busy labour was to be heard, and the old walls rang with the clank and din of remunerative toil—the owls and water-rats took notice to quit, and soon the rusty wheel revolved, and set hundreds of other wheels in busy motion. The so-called "Mallet's Folly" is now "The North City Flour Mills." The internal arrangements are most complete, and give much pleasure to all interested in mechanical engineering. By proper scientific supervision, no power, whether of steam or water, is allowed to remain idle, and water-power is made an auxiliary in case of pressure, and an economiser of fuel and the "wear and tear" of steam machinery. The several departments on the lofts are admirably arranged for their purposes, and the means by which the steam and water-power is distributed to do all kinds of work in different localities is most simple and ingenious. The water-power amounts to about forty-horse (nominal), and the steam to about two hundred. At present the machinery is working nineteen pairs of millstones, and provision has been made for forty pairs at full work. Several contrivances have been adopted for expediting the kilning of corn, and up to the present, they have furnished nothing but failure in endless

variety—the corn was either roasted by excessive heat, allowed to remain in its natural state, or only partially dried. Manufacturers were driven back of necessity on the old slow and defective process, having no alternative. Mr. M'Cann's (patent) apparatus, which is at full work at Messrs. Murtagh, Brothers' mills, is simply this—the corn to be kiln-dried is made to pass through wire screens, which surrounds a space in which vacuum has been produced by means of an "exhaust fan." From a furnace below, in which a small quantity of fuel is used, hot air ascends and meets the corn in its downward progress through the wire screens, and dries it perfectly fit for grinding. The corn when dried is carried by elevators to any loft where it may be required. It is a vexed question whether it would be better to kiln corn by quick or gradual heat—as Mr. M'Cann's process permits of a high or low temperature being used, either course could be adopted; seventy-five per cent. in time and cost are saved in corn-kilning by this contrivance, which is as simple as it is efficacious. Although the waters of the canal flow at the base of the North City Mills, the Messrs. Murtagh have adopted the wise precaution of having a plentiful supply of water at a high pressure, by erecting on the top of the building an iron tank, four and a-half feet deep, and capable of containing over a million gallons of water, and is constantly kept full by the engine. On each loft a cock and screw is affixed to the down pipe, to which, in case of fire, a nozzle hose could be attached, and extinguish even a formidable blaze in a moment; this precaution alone proves that the Messrs. Murtagh know what they are about. The large towering furnace chimney recently built at the mills, and the highest in Dublin, tells that some extensive machinery has been constructed; and, as we have left ourselves but little space, we will devote it to a passing description of the engine, constructed and erected by J. Rowan and Son, York-street Foundry, Belfast. It is a magnificent specimen of a single condensing engine, and the largest in Ireland. Some notion will be formed of its magnitude when it is known that the fly-wheel is 28 feet in diameter, and the driving-wheel 25 feet. Its length of stroke is 7 feet. The cylinder is what is known as "forty-five inch," and the engine is capable of working up to two hundred horse, at the low pressure of steam on the valves of twenty-five pounds to the square inch. It is furnished with Rowan's patent conical valves, and, as a specimen of engineering and skilled manufacture could not be surpassed. The two circular horizontal boilers are furnished with double furnaces, and supplied with Rowan's super-heating apparatus. The consumption of fuel to sustain the above-named pressure for twenty-four hours is within fifty cwt. of common coal. The machinery is finished in excellent style, and in keeping with the whole establishment, which, we have no doubt, will soon illustrate how native commercial spirit and enterprise will turn "Mallet's Folly" into profit and wisdom, and teach a lesson to all Irishmen to be self-reliant, true to themselves and to one another, and to leave no "Mallet's Folly" at which the finger of the scorner can point. —*Abridged from Freeman.*

## IRISH MANSIONS.

### WILTON CASTLE, COUNTY WEXFORD.

It is situated in a highly picturesque country comprising hill and dale, water and woodland. The castle is beautifully situated on a rising ground close to the river Boro. Looking at the castle from a northerly point of view, the scene presents an abrupt range of hills as a back ground, with plantations in all stages of growth on their sides. Close by is a beautiful lake with several islands, and plentifully stocked with water fowl. Numbers of gigantic and fine old trees, tasteful avenues and drives, undulations and well-kept grounds, combine to form a landscape of great beauty, the attractions of which are much enhanced by the magnificent views obtained from many parts of the demesne.

In the general supervision and improvement of his estate, Captain Alcock has been eminently successful. Of these operations the farm of Ballinavarey, which has undergone a series of improvement, may be taken as an illustration. No longer do the small fields and borheens offend the eye, nor the screech of the snipe grate on the ear of the improving agriculturist. Thousands of tons of stones have been raised out of the land, and of these fences have been formed. A most efficient system of drainage has been carried out, and suitable farm offices and labourers' cottages have been erected. Plantations on a useful and ornamental scale have been made, and the farm is now about to be brought into a high condition by a system of good cultivation.

The system of taskwork was principally adopted.

The boulders, of which an immense number were in the land, were blasted and broken for the fences and drains. In consequence of the hardness of the stone, which is a kind of greenstone, the boring was very expensive, the price per foot being one shilling. On the part of the farm where the stones were in great abundance, it was considered advisable to dispose of them in fences, rather than encounter the expense of their removal. They are well built, and thorn quicks being put in them, a highly ornamental fence will eventually be obtained. The price paid for single fences, four feet high, was 2s. 6d. per statute perch, and for double fences, from 3s. to 3s. 6d. per perch, the materials being laid along the line of fence. Some of the stones being of a large size, they were set on the line of fence for the workmen. In the removal of those stones from the places where they were raised to their destination, a pair of draught bullocks and a sledge were used; and as the stones generally had good faces for work, even when of a large size, sometimes being considerably over a ton weight, it was an advantage to bring them entire to the fences.

The drainage was conducted on the parallel system, the distance between the drains being eleven yards. The minor drains were four feet deep, and the sinking cost 6d. per perch. The materials used were large flat stones, which were placed in the drain as follows:—

A row of stones from six to eight inches high, was ranged along one side of the bottom of the drain and another row from the opposite side of the drain would present a right angle triangle. Smaller stones were then put in to level the work, and the drains have proved, in all cases, most efficient. Good outfalls have been procured, and the sub-main drains are brought out above the bottom of the receiving drain so that a fair share of immunity from obstruction, by the growth of weeds and accumulation of matter in the main drain, is secured to the sub-mains.

The next step towards improvement was the erection of farm buildings and labourers' cottages. A very convenient steading was built in a central situation on the farm, and when a dwelling-house is added, it will be, to say the least, a very comfortable concern. The labourers' cottages, which are built in pairs, are compact, comfortable, and economical. The accommodation afforded is a living-room, and two bed-rooms in each cottage. The length of the pair is 40 feet 6 in., and width 17 feet 6 inches.

On the ground floor of one cottage of the pair we have the living-room and a bed-room, the latter being between the chimneys, and over the living-room is another bed-room; in the next cottage the living-room is the only room on the ground floor, but upstairs we have a bed-room over the living-room, and another over the bed-room between the chimneys of the next cottage. This arrangement makes the cottages very compact; and as the ceilings are high, and the situation elevated, the crowding which might be expected is not at all apparent. A piggery, privy, and ashpit are conveniently situated behind the house. The cost of these very comfortable cottages is £60 per pair.

In the arrangement of the plantations utility and ornament have been most successfully combined. Most effective shelter will be provided, in securing which the highly artistic disposal of the belts of planting has been made subservient. Utility and ugliness are not necessary concomitants; and a most successful example of the contrary may be seen in the department now under notice in the lands of Ballinavarey.—*Abridged from Irish Agricultural Review.*

#### THE DRAMA.

MR. G. V. BROOKE AT THE THEATRE ROYAL.

In an uncommonly varied and arduous series of personations, Shaksperian and otherwise, our distinguished countryman, Mr. Brooke, has been, and is still, acquitting himself in his wonted excellent style at our Theatre Royal. The disciple of no particular school; independent of all studious mannerisms to achieve what in theatrical parlance is known as stage effect; relying solely on his own fine natural capabilities; holding "the mirror up to nature" herself; and invariably bearing in view the axiom that—

"*Ars est celare artem,*"

Mr. Brooke has achieved a position in his profession second to no dramatic artist of the age.

As Percy in the play of Henry IV., Caius Marcius in Coriolanus, Mr. Brooke, during his engagement, has added fresh laurels to the crown already so deservedly acquired; indeed, his personation of the latter, especially, can be designated nothing short of a great histrionic triumph.

We are not prejudiced in Mr. Brooke's favour because he is an Irishman, nay more, a fellow-citizen, but we are proud in being permitted the opportunity

of acknowledging as such so consummate an artist. He takes Coriolanus for his benefit to-morrow (Saturday) night, and we trust that all his friends and admirers will rally round him to give him an ovation. During each night of this engagement the audience cheered Mr. Brooke most rapturously on his frequent appearance before the curtain in obedience to demand. Our old friend, Granby, was prodigious again, especially as Sir John Falstaff, and sustained all other characters allotted to him with his usual ability and judgment. Mr. Brooke found an admirable supporter, too, in Mr. Cowper—an actor from the Liverpool theatres. Lady Don, the widow of the eccentric baronet, is announced for Monday evening.

#### SCIENTIFIC INSTITUTIONS OF DUBLIN.

THE committee for opposing the abolition of the Irish Industrial Museum have received the following letters:—

House of Commons, London, May 12, 1863.

Sir,—I am favoured with your letter, and am advised there is no use in pressing the Government for the report of the Commissioners on the Scientific Institutions of Dublin, as it cannot yet be produced. When it is laid on the table of the House, with the reasons for any discussion they may have come to, it shall have my best and impartial consideration.—I remain, sir, your's, faithfully,

JOHN VANCE.

From M. J. Malone, Esq., Limerick, announcing that the Limerick Athenæum had resolved to take the matter in hands.

From Dr. Jacob, Chairman Town Commissioners, Maryborough, Queen's County.

From the Town Clerk of Gilford, Co. Down, expressing the concurrence of his board in the movement.

#### Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

#### THE NEW CHURCH OF OUR LADY, LADY'S ISLAND.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—It was really very kind of "J. K." to undertake, in your columns, to enlighten the general public on a matter in which they feel no particular interest; and as correct information is, I am sure, the object nearest his heart, being one of those directly concerned in the building of the new Church at Lady's Island, I have to beg you will permit me to rectify a few of the principal inaccuracies in his well-spun, finely-worked narrative, which is, certainly, a piece of truly original composition. It is to be regretted that one so benevolently disposed, instead of having had tracings of the plans in his possession for a few days, had not an opportunity of poring over them for as many months, because, from the progress he has already made, it is evident that somewhere about the end of the latter period—say after an interval of six months' close conning—he might have begun to catch pretty accurate glimpses of the subject before him. He says "the extreme length from the tower, in centre of west end, to the apsidal termination, is 100 feet;" it is not quite clear from the shady verbiage if he means to include the apse or the tower in those dimensions; however, taking for granted that, in good old thumb-rule style, he measures through the thickness of the walling, he is not quite accurate, as the length from out to out is but 99 feet. "The extreme breadth (outside) is," he says, "40 feet, exclusive of the side chapels and porches;" the only porches which could add to the breadth of the church would be side porches, of which there are none in the present design, unless the small porches or vestibules to sacristy might seem to "J. K." to be such, a thing not all unlikely; and the side chapels cannot be excluded, as they are but the eastern terminations of the aisles, and necessarily included in the breadth of the church, a fact which "J. K." seems to have stumbled on later on in his luminous letter, where he speaks of the "two side chapels on a line with the aisles." As it is the capacity, and not the bigness, of a church, which is to be considered, the simple and proper mode of expressing the dimensions would be to say, that the Lady's Island Church, as at present designed, will be 75 feet long, by 36 feet wide, interiorly, with an octagonal apsis 6 feet 6 inches deep, at the eastern end of nave, and a tower 9 feet square at the western end of same, and having a sacristy 14 by 11½ feet, with two

small sacristy porches, at the south-eastern angle of church.\* "J. K." says "the height of the clerestory walls is 31 feet 6 inches;" it is only 27 feet 6 inches! The caps of the nave columns were provided to be, not of Caen stone, as he says, but of Bath stone, as well as the bases; and on my representation the architect has consented that granite or limestone, or both, shall be substituted for Bath stone in the caps and bases. Before insinuating, by the use of italics, that the shafts of Cork or Kilkenny marble are too slight at "only one foot in diameter," it would have been well if "J. K." had calculated or ascertained the bearing power per superficial foot of either of those marbles, as well as the weight they were required to support, and then favoured the public with the result of his cogitations. The clerestory walls are not to be wholly of brick; the external facing will be of rubble stone. "The height of the tower and spire to the top of the cross (?) is," "J. K." says, "102 feet"—that is, as if one were to say, the height of the wall from the floor to the ridge, or the height of a man from the sole of his boot to the crown of his hat! "The north and south aisles are lighted by five lancet windows to each aisle;" wrong again; one of the aisles (the north) is to be lit by six windows.—"The clerestory wall is perforated by 12 lights (on each side):" twelve lights on each side of the wall! that is, 24 in all. I have looked over the plans again and again most carefully, and can only find twelve. I strongly suspect some of "J. K.'s" lights are blind, a style of window for which, I am sure, he has both an affinity and an affection—perhaps he sees double! The depth of apsis is not at all unusual, and there are many examples of walling to be found less than 2 feet 6 in. in thickness, though "J. K." may not have seen or heard of them, which only proves he has something yet to learn. "The arrangements of the sittings," with which he is so taken, will not, I am happy to inform him, be adhered to; they would detract from the beauty of the church, by hiding the bases, or sub-bases, of the pillars. There are no "small marble columns introduced in the windows lighting the sanctuary." I have thus enumerated some score blunders in "J. K.'s" rough sketch of the "new Church of Lady's Island, and could readily increase them to three score more, did time or utility permit. It is to be hoped that when next he puts himself forward as the best possible instructor on building matters, he will make himself partially acquainted with the subject he takes in hand. He tells us "there is a startling difference in the tenders for the erection of the church, one being under £2,000." There was no tender under £2,000, the lowest being just one hundred pounds over that sum! The difference, though somewhat strange, is by no means "startling," being nothing more than what is quite usual in such cases, as is well known to any one who knows anything about those matters. When the first contract was taken on the Wexford churches, the successful competitors were each £1,000 under the next lowest tender; and I remember hearing those who at first said the churches could not be built for the money, afterwards say that the contractors made fortunes by them. "J. K." is good enough to give the public his own opinion gratis as to what the amount of the tender ought to be, clearly his opinion is entitled to deference from the close acquaintance he appears to have made with the dimensions and data on which his calculations ought to have been based. The value and validity of an estimate depends upon the competency of the person making it. A competing contractor may be unable to measure or calculate, and so be obliged to "lump" or "jump" it, or, perhaps, employ some one to estimate for him, who, having made a mess of it, feels it necessary to spin long yarns to show he was not paid for nothing; or the competitor may be able both to measure and calculate, and yet have no practical knowledge or experience of the prices of materials or workmanship. It affords me pleasure to know that the estimate which almost hit the mark is claimed to have been made by one who was trained in my employment, having been my foreman for several years at the Gothic churches of Wexford, Dublin, Portlawn, and Clonea; and if that be the fact, I am proud to find a pupil of mine acquitting himself so cleverly.

Wexford.

RICHARD PIERCE.

#### THE KINGSTOWN RAILWAY—THE WESTLAND ROW STATION.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The Dublin and Wicklow Company are now busily engaged in executing most extensive works and buildings for a new station at Westland-row. The operations there are of great magnitude, and will evidently be of vast expense. It is doubtful whether less than £20,000 or £30,000 will adequately com-

\* The design has since been enlarged to 81 feet long by 40 feet wide, interior measurement.

plete them. The improvement of this station has been very much needed for the last 20 years, but the wise rulers of the railway would take no steps to effect it, until the property required to be purchased had risen vastly in value, and, what is worse, until the necessity for the station had entirely passed away, and the expenditure being incurred had become almost unnecessary. There is little doubt now but that the Metropolitan Railway Bill in some shape will soon become law, and as little that in any shape a central station will be its most inevitable feature. If this be so, and few will gainsay it, what is to be thought of the company that takes that very time for expending a vast sum of their shareholders' money in erecting a building which must, immediately that the central station is built, be abandoned as a station, and, probably, be used only as an auxiliary parcel office, or let for some mercantile purpose at a third of its value? Some years since such an improvement would have been welcomed by the public, but when complaints were daily made of the scantiness and danger of the arrival platform at Westland-row, &c., scorn was all that was obtained from the directors, but now they show an extraordinary activity in raising vast works and enormous buildings, which will become entirely useless for the purpose contemplated, in an expenditure the most needless, purposeless, and absurd.

A CITIZEN.

Dublin, May 9, 1863.

[Our correspondent is in error in assuming the proposed outlay on the extension of this terminus to be so large. The present works are contracted for by Mr. Lagan for £2,200 only, and we have reason to believe that none others are in contemplation. Neither has this extension any connection whatever with the proposed metropolitan railway, it having been determined on before the latter project was thought of. Ed.]

### Learned Societies' Meetings.

**INSTITUTION OF CIVIL ENGINEERS OF IRELAND.**—A general meeting of the institution was held in the Museum Buildings, Trinity College, on Wednesday, the 13th inst. Professor S. Downing, LL.D., Vice-President, read a continuation of an account of the works for the restoration of the Middle Level drainage; Mr. W. Anderson (member) also read the conclusion of paper on reclamation at Wexford by the Appold pump; and Mr. C. P. Cotton (member) on the reconstruction of Innohannon Bridge, Cork and Bandon Railway.

**STATISTICAL SOCIETY OF DUBLIN.**—At a general meeting, held same date, Major-General Sir T. Larcom, V.P., in the chair, Mr. T. Dix read a most elaborate paper "on the present erroneous mode of investing trust money in government stock in Ireland," which elicited much discussion. Mr. O'Shaughnessy (Hon. Sec.), read a paper by Mrs. A. Stokes, "on the necessity of a state provision for the education of the deaf and dumb in Ireland."

**GEOLOGICAL SOCIETY.**—There was a general meeting held on the 13th inst., the president, the Rev. Humphrey Lloyd, D.D., occupying the chair. Mr. Scott read a communication from Dr. T. S. Hunt, containing some additions to his paper "on the chemical and mineralogical constitution of igneous rocks," read at last meeting, and said that he had great pleasure in proposing that Dr. Hunt's contribution be printed. Dr. Haughton seconded the proposition, which was adopted. The following papers were also read:—The Rev. Mr. Close, "on some striated surfaces in the granite, near Dublin," remarking on some of the difficulties on the subject of "Stichensides," and arguing that, although many of those (joint) surfaces might be described by that name, yet that their striations have not been caused by any movement and friction among the rocks, but simply by crystallization, the directions of which have been determined by polar forces acting over a considerable area. Dr. A. Carte read a paper "on the varieties of reindeer which have been found fossil in Ireland." The Rev. S. Haughton made some remarks on the occurrence of the fossil reindeer in the county Fermanagh.

**UNDERGRADUATE PHILOSOPHICAL SOCIETY.**—There was a general meeting of this society on Thursday evening, at No. 4, College, when the following papers were read:—"The character of Henry VIII.," by Mr. Day; "a dialogue between the fast and slow men of the University of Dublin," by Mr. Clarke.

**DUBLIN ATHENÆUM.**—Mr. George Porte delivered a most interesting lecture in the library room of the Athenæum on same evening. The subject was "Egyptian antiquities." In the course of his lecture Mr. Porte gave a graphic description of the ancient temples of Egypt, and illustrated his discourse with a number of dissolving views.

**MECHANICS' INSTITUTE.**—A lecture was delivered ere-yesterday evening, in the Theatre of the Insti-

tute, by Mr. E. C. Ferris, "on the nature and advantages of organization." The lecturer dwelt on the decline of skilled labour by the progress of machinery, and pointed out the great benefit of trade organization. He advocated the formation of a grand trades union, through the medium of which representatives from each would meet and consult. The lecturer expressed his regret at the apathy exhibited by the various trades, and said that the best means of promoting such an object as he aimed at was by excluding all political and religious elements.

**GLASGOW ARCHITECTURAL ASSOCIATION.**—A lecture was delivered on the 30th ult., by Mr. Alexander Thomson, architect, the subject being a "Critical Analysis of the Classic and Mediæval Styles."

**ARCHITECTURAL ASSOCIATION OF LONDON.**—On the 1st instant a special business meeting of the Architectural Association was held, the president (T. Blashill, Esq.) in the chair. Various donations were announced. A vote of thanks was passed to the donors. Some new members were elected. After reading a letter from the Secretary of the Architectural Alliance, urging the Association to appoint delegates for the forthcoming meeting. Mr. Roger Smith proposed, and Mr. C. J. Adams seconded the following alterations to the rules 17 and 20 of the Association.—"Rule 17—All votes at meetings of the Association shall be taken, except as herein provided to the contrary, by show of hands." "20—The first meeting in May shall be set apart as a special business meeting. On receipt of a requisition signed by ten members of the Association, stating that a special business meeting is required for certain specified purposes, the secretaries shall be bound to call such meeting, which shall be held at some time not later than two months after the receipt of such requisition." The alterations were unanimously adopted. It was likewise proposed and seconded that the meetings of the Association commence at half-past seven in the evening instead of eight o'clock, as heretofore, but the motion was lost by a majority of one. The rest of the evening was occupied in a discussion upon a motion of which Mr. Paraire had given notice, viz., "That the report, prepared by a sub-committee appointed by the general committee on the 9th day of January, 1863, to investigate the general working of the Architectural Association, be now read and entered on the minutes." After an animated discussion an amendment was passed, referring the document to the careful consideration of the general committee. Mr. Paraire then withdrew his motion.

**BRISTOL SOCIETY OF ARCHITECTS.**—At the annual general meeting of the members of the Bristol Society of Architects, on Monday last, Mr. E. W. Godwin read the report, of which the following is an abstract:—The Society was founded in 1850, and in the following year became united with the Fine Arts Academy. At the first annual meeting it included 15 resident architects, 3 corresponding members, 10 students, and 40 associates. These numbers were reduced in the session 1853-4 to 49 members in all. The last annual meeting was in 1854. The society lingered on till March, 1858, but from that time till June, 1862, nothing whatever was done; a meeting of the architects was called to consider whether they should establish a new society, or endeavour to resuscitate the old one—the latter was the course decided upon—and a special general meeting of the society was summoned June 24, 1862, to proceed to the election of new officers and new members, and for considering certain proposed alterations in the rules. The principal alterations were—1st, Extending the operations of the society to the surrounding towns; 2nd, A new class of members, being gentlemen taking an interest in art; and 3rd, The adoption of summer excursions. Delegates from the society attended at the first meeting of the Architectural Alliance held in London on 2nd of July last, and, in conjunction with delegates from the architectural societies of London, Scotland, Ireland, Birmingham, Liverpool, Manchester, and the Northern Association, framed rules, which have since been accepted as a common basis of action by all the societies represented at that meeting. The council have also unanimously adopted the scale of charges issued by the Royal Institute of British Architects until such time as the Alliance shall have decided upon this question. The excursions of past year have been highly successful. The society now includes 1 life member, 3 students and 17 professors of architecture, besides 21 corresponding or honorary members.

**ROYAL DUBLIN SOCIETY.**—The seventh evening scientific meeting will be held on Monday evening, May 18. Chair taken at 8-30 o'clock, precisely. Communications—Alex. Carte, M.D., Director of the Natural History Museum, on the *Plesiosaurus Cramptoni*, a specimen of which has been deposited with the society by the Royal Zoological Society of Ireland. Edward Dillon Mapother, M.D.—Suggestions for Improving the Diet of the Irish Labourer. Thomas A. Dillon—On Science as applied to the Preservation of Public Records.

### General Items.

An anvil block weighing 100 tons was successfully cast at the Midland Works, Sheffield, on Friday. This is by far the largest casting ever made in England.

Is it understood that a new Russian railway, in connection with the Riga and Dunaburg, is about to be brought out, with a capital of two and a-half million pounds.

The title of the Baggottrath and Donnybrook Improvement Bill has been changed, and under its new title of the Pembroke Township Bill it has been read a third time, and passed the House of Commons.

Lord Talbot de Malahide has given notice that he will move in the House of Lords that the evidence taken before the Select Committee on the Dublin Metropolitan Railway be printed. This is a step preparatory to that about being taken by Lord Clancarty, who has also given notice that on the motion for the third reading of the bill he will move "that the bill be read a third time that day six months."

The church of Fivemiletown, Co. Fermanagh, according to plans by the architect to the ecclesiastical commissioners. A licensed place of worship is to be built at Killeedy, Co. Limerick, under same direction.

The Royal Hibernian Academy's Exhibition, now open, is of average merit. We understand, however, that several works had to be rejected in consequence of alleged insufficiency of space, while there is still some available. A few of our local architects have contributed. We shall speak in detail in our next. The council have introduced the very attractive feature of a military band occasionally, thereby representing another of the art sisters in their temple devoted to them.

The Liverpool Exchange Committee have received nearly fifty designs, and after having considered them, they will exhibit them to the public.

Considerable additions are at present being made to the Loretto Convent, at Bray, once the finely situated seat of the Putland family.

### Miscellaneous.

**THE CHURCH OF THE MOLYNEUX ASYLUM, UPPER LEESON-STREET.**—A very fine and powerful organ has been erected by Messrs. Telford and Telford, St. Stephen's-green, in the above church, and was used for the first time at divine service on Sunday last. The instrument, although not quite finished, gave very general satisfaction. The diapasons are round and full; the mixtures bright and charming; the solo stops are really charming; the reed stops very fine, and the 16 feet double open diapason (pedals) grand. It was ordered and partly designed by the late Dr. Fleury. The case has been stained and varnished, the front pipes illuminated, by Messrs. H. Sibthorpe and Son, Cork-hill. Mr. Joseph Mullens presided on the occasion. The organ has three full benches of manuals, CC to G, and two octaves and a fourth of pedals CC to F; 28 sounding stops, three couplers, three composition pedals, and contain 1,630 pipes.

**"THE MAN WITH HIS HAND IN HIS POCKET."**—Mr. Thomas Farrell's colossal bronze statue of our esteemed fellow-countryman, William Dargan, Esq., was landed at the North Wall yesterday, from the London boat. A suitable pedestal for the statue, after the design of the sculptor, is being rapidly proceeded with, and the work is to remain in its case till erected on same. The pedestal is to be of highly polished Galway granite.

**A NOVEL PROJECT.**—A railway of a novel construction has been in operation since Monday week in the Champs Elysees, Paris. It has been imagined to convey to the Palais de l'Industrie the model of the new Opera House, which is of plaster, weighs more than two tons, and is so fragile that it could not bear the jolting of a carriage. The model is placed on a truck covered with a cloth. The truck is placed on rails, which are drawn from the tail to the head according as the truck is advanced. The progress is very slow, but sure, and the engineer who directs the operation feels confident that this object of art, one of the most curious to be exposed to view at the approaching Exhibition of Fine Arts, will arrive safely at the Palais de l'Industrie.

**KINGSTOWN HARBOUR.**—We (*Freeman*) understand that the Harbour Commissioners are discharging their labourers, on the grounds that there is no work for them. As far as we are concerned we see plenty yet to be done for the improvement of the harbour. Between the Royal Irish Yacht Club and Coastguard Barrack lies a seaman's horror—a lee shore. Let that be faced, or a slip way made, which may eventually be the means of saving many a valuable life or ship that may be driven there in a strong north-east gale.

**KINGSTOWN ROYAL MARINE HOTEL.**—A prospectus has been issued of the Royal Marine Hotel Company of Kingstown, with a capital of £100,000 in shares of £5 each. The object is the erection of a first-class hotel, resembling in all its arrangements those establishments which have lately sprung up on the sea-coast of England and on the Continent. The directors have purchased the Royal Hotel, together with the adjacent gardens and grounds, belonging to Mr. Gresham, a property in every way adapted to the purpose, and capable of still further improvement. Lords Longford and de Vesci have accorded an extension of the lease of this property for a long term of years, on advantageous terms. It is proposed that, without any loss of time, a new establishment shall be erected on the most eligible portion of the pleasure grounds, capable of containing concert and assembly rooms, spacious and well-ventilated drawing, coffee, and dining-rooms, ladies' coffee room, billiard and smoking saloons, together with numerous suites of private and sleeping apartments, arranged in accordance with a scale of charges proportioned to the extent of accommodation afforded. It is also proposed to form promenade grounds, ornamented with terraced gardens, fountains, and statuary, and to place the hotel in direct communication with Carlisle Pier. In connexion with the property the directors have included in the purchase some valuable plots of building ground, with good frontage to the sea and a plot of ground on which it is proposed to erect an arcade. Messrs. W. F. Caldbeck and Thomas Kelly are the joint architects.

**INVENTION OF BALLOONS.**—The admirers of crinoline will be proud to learn that the invention of balloons is owing to a similar contrivance. The French give a curious anecdote of a simple occurrence, which led the inventor of such machines—Montgolfier—to turn his attention to the subject. It is to this effect:—A

washerwoman of the Rue aux Juifs, in the Marias, placed a petticoat on a basket-work frame, over a stove, to dry. In order to concentrate all the heat, and to prevent its escaping by the aperture at the top, she drew the strings closely together which are used to tie round the waist. By degrees the stuff dried, became lighter, and the stove continuing to heat and rarify the air concentrated under the frame-work, the petticoat began to move, and at last rose in the air. The washerwoman was so astonished that she ran out to call her neighbours; and they, seeing it suspended in the air, were amazed. One individual, however, a simple paper maker from Annonay, named Montgolfier, as much astonished, but more sensible than the others, returned home, and without loss of time, studied the work of Priestley on different kinds of atmosphere. The result was the discovery of the first balloon, called Montgolfier's, of which he was the inventor. As the nautilus probably gave the idea of a sailing vessel, so also do very simple causes often produce great and unexpected results.—*Cham's Recollections.*

**CAPE RACE TELEGRAPH.**—A project is maturing called the Cape Race Electric Telegraph and Light Company. Its object is to build and station a light ship near Cape Race, to intercept the American mail steamers. Those light ships are to be 600 tons burthen, and fitted with 100 horse-power engines, so that when the ship is established, there will be less danger in making Cape Race, and we will get three days' later news from America. It is intended to lay down a submarine electric cable from the ship to the land.

**PROVINCIAL NEWSPAPER SOCIETY.**—The annual meeting of this society was held on Wednesday at the London Tavern, Mr. James Alexander Henderson, of the *Belfast News Letter*, president, in the chair. There was a large attendance of members in conse-

quence of the discussion of an important matter affecting alike the interests of the public and newspaper property. The Lord Chancellor has consented to receive a deputation of the members at the House of the Lords on Monday next. The reports having been passed, and the other usual business transacted, Mr. J. Hooper Hartnoll, of the *Kentish Mercury*, was elected president of the Society for the ensuing year.

**THREATENED STRIKE AMONG THE EDINBURGH MASONS.**—We understand that the masons of Edinburgh are at present taking steps with a view to get an increase to their wages of one halfpenny per hour; and the notices have been given to several large employers of labour, that in the event of their terms not being complied with, a strike will be the result. We have heard that in one or two cases the men have already left work.—*Witness.*

**NOTICE TO PUBLISHERS AND AUTHORS.**—Books for review in the *DUBLIN BUILDER* should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the *DUBLIN BUILDER*, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET.

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, has been appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office. Mr. Lyons also holds commissions for supply of Caen, Glasgow, Bath, Forest of Dean, and Welsh building stones.



## TO ARCHITECTS AND BUILDERS.

# Stained Glass.

FLAT LEAD, WINDOW, AND PATENT METAL SASH MANUFACTORY,  
107 & 108, MIDDLE ABBEY-STREET, DUBLIN.  
M. & R. SILLERY

Beg to inform parties requiring the above, that they have erected EXTENSIVE MACHINERY for facilitating the execution of STAINED GLASS, and are now prepared to furnish all descriptions of Work fully 30 per Cent. lower than any other House in Dublin, also of superior Designs and Finish, and respectfully invite an inspection of their Patterns.

PANES, per Foot super.	s. d.	BORDERS, per Foot Lineal.	s. d.
White Enamelled Ground and Clear Ornament	0 8	White Enamelled Ground & Clear ornament from 0	3
Ditto, richly coloured	1 6	Ditto, coloured	0 7
Enamelled Flocked Patterns for obscuring the view, suited for Water-closets	1 4	Ruby Ground, with Bright Ornament	1 3
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Embossed Patterns on Ruby and Blue, with Bright Ornaments—a new and beautiful Description of Work for Panels in Doors. Quarries and all other descriptions of Ornamental Stained Glass, suited for Ecclesiastical and Domestic use. Ruby and Green Signal Lights, and all descriptions of Bent Glasses for Carriage and Car Lamps, in Stock and to order.

### LEGAL NOTICE.

To Railway Companies, Contractors, Landed Proprietors, Shippers, Iron Founders, Wire Fence Makers, and others.

**WHEREAS, FRANCIS MORTON, OF JAMES-STREET, LIVERPOOL, in the County of Lancaster, Engineer, having obtained Letters Patent for Improvements in the construction of Posts or Pillars for Wire and Iron Fences, which are dated the 31st of March, 1859, and amended by disclaimer 4th July, 1861, and having ascertained that Imitations of these Improvements had been attempted and advertised by various parties in the United Kingdom, brought an Action before the Court of Session, in Scotland, against ROBERT MIDDLETON, Commission Agent and Wire Merchant, of No. 3, Greenside-street, Edinburgh, for an Infringement of said Letters Patent, in which action Issues were adjusted and tried before the Lord President and a Jury, on the 22nd, 23rd, and 24th days of December last, and a unanimous Verdict upon all the issues raised, was returned in favour of the said FRANCIS MORTON, thereby establishing the Patent.**

**AND FURTHER, the said ROBERT MIDDLETON having by his Counsel, moved the first Division of the said Court of Session for a New Trial, on the ground of the said verdict being contrary to evidence, in support of which it was pleaded that the foresaid Specification was a defective Specification, and also, that the invention had partly been in use before the date of the Patent; the Judges of the said Division after hearing a full argument upon the Legal Objections to the Specification and the Patent, and having made avizandum, they on the 6th of March, 1863, unanimously refused the Motion, thereby sustaining the Validity of the Patent.**

**NOTICE IS THEREFORE HEREBY GIVEN, that all Persons who have manufactured, sold, bought, contracted for, or used, any Imitation of the said POSTS or PILLARS, have been guilty of an infringement of the said Letters Patent, and have rendered themselves liable in damages therefor—and that all Persons who may hereafter manufacture, sell, buy, contract for, or use, any Imitation of the said Posts or Pillars shall be guilty of an Infringement of the said Letters Patent, and will be prosecuted accordingly.**

PARKER, ROOKE & PARKER, 17, Bedford-row, London. G. CRAIG, DALZIEL & BROTHERS, 5, Thistle-st., Edinburgh. D. & T. FITZGERALD, 20, St. Andrew's-st., Dublin.

Law Agents for FRANCIS MORTON & Co., of James-street, LIVERPOOL

### TO BUILDERS, PAINTERS, DECORATORS, ETC.

**FIELD & CO., Printing Ink, Vegetable Black, Varnish and Steam Colour Works, MAIDEN-LANE, HOLLOWAY, N., LONDON.**

ESTABLISHED 1838.

F. and Co. beg to call attention to their reduced Price List of Varnishes, as under:—

	Per Gal.	s. d.
Fine Elastic Oak or Wainscot, a durable and brilliant Varnish for Oak or Grained Work and Paper Hangings	7	6
Fine Copal Oak, a pale transparent highly-polishing Varnish, for all out-door work	9	6
Fine Elastic Carriage, a pale durable Varnish, recommended for all first-class work	12	6
Fine Elastic Old Body, a very pale brilliant Varnish that will stand for years suitable for very superior work, and where much exposed to the weather	16	0
Fine Paper, a pale and glossy Varnish for papered walls	6	6
White Copal, a colourless and durable Varnish for light Sienna, grey, or white marbles and papers with very light grounds, much in request	10	0
Ground Colours always in Stock at equally reasonable prices.		

F. and Co., in their Printing Ink and Vegetable Lamp Black Department, have also made every reduction consistent with retaining their long-earned credit for quality. Price forwarded on application.

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#### ECONOMIC METALLIC ROOFING,

"Unequalled for Durability, Cheapness, and ease of Fixing."

**MOREWOOD & CO.'S PATENT CONTINUOUS ROOFING SHEETS, of Galvanized Iron. "Fire Proof," made in all lengths, from 50 feet upwards, and 2 feet wide, for the covering of Farm and every other description of Out-buildings, can be fixed with the same rapidity and ease as Felt, and at a less "total" cost. All particulars obtained of the Patentees' Agent for Ireland,**

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Illustrated Circulars, with net prices and instructions as to the mode of fixing this material, sent free.

### ROOFING FELT.

**A CHEAP and durable substitute for Slates, specially suited for Cattle Sheds and Out-offices; price One Penny per square foot.**

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**THEODOLITES, LEVELS, CIRCUMFERENTERS, MATHEMATICAL DRAWING INSTRUMENTS, SCALES, RULES, TAPES, T SQUARES, &c.**

JOHN ARCHBUTT, 20, Westminster Bridge Road, Lambeth, near Astley's Theatre, respectfully calls attention to his Stock of the above articles, manufactured by superior workmen. The prices will be found considerably lower than ever charged for articles of similar quality. An illustrated price list forwarded free on application. 8-inch Dumpy Level complete, 6 guineas; 10-inch ditto, 8 guineas; 14-inch ditto, 10 guineas; with compass, 1 guinea each extra. Best 5-inch Theodolite, divided on Silver, 18 guineas.

### WELSH SANDSTONE.

#### AGENTS WANTED.

**GEORGE CLARK AND SON, of Wootten Waven, near Henley-in-Arden, are working a Quarry of this very superior and durable Stone (belonging to the Cefn Range) at Nant, near Wrexham. It is used extensively in Liverpool, Manchester, &c., and can be supplied at reasonable rates at any Seaport in Ireland.**

#### A CARD.

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ADOPTED VERY LARGELY BY HER MAJESTY'S GOVERNMENT.

**CROGGON'S  
PATENT ASPHALTE ROOFING FELT,**

Price 1d. per square foot.

INODOROUS FELT, for Damp Walls and for Damp Floors under Carpets and Floor Cloths, also for LINING IRON HOUSES to equalise the temperature. Price 1d. per square foot.

PATENT FELTED SHEATHING, for covering Ships' Bottoms, &amp;c.

DRY HAIR FELT, for deadening Sound and covering Steam Boilers, Pipes, &amp;c., preventing the Radiation of Heat, thereby SAVING 25 PER CENT. IN FUEL.

**CROGGON & CO.,**  
**ZINC MERCHANTS AND PERFORATORS,**  
GALVANISED TINNED IRON, and every description of GALVANISED IRON WORK.**CROGGON & CO.,**  
**NOISELESS ELASTIC KAMPTULICON,**

OR INDIA-RUBBER FLOOR CLOTH,

Impervious to Wet, Indestructible by Damp, Soft to the Tread, and warm to the Feet, well adapted for Aisles of Churches, Public Offices, Rooms, Shops, &c., as well for its comfort as extreme durability.  
Best Quality Portland Cement weighing 108lbs. per Bushel.

Samples, Testimonials, and full particulars, free, on application to

**2, Goree Piazzas, Liverpool; or 2, Dowgate Hill, London, E.C.**

PRIZE MEDAL—INTERNATIONAL EXHIBITION, STAND 6159.

**MUSGRAVE'S PATENT STABLE FITTINGS AND HARMLESS LOOSE BOXES.**  
**MUSGRAVE'S PATENT IRON COW-HOUSE FITTINGS AND IRON FIGGERIES.**These Inventions are confidently recommended as possessing numerous advantages not to be found in anything hitherto made.  
At the late meeting of the Royal Agricultural Society at Leeds, MUSGRAVE, BROS., received  
a SILVER MEDAL and two awards of "highly commended," being the only prizes conferred on any competitor in this class.**MUSGRAVE'S PATENT SLOW COMBUSTION STOVE.** This Stove is the nearest approach to Warming by Hot Water, and an excellent Aid in Ventilation.

It will burn in Churches from Saturday till Sunday Evening, without attention during the hours of worship. In halls will burn day and night for weeks, with little care. Capable of warming a large apartment for twenty-four hours at a cost of Three-pence; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity.

Full particulars will be sent on application to the Inventors and Makers.

**MUSGRAVE, BROTHERS, Ann-street, Ironworks, Belfast.****AT a General Meeting of the REGULAR INCORPORATED and AMALGAMATED BODY OF BRICK and STONELAYERS of the City of Dublin, held at their Institute, No. 49, Cuffe-street, April 6th, 1863;**It was unanimously resolved—That henceforth the above Body do publish in the *General Advertiser* a Weekly Report of the Names and Addresses of the Builders of this City and its vicinity who patronise this Body, for the information of Architects, Public Boards, Heads of Firms, and the Building Public; and, in order that they may not be duped by accepting estimates from parties assuming to employ first-class workmen, while they drag through their contracts with the waifs and strays, and impose them on the public for the regular men of the city, much to the prejudice of our long and well-earned reputation for ability and skill in our trade**PATRICK HAND, Master.**  
**JOHN CUMMINS, } Stewards.**  
**JOSEPH O'TOOLE, }**  
**DENIS BYRNE, Secretary.****REPORT FOR THE WEEK ENDING 18TH APRIL, 1863.**Beardwood, James, 10, Westland-row.  
Bolton, Samuel H., 38, Richmond-street.  
Barker, J. and E., 27, Abbey-street.  
Breen, Stephen, 3, Lower Mayor-street.  
Boyce, J., Rathmines.  
Brophy, H. F., Harold's-cross.  
Cockburn, Messrs., 179, Brunswick-street.  
Conolly, John, 30, Prince's-street.  
Connolly, W., Upper Dominick-street.  
Conolly, William, 39, Dominick-street.  
Cahill, Edward, 23, Aungier-street.  
Doolin, William, 23, Westland-row.  
Donnelly, James, 89, Talbot-street.  
Doyle, Luke, 9, Temple-bar.  
Dempsey, John, 4, Peter-street.  
Dunne, Michael, 98, Amiens-street.  
Drysdaile, Matthew, 18, Bishop-street.  
Farrell, George, 12, Wentworth-place.  
Farrell, Robert, 3, Lombard-street.  
Freeman, David, 15, Queen-street.  
Freeman, James, Britain-street.  
Gahan, Matthew, Whitechurch.  
Grant, John, 16, Pembroke-street.  
Guilfoyle, Peter, Donnybrook.  
Graham, Alexander, Sandymount.  
Hogan, John, 11, Winetavern-street.  
Halston, Alexander, 20, Talbot-street.  
Hughes, John, North-strand.  
Hudson, George, 47, Capel-street.  
Hall, Thomas, and Son, 62, Harcourt-street.  
Kennedy, M., Marlborough-street.  
Lennon, P. and J., 17, Pembroke-street.  
Lawton, David, and Son, Seville-place.  
Lynch, Matthew, 34, Camden-street.  
Murphy and Son, 89, Amiens-street.  
Moyers, George, 47, Richmond-street.  
Meade, Michael, 152, Brunswick-street.  
Mayers, Patrick, Conyngham-road.  
Madden, Peter, 11, Whitefriar-street.  
Millard, Thomas, 58, Harcourt-street.  
McCormick, James, 90, Talbot-street.  
Nolan, John, 3, Meredyth-place.  
Nolan, J. J., 67, Townsend-street.  
Owens, Peter, 2, Store-street.  
Parker, Robert, 78, Marlborough-street.  
Potts, Patrick, Donnybrook.  
Tighe, Edward, Denzille-street.  
Whiteacre, George, 75, Summer-hill.  
Wardropp and Son, Conyngham-road.  
Walsh, John, Mecklenburgh-street.

N.B.—If any omission in this report has been made, by notifying the same to the Secretary, at the Institute, it will be attended to in due form in the next report.

**Oils, Colours, Glass, &c.****DUBLIN STAINED GLASS WORKS.—**

MESSRS. BARFF and CO. (who have executed the Rossmore Testimonial Window in Monaghan Church, and who are engaged on the Stained Glass for St. Patrick's Cathedral, Dublin), give designs and estimates for Stained Glass Windows, and for Lead Lights in Cathedrals, and other kinds of Glass, plain and tinted.

WORKS—POTTER'S-ALLEY, MARLBOROUGH-STREET.

**WINDOW GLASS for Dwelling Houses,**Out-offices, Conservatories, &c., with a large assortment of Plate Glass Mirrors.  
**MAURICE BROOKS,**  
SACKVILLE-PLACE, DUBLIN.**UNION PLATE GLASS COMPANY.**

The very beautiful article of Plate Glass, manufactured by this company, can be had at the price of the lowest in the market, shipped to any Port in Ireland.

**H. SIBTHORPE and SON, Agents for Ireland,**  
11 AND 12, CORK-HILL, DUBLIN.**MANNIN'S Wholesale and Retail DRUG,****OIL, COLOUR, and GLASS WAREHOUSE,**  
2, GREAT BRUNSWICK-STREET.  
(near D'Olier-street.)  
Cattle Medicine of all kinds.  
N.B.—Every article is warranted genuine, and at the lowest price.**NEW ROOM PAPERS.—Prime value and**endless Variety, at  
**M'MASTER'S, 11, PARLIAMENT-STREET.****PLATE GLASS, for DWELLING HOUSES,**SHOP FRONTS, ETC., ETC.  
An article fully equal, if not superior, to any other in this market, is now offered at a considerable reduction in price.  
A large stock of Silvered Plate, suitable for Pier, Chimney and Toilet Glasses.  
The Trade liberally dealt with.  
**THOMAS DOCKRELL,**  
68, SOUTH GREAT GEORGE'S-STREET, DUBLIN.  
February 12th, 1863.**SHOWELL'S WATERPROOF GLASS**

ROOFS, for Railway Stations, and large Sheds or Shop-ping.

No putty required.  
Glass and Glazing, with Iron Guttered Sash Bars complete, from 14d. per foot superficial.  
**O. I. and J. SHOWELL,**  
PATENTEES,  
17, PRINCESS-STREET, MANCHESTER.**WILLIAM TURNER,****OXMANTOWN FOUNDRY AND IRON**WORKS,  
103, NORTH KING-STREET, DUBLIN.  
Cast-Iron GIRDERS, Plain and Ornamental PILLARS, Moulded and Plain GUTTERS, Tank Plates, Gas Retorts and Pipes, Kitchen Range Work, Millwright, Castings, Balconies, Brackets, Staircase Balusters, etc., supplied. A large variety of Models for the above in stock.**Auctions, Sales, &c.****THE NEXT LIVERPOOL PERIODICAL**

AUCTION SALES of MAHOGANY and other FURNITURE WOODS, will take place on Thursday and Friday, the 4th and 5th June, 1863, commencing each day at Twelve o'clock at noon precisely, in the Wood Sales Sheds, Brunswick and Toxteth Docks, when the following Woods, now landing, will be sold, and to which will be added other Woods meantime expected to arrive:—

280 Logs Honduras Mahogany, containing 150,000 ft., being the Cargo now landing, ex "Emerald," from Honduras;  
171 Logs and Curly City St. Domingo Mahogany, 35 Tons Lignumvita, now landing, ex "Velos," from the city direct; and if not previously sold by private bargain, parcels of Mahogany and other Furniture Woods withdrawn from last Auction Sales.**EDWARD CHALONER,**  
Wood-Broker and Measurer,  
6, East Side, Queen's Dock, Liverpool.**AUCTION OF WOOD GOODS.****WILLIAM KELLY and CO'S**  
next Public Sale of Wood Goods, will be held on THURSDAY, 21st May, at their Stores, 33, SIR JOHN ROGERSON'S QUAY.  
Further particulars will be announced previous to the day of Sale.**JAFFRAY BARCROFT, Broker and Measurer,**  
42a, Great Brunswick-street.  
Dublin, 23rd April, 1863.**Statuary, Marbles, Cements.****MARBLE & STONE CARVING WORKS.**BURY NEW ROAD (corner of Fairy-lane),  
MANCHESTER.**WILLIAM GREEN, formerly with Messrs.**  
Lane and Lewis, Sculptors, of Birmingham, and late Foreman to Mr. H. Lane, begs to inform Architects and Builders that he executes, on the most liberal terms, Altars, Reredoses, Pulpits, Fonts, Chimney-pieces, Tombs, Monuments, &c., in Marble and Stone at the lowest price compatible with good workmanship.

All Orders executed with promptness and personal attention.

**CHIMNEY PIECES—in Italian, Belgian,**

Irish, and English Marble; Enamelled Slate, and Cast Iron: suitable for Drawing-rooms, Dining-rooms, Bed-rooms, &amp;c. A very large Stock to select from.

**MAURICE BROOKS, Sackville-place, Dublin.****ROMAN, PORTLAND, AND MASTIC**

CEMENT, SHEET, PLATE, and CROWN WINDOW GLASS, with the various kinds for Horticultural Purposes, supplied Wholesale or Retail by

**JOHN CARRICK,**  
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MASTIC, MARBLE, and other CEMENTS, PLASTER OF PARIS, to be had at the

MANUFACTORY—CROWN-ALLEY,  
**SALMON, RICE, and CO., MANUFACTURERS,**  
OFFICE—3, ANGLESEA-STREET, DUBLIN.  
Window Glass, Crown, Stained, Ornamental, Sheet, and Plate Glass Warehouse,  
2, ANGLESEA-STREET, DUBLIN,  
**SALMON, RICE, & CO., PROPRIETORS.****IMPERISHABLE TESSELATED PAVE-**MENTS.—**H. SIBTHORPE and SON, Agents to Maw and Co.,** are prepared to supply Designs for Floors of Churches, Conservatories, Entrance Halls, and Passages, with proper Workmen to lay them in any part of Ireland.Various specimens may be seen at their Warerooms.  
11 AND 12, CORK-HILL, DUBLIN.**FITZPATRICK AND MOLLOY,**MONUMENTAL AND STONE-CUTTING  
ESTABLISHMENT,  
**PROSPECT, GLASNEVIN, DUBLIN.**

Monuments, Tombs, and Head-stones executed in best style, and with despatch, on most moderate terms. Orders attended to in all parts of the country at shortest notice.

**Business Addresses.****ROSS AND MURRAY,**Plumbers, Iron & Brass Founders, & Lead Merchants,  
92, MIDDLE ABBEY-STREET,  
DUBLIN,  
And DUNLOE-ST., BALLINASLOE.**MESSRS. TELFORD and TELFORD,**ORGAN BUILDERS.  
Several new and second-hand FINGER and BARREL ORGANS, suitable for Church or Chamber, will be sold on very reasonable terms, to make room.  
109, STEPHEN'S GREEN, DUBLIN.**W. MAXWELL,**AGRICULTURAL ENGINEER AND ARCHITECT,  
**BALLINASLOE.****JAMES LYNCH and Co., Bangor Slates,**Fire Bricks, Tiles, Flue Linings, Sewer Pipes, and Bath Brick Merchants.  
STORES—33, HANOVER-STREET, EAST, DUBLIN.**S. SHEPPARD'S**MARBLE WORKS, MONUMENTS, CHIMNEY  
PIECES, CRESTS, VASES, &c., &c., and every description of Ornamental Work executed in Marble.  
No. 28, LOWER ORMOND-QUAY.

# The Dublin Builder.

VOL. V.—No. 83.

## THE ROYAL HIBERNIAN ACADEMY EXHIBITION.

**T**HE Exhibition of Works of Art now on view at the Royal Hibernian Academy is of average excellence and quantity this year. Some native artists, with whose names the public are most familiar, have contributed pictures which rather outshine their former efforts than otherwise; and a few English, Scotch, and foreign artists have sent some good things too. Like all exhibitions of this kind unexceptionally, a few very indifferent, and a few downright dauby works are honoured with a place on the walls, but these are greatly in the minority. The portraits are rather more numerous than usual, and in this department Mr. Catterson Smith holds pre-eminent sway. In his portrait of Mr. Guinness, who is seen in a sitting posture, the likeness is life itself, and the painting beautiful. There are a couple of female portraits also specially noticeable. No. 201, by M. A. Hayes, is one of the most conspicuous objects of interest in the room; it is a military subject (in which this distinguished artist is peculiarly at home), viz., "the Advanced Guard on a Night March." The figures of men and horses are exquisitely drawn, and the whole picture worked up to a charming tone. Indeed we doubt if the merit of this is not somewhat before even the memorable "Light Cavalry Charge at Balaklava," by the same artist; and who, though a young man, has attained a position in his peculiar line not excelled by any other, even Royal Academicians. "The Alarm of the Picket, 8th Hussars," also by the same artist, and in which the grouping is most skilfully arranged, and the lights and shades most true to nature's laws, is a theme of general admiration too.

Mr. Rossiter's "Song of the Shirt" is more pretentious than meritorious, especially for a work put forward as a sample of high art. "The Puritan Purifier" (No. 212), by same artist is not more successful either as regards tone, colouring, or general composition.

In marine subjects Mr. Kendrick is as usual excellent, and more liberal in his contributions than usual. His "Rounding the Flagboat" (No. 50) is an able delineation of a yacht race, wherein the tidy craft are seen scudding along in pursuit of their eagerly sought for prize. This work alone, if we had not others too, is sufficient to establish Mr. Kendrick's artistic fame. But in his view "between Bullock and Sandycove" he almost excels all his previous efforts. With same branch of art the name of Edwin Hayes claims also to be associated in terms of unqualified admiration, and each year that the Academy holds its display this artists works are sought out eagerly for inspection and study. Amongst his best works (which are confined to too small a space) this year, are Nos. 267 ("Bray Strand in a Gale,"), and 338 ("Evening"—a View in North Berwick), both master pieces.

"The Prayer of the Penitent," by Mr. Brennan, is a gem of the first water, and introduces that rising young artist to a field we hope of "fortune and renown."

In our next we shall speak further of the contents of the exhibition—the architectural especially, which department, owing to some recent competition drawings of admirable execution being admitted, is better than formerly. It is capable, however, of much improvement still.

## WANTS SUPPLIED AND TO BE SUPPLIED.

It is pleasing to find that our Corporation is, at least, open to conviction of the many wants of the great city under its control, and seeks to supply them to the best of its ability. Our sewerage, our

pavements, our water supply, our markets, &c., have each been, or are being, greatly improved; and doubtless, by degrees, many other much-desired objects will be achieved likewise. On several occasions, during the four and a-half years' establishment of this journal, have we directed special attention to the fearful sanitary deficiency of certain localities—to the filthy and loathsome condition of not only our lanes and alleys, but some of our thoroughfares and back streets too; and we shall not cease to use persuasive pressure until all that is complained of is remedied. A rigid code of laws, to be enforced by a properly qualified sanitary inspector, rendering the removal of nuisances, and the frequent application of soap and water and whitewash, compulsory under penalty of commitment, would be found to tend most materially to the longevity of the inhabitants, and to their general health. The fever that is engendered in the foetid atmosphere of back slums finds its way sooner or later into the town mansions, the squares, and even the detached suburban villas of the better classes; so, let the rich man "look to it," and aid his squalid brethren in the Liberties and elsewhere to reform their habits, and cleanse their persons and their dwellings. Might not the institution of "a soap and whitewash" fund, for this special purpose, find favour with some of our benevolent philanthropists, so eminently distinguished for their exertions to better the poorer classes? And, might not our Corporation sustain the dispensers of such a fund by requiring one or more of their officers to see it suitably appropriated? We are aware that such a corporate office as an inspector of nuisances *does* exist; but when do we hear of the bearer of that title penetrating the human rookeries so frequent throughout the city, and bringing "to justice" the occupants who live revelling in mire and vermin?

The occupation is, doubtless, one not much to be coveted, but, for *proper compensation*, there is many a qualified person who would undertake it, and fulfil its repulsive duties efficiently. In London and elsewhere, a revolution was effected in the sanitary condition of certain localities, through the instrumentality of gentlemen who, from mere motives of humanity *only*, undertook to expose previously hidden evils; the combined action here suggested would effect much benefit likewise.

While on this topic, it may interest the public to know, that the present rate of mortality in this city is above the average, the interments in one cemetery alone (the Prospect) being at the rate of *one hundred and fifty* per week, the majority being fever cases.

Amongst the most recent of the supplied wants is the provision of some fitting accommodation for the necessities of nature, and in which this city, until very recently, had been most scandalously deficient. For many years there was one solitary retiring place at the back of Ship-street Barracks, in a position hardly frequented, and little known to the majority of the passers-by in adjoining great thoroughfares; but shortly after our forcible urging of the want of many more such constructions throughout the city, the Corporation commenced to erect them in various other places. It was thought at first that a feeling of false delicacy on the part of our citizens might prevent their general use, but that supposition was speedily dispelled on the erection of the retiring places at the rear of Moore's statue in College-st., and at Bachelor's-walk, adjoining Carlisle-bridge—two most conspicuous positions—indeed as we pointed out at the time *too much so*. However, the experiment proved so successful that the corporation subsequently determined to increase the number of these public accommodations, and within the past month new structures, the manufacture of Messrs. George Smith and Co., Sun Foundry, Glasgow, have been placed on Eden-quay, on Burgh-quay, opposite Hawkin's-st., and at Amiens-st., near the Drogheda Terminus. We understand that it is still under consideration to erect numerous others as soon as the localities are determined upon. We would suggest, amongst the most desirable positions, the D'Olier-st. end of Townsend-st. close by the theatre, Great Britain-st., Capel-st., Thomas-st., South Gt. George's-st., Lower Baggot-st., and the North-wall, near the C. D. Steampacket Co's jetties. This want so far supplied, we should also be glad

to see a few *cabinet d'aisances* of more complete character erected in central positions, that both the necessities of nature might be gratified with becoming decency when occasion should require.

## SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.

ON Wednesday evening this society held a conversation at the Mansion House. Sir R. W. Carden occupied the chair. Mr. Edmeston made some remarks explaining the objects and progress of the society, after which the chairman announced that the medals for 1862 had been awarded as follows:—In Historical Painting—To Mr. E. Crowe, for his picture of "De Foe in the Pillory," No. 457 in the Royal Academy Exhibition. In Genre—To Miss E. Osborne, for "Tough and Tender," No. 487 in the Exhibition of the Society of British Arts. In Landscape—To Mr. F. Danby, for "Evening," No. 350 in the Royal Academy Exhibition. In Water-colour Painting—To Mr. F. W. Burton, for the "Wife of Hassan Aga," No. 280 in the Exhibition of the Water-colour Society; and to Mr. J. H. Mole, for "A Leisure Hour," No. 59 in the Exhibition of the new Water-colour Society. In Architecture—To Mr. E. W. Godwin, for his design for "Northampton Town Hall," now being erected, No. 8 in the Architectural Exhibition. There was a variety of choice works of art hung on screens, and eagerly inspected by the visitors. Before the music commenced, which passed off most satisfactorily, the New Zealand chiefs, now on a visit to this country, ascended the platform, and Rameriara Hautakini Whareppa delivered a brief speech in his own tongue, which, when interpreted, was greatly applauded.

We (*Building News*) are glad to hear that the society is in a flourishing condition; its lectures are attended by increased numbers, and the discussions which follow on each occasion prove the amount of interest taken by members and their friends in these proceedings.

The council state that, with a view of increasing the practical usefulness of the society, they have in view to establish a library of reference on subjects of art, with a reading-room attached, for the use of members. They are not prepared to make any definite promise on the subject at present, but, believing in its importance, they venture to bring it under the notice of members, in the hope that their so doing may lead to the proffering of useful suggestions, as well as active aid by those who view the project with approval, by the presentation of books, prints, &c.

## ROYAL IRISH ACADEMY.

A GENERAL meeting of the Academy was held last Monday evening, at the Academy House, Dawson-street,

The Rev. Dean Graves, President, in the chair.

The Rev. Dr. Reeves, secretary, read a short paper from T. J. Foot, "On the occurrence of Digitalis in the Burren district and other localities in Ireland."

The Rev. Professor Haughton read a paper, "On the chemical and mineral composition of the Granites of Donegal; with a notice of their relation to the Granites of Sweden, Finland, and Scotland," and "On a new method of finding the mineral composition of Rock formed of not more than four known minerals."

Sir Robert Kane said that the paper was a valuable addition to their information on mineralogy. Some years since he (Sir R. Kane) made a communication to the Academy, in which he stated that he had found soda in the Leinster granite. He was assailed and ridiculed at the time for the statement, but the paper now read fully verified what he had then represented.

Mr. Robert W. Scott, lecturer on mineralogy in the Royal Dublin Society, made, with the permission of the Academy, some observations on the subject of the paper.

THE IRISH BUILDERS AND CONTRACTORS' PRICE-BOOK.—I beg to remind those who may wish to have a copy of this work, that it is *necessary* that I should have a *written order* in each case. Most of the leading architects and builders, besides many others connected with the trade in Ireland, have already signified their intention of supporting me in this undertaking, which all admit is a *move in the right direction*.

Order forms, either attached to the prospectuses or separately, may be had from me on application.

JOHN J. LYONS, Architect.

26, Lr. Gardiner-street.

P.S.—My Price-Book will be about the same size superficially as Laxton's, and I have no doubt that, in anticipation, I may claim credit for the style of its production being suitable.

## ON ARCHITECTURAL AND ARTISTIC METAL-WORK.\*

FIFTEEN centuries B.C., 48 pillars were made for the tabernacle, 17 feet high, covered with plates of fine gold, and the bases on which they stood were massive silver, weighing 114 lb. each. A few centuries later, and Solomon erected the Temple; its porch, 120 feet high, overlaid with plates of gold. Two massive pillars were cast of brass, 31 feet high and 10 feet diameter; the capitals, also of brass, 8 feet in height and diameter. No such columns are in England in this day. The greater house had its ceiling of fir-tree overlaid with gold, garnished with precious stones. The house also was overlaid with gold—the beams, the walls, and the doors. The holy house was overlaid with gold to the weight of 67,800 lb., and this not gilding, but plates, the nails being spoken of. Two pillars before the house were 61 feet high, with capitals of 7 feet high, and adorned with superposed work.

The entrance of the house, the inner doors, and doors of the Temple, were of gold. For secular use he made a throne of ivory, and overlaid it with gold, with steps and footstool of gold. All the vessels for use were of gold. About the same time Homer, in describing the palace of Alcinoüs, shows the usage of the period:—

"The walls were massive brass; the cornice high.  
Blue† metals crowned in colour of the sky.  
Rich plates of gold the folding doors encase—  
The pillars silver on a golden base.  
Silver the lintels deep projecting o'er,  
And gold the ringlets that command the door."

Again, when Telemachus visits Menelaüs at Sparta,—

"View'st thou unmov'd, O ever-honoured most,  
These prodigies of art and wondrous cost?  
Above, beneath, around the palace shines  
The sunless treasure of exhausted mines.  
The spoils of elephants the roofs inlay,  
And golden amber darts a golden ray.  
Who eyes the dazzling roofs with vast delight.  
Then from his glittering throne . . . with  
Ivory silvered thick the footstool shone," &c.

Another century later, and the use of metallic art shows itself in the record of wealth destroyed by Sardanapalus when he discovered that Nineveh must fall; destroying by fire, among other works, 150 bedsteads of gold, and a like number of tables of the same material. Among numerous passages of ancient historians bearing on the question occurs the record of a statue, throne, and table in gold, weighing 90,000 lb.; other instances of three statues weighing 2,800 talents. Croesus offered to the gods 3,000 head of cattle, and burnt on the pile bedsteads of gold and silver, vials of silver, &c. The residue was cast into ingots, and weighed 86,000 lb.; these were offered at the Temple of Delphi along with a lion of gold weighing 1,100 lb. When the temple was burnt, 490 lb. were melted from it. Also bowls of gold, one of them of great skill and beauty of workmanship, made by Theodorus, the Samian. Herodotus confirms its excellence. He enumerates many like things, including several pillars; and writes, "all these are in existence in my day, but many others are lost." In 432 B.C., Phidias executed his figure of Minerva in ivory, with her golden garment, worth £120,000, according to the testimony of Thucydides; Jupiter, by the same artist, like Minerva, in gold and ivory, seated on a throne of ivory, gold, and precious stones. Strabo says its height was 45 feet. A century later, 331 B.C., Alexander entered as conqueror into Ecbatana. In the treasury he found 120,000 cwt. of gold, and the columns of its palace covered with plates of gold and silver, and its roof of silver. In Persepolis he found still greater wealth. A few years later, and the Rhodians, to celebrate the successful defence of the city, erected across their harbour the figure of Apollo, 120 feet high. Its proportions would be realized by comparison with that of Havelock in Trafalgar-square,—itself a memorial of the rescue of an incomparably larger empire than the Rhodian states. Livy and Pliny give an interesting account of the brazen threshold of the Capitol at Rome, and the pillars that were removed from Athens. In the subsequent building which was raised, the gold for plating and covering the surfaces with beaten work amounted to 1,350,000 lb. Various other instances might be quoted, but enough had been cited for the purpose.

Was it possible that the long array of architectural metal-work, so costly, and involving so much art, should have left no suggestion, or found no representation in the stonework of the period? and that those who produced the ornamentation should resort to the objects we assign to them,—“huckle-bones,” “reels,” “tooth-and-egg,” &c., for their inspirations? The answer was, that large numbers of detail ornament, as explained in the previous paper,

were the exact counterparts of costly rendering of gold and silver; the treatment true to the material, and of which contemporaneous examples are extant.

Passing to the Christian Church, the fury of persecution crushed all attempts at giving that homage and that costly devotion of all choicest gifts which the Jews directly, and the heathens indirectly and darkly, offered to the Creator of all. An exile in Patmos, St. John gives to the Christian world the Revelation, and in it offers to the gaze and the ultimate beatitude of all the heavenly Jerusalem, a city of gold, with walls of precious stones and gates of pearl. It mattered little for the present inquiry what might be the various and possible views advanced on the meaning of the passages; it was sufficient for the purpose to know that it influenced Theophilus, who travelled to Byzantium and gathered the traditions of Christian arts, instructed his pupils to adopt architectural forms, and represent the golden city in their metallic art: he enters into details, and quotes the words of St. John as a reason for directing the same. Stones the prophet assigns to each of the apostles, to be used under the respective figures—the jasper, sapphire, chalcedony, emerald, sardonyx, &c.; and the love of symbolism, which has characterized every age of Christian art, and is so evident in the construction of cathedrals and churches, could scarcely fail to be more or less impressed with a symbolism so significant, modified by the actual requirements of the edifices. Regarded in this light, it would be readily understood how a church intended to represent a heavenly type on earth—the heavenly, by revelation, described as of gold and precious stones—should derive its illustration from the very golden representations of the same with which the previously existing buildings abounded. Leaving these considerations for a time, and continuing the narrative of work in gold and silver, the following presented only a fractional portion of lists of costly and precious productions too long for the limits of a paper.

A.D. 328.—Constantine calls artists to Constantinople to enrich the palaces with works in gold and silver. He presented to the churches at Rome\* crosses of gold weighing 300 pounds, large patens of gold, chalices, lamps, lustres, fonts, and altars of gold.

588 to 659.—Eloy, from an artisan (pupil of Abbon, master of the Mint) rose to be an eminent goldsmith, master of the Mint, and Bishop of Noyon. He made for Clothaire II two thrones enriched with precious stones; for Dagobert I. a large cross of gold, and set with precious stones, for the basilica of St. Denis, the marble roof of which was covered with gold and gems. When bishop he founded the monastery of Solignac, near Limoges, in which he assembled monks skilled in the art. Princes and bishops followed his example, for the express purpose of producing works in gold and silver.

684.—From an account in the Bodleian at Oxford, of Glastonbury Church, we find King Ina caused to be built a chapel of gold and silver, together with ornaments and vessels of silver and gold.

For the ornamentation were used 2,640 pounds of silver; for the altar, 264 pounds of gold; for the candelabra, 12½ pounds of gold; for the binding of gospels, 20 pounds of gold; and for other purposes, 45 pounds of gold; statuettes, 178 pounds of silver and 28 pounds of gold—the vestments being woven on both sides with gold and precious stones.

772 to 814.—Charlemagne restored the arts, and founded basilicas and supplied them with costly vessels of gold and silver; he had in his own possession tables, &c., of gold and silver. His body in the tomb was seated on a throne of gold, and was exhumed for the sake of these treasures.

795 to 816.—Leo III. gave works in metal and precious stones, weighing 1,075 pounds of gold and 24,900 pounds of silver.

835.—The magnificent altar of gold now remaining at the church of St. Ambrose, at Milan, consisting of enamels, precious stones, with figures of Christ and Twelve Apostles, a work of great richness and beauty.

813 to 879.—Church of St. Stephen, in France, endowed with altar tables of silver. Abbon, by his will caused the high altar to be overlaid with gold and gems.

849 to 872.—King Alfred went early to Rome, was acquainted with the Continent and its works of art—kept goldsmiths and other artists at his own expense.

876 to 976 was remarkable for the profusion and richness of metallic works in gold, precious stones, and pearls,—the emperors and others giving costly tombs, &c. Constantinople was a seat of these manufactures. The Doze Orseolo ordered A.D. 976 from thence the splendid shrine of enamel and gold

work now preserved at St. Marks's, Venice. At this time the marriage of Otto III. with the Greek Princess Thophania drew the Byzantine artists in metals to the German court.

1017 to 1031.—William of Malmesbury says, Canute gave great gifts to Winchester, which displayed such magnificent liberality as astonished the minds of the strangers; the quantity of precious stones and jewels dazzled the sight of the beholder.

1033-1024.—The Emperor Henry II. presented many pieces of gold and silver work of great consequence. An altar front remains, given to the Cathedral of Bale. The example of the Emperor acted on the bishops; and we find, among others, the Archbishop of Mayence presenting a crucifix weighing 600 pounds of gold, and the Bishop of Hildesheim, himself a goldsmith, giving another enriched with flagree and gems.

1041.—William of Malmesbury says the Cathedral at Coventry was enriched with so much gold and silver, that the walls seemed too narrow to contain it, in the reign of William Rufus. Robert de Limesi removed from one beam that supported the shrine 500 marks of silver.

1066.—Waltham Abbey Church Harold had ornamented with plates of copper, and plated with gold (the capitals of the columns and the bases and mouldings, with great skill on the part of the workmen.) He had also an altar made of pure gold, and vessels of gold for chief days, and silver for feasts.

About this period, in the East, the wealth in precious metals, chiefly in gold, was incalculable. Mahmud took from a single temple 760,000 gold coins, golden vessels 28,000 lb., and bars of the same 1,600 lb. At Guzarat he robbed a temple of 56 columns of massive gold set with stones, and a chain weighing 1,860 lb.

About 1152, among other works particularly to be mentioned, is the shrine of the Three Kings of Cologne, of gold, enamel, and gems.

Thirteenth century.—The shrines at this period were much used in the form of churches or tombs, as that of St. Saurin at Everoux, and St. Romain at Rouen.

1290.—Mulik Allah took at Devgir, capital of Ramadeva, 15,000 lb. weight of gold, 175 lb. weight of pearls, and 50 lb. weight of precious stones.

Fourteenth century.—Reliquaries in the form of churches were restricted to cathedrals; chapels and oratories were enriched with figures in gold and silver which contained relics. Goldsmiths' art in this century was of such extent as would scarcely be credited in the present day. The inventories of Charles V., 1396, comprise treasures estimated at nineteen millions. At this time were commenced two of the most important works which have come down to us—the altar at Pistoia, and that at Florence. For more than 150 years the most skillful goldsmiths of Italy were engaged on these two monuments of art. A long list of artists in gold might be added, would time permit.

Illustrations were given by the lecturer of the various modes of working metals, from the fifteenth century before Christ to the fifteenth century after, illustrated by existing examples. These received a treatment in harmony with the known qualities of metals, the various forms and arrangements in accordance with ductility, malleability, and constructional necessity, and therefore true to the material. Numerous details were exemplified by reference to diagrams, models, and also actual work in progress. These were compared with stone examples, the absolute necessities of the metal construction being represented to the minutest details in the stone; with, in other instances, the addition of a fragmentary and unsightly piece of stone, attached to give support, and evidently not part of the original design,—as in many French capitals, the originals of these in gold and silver were shown to need no such support, being able to maintain themselves without such addition. The identity of form being entire, it was evident that the original type was that which needed no violation of, or addition to, the form, to render its production practicable and enduring. A similar treatment of statues was referred to, where an additional piece of fragment, generally unsightly, was added to give stability to the figure. In all instances it required little argument to prove which was original. In the short limits of a report, without the numerous examples illustrated by drawings and actual goldsmiths' work, it would be impossible to convey any notion of the evidence adduced. In conclusion, it was remarked that the Byzantine and Mediaeval monasteries, many of which were founded for the cultivation of metallic art, were the great schools of such work; and that monastics frequently enlarged and re-erected their own buildings. It was more reasonable to suppose they would choose for types of ornament the costly objects of the sanctuary on which they had expended years of toil and thought than, having done so, to turn into the wood-

\* From a lecture by Mr. Skidmore, of Coventry.

† The mixture of alloys in certain proportions produces a blue metal. The composition of this was evidently known at that period.

yard for a billet to fill a moulding, or the kennel for a dog's tooth to furnish suggestive ideas. Instead of this, the builders of our cathedrals were eminently practical, and made their edifices exponents of their faith, understood of all men; the anomaly being that the enrichment of cornice and capital, especially the earlier kinds not derived from nature, have no intelligible meaning; but considered as the representative of treasured riches, with which all then must be acquainted, they would be understood of all, and enhance the dignity of the design by association with their known costly type. It is not to be wondered at that in the present day, when all their golden examples are lost in the very recent revival of Gothic architecture, men should regard as of stone origin all the forms they found in that material; and that when fragmentary pieces of gold or silver are discovered they are set down as copies of stone, although they possessed all the elements of beaten work, were true to the nature of the material, and agreed with the practice of goldsmiths of all ages.

#### ROYAL DUBLIN SOCIETY.

##### PROPOSED EXHIBITION OF MANUFACTURES AND MACHINERY, 1864.

THE following circulars have been extensively distributed, but with a view of aiding the Society by giving further publicity to the projected Exhibition we reprint them.

"At a meeting of the Royal Dublin Society, held on the 2nd instant, it was determined that an exhibition of Irish manufactures, and of home and foreign machinery suited to manufacturing purposes, should be held on the Society's premises, in the Summer of 1864. And it was also resolved that a guarantee fund should be formed, to indemnify the Society from pecuniary loss on account of the exhibition.

"Exhibitions of exclusively Irish manufactures have been held under the auspices of the Society, on their premises, at different times between the years 1834 and 1847, and were attended with very great success. In the year 1850 it was determined to hold an International Exhibition, the first, it is believed, of the kind ever held in the United Kingdom, followed by the Great Exhibitions of 1851 and 1862, in London, under the auspices of the late lamented Prince Consort,—by the National Exhibition in Cork, in 1852,—and by the Great Industrial Exhibition of 1853, which was held on the Society's premises, by means of the liberality of Mr. Dargan, who on that occasion was the sole guarantor.

"Whilst international exhibitions have answered in a marked degree the objects contemplated by their promoters, namely, to bring together the best products of all nations, and, by encouraging a friendly rivalry in manufactures, to stimulate each exhibitor to use his utmost exertions to improve and extend his own product, it must be apparent that they are attended with very grave responsibilities, and very serious expense; and that, to render them successful, a considerable interval should necessarily elapse between them. These objections, however, do not present themselves to the holding of what may be called local exhibitions, the difficulties attending which are small in comparison, and the expenses much lighter.

"Hence the resolution of the Royal Dublin Society to resume their periodical exhibitions of exclusively Irish manufactures, and of home and foreign machinery adapted to manufacturing purposes. They are of opinion that the country at the present time presents peculiar facilities for the promotion of manufacturing industry; and from the gradual development of its mineral wealth, the extension of railways, the increased application of steam, the invaluable water-power, and the important advances which manufactures have made in many districts during the last fifteen years, the present is a suitable time to exhibit such manufactures as are produced in the country, with a view to ascertain how they can best be promoted and extended.

"The success which has attended their periodical exhibitions of agricultural produce, and of machinery adapted to promote agricultural industry, as well as the recollection of the good done by their former triennial exhibitions of Irish manufactures, leads the Society to anticipate for the proposed exhibition a result not less favourable to the Society and to the industries sought to be advanced.

"In drawing your attention to the enclosed form of guarantee, I may remark that the Exhibition of the Royal Dublin Society in 1861 realized a profit of nearly £2,000, all of which was expended on the Exhibition buildings, which consequently require now little outlay for the proposed Exhibition; and it is fairly to be expected that profit will in this case also be the result.

"In order to promote confidence as to the careful management of the funds, a finance committee to regulate the expenditure will be chosen by the guarantors from amongst themselves, such committee being also members of the Royal Dublin Society.

"I am instructed to express a hope that you will aid in promoting this national object by joining in such guarantee, and by otherwise extending to the exhibition your countenance and support.

"W. E. STEELE, M.D., Assistant Sec.

"May 20th 1863.

"In resuming their Exhibitions of exclusively Irish manufactures, and of home and foreign machinery, the committee deem it expedient to state the grounds whereon the Royal Dublin Society desire to confine the proposed exhibition within the limits prescribed for their triennial exhibitions held prior to the year 1850.

"Although they were the first to adopt the plan of international exhibitions, they are sensible of the grave responsibilities and serious expense which attend such undertakings, and the long preparation and great labour which they require. Hence, to make them successful, a considerable interval should elapse between them, whether held in Dublin, London, or Paris. So soon after the International Exhibition held in London in 1862, it would be hopeless to expect that foreign manufacturers would be willing to undergo the expense of preparing goods for one in Dublin in 1864. Therefore, without referring to the serious item of expense, which is an insuperable objection at the present time, the exhibition committee consider they are acting in the interests of the public by confining their efforts to the more humble, and less costly, though not less useful, exhibition of home manufactures.

"The object which they contemplate is to encourage the growth of Manufactures in Ireland, and especially of those that present the strongest features of suitability to the climate, and are most likely to afford large and permanent occupation to the people. Many branches of industry enjoying an enviable position in the commercial world are carried on amongst us; and many others, spread throughout the country, though less successful, might be made sources of valuable employment and profit, if they had the advantage of improved machinery applied to them.

"It is with the view of promoting these important objects that the proposed exhibition will be held; and it will form an essential part of the duties of the committee to ascertain, with a view to special encouragement, those manufactures, the raw materials for which can be successfully grown or produced in this country. It has already been found that this prevails to a very considerable extent, as, for instance, in the articles of linens, thread, friezes, tweeds, blankets, flannels, serges, rattens, woollen and worsted yarns, stockings; leather boots and shoes, with other kinds of manufactured goods in leather; paper of every description, envelopes, starch, candles, soap, brushes, perfumery, combs, felt, cabinet work, railway and other carriages, agricultural and other implements, bricks, tiles, pottery ware, marbles, fishery appliances, ironmongery, metals, glass, book-binding, chemicals, artificial manures, liquors for dyeing purposes and for domestic use.

"There are other descriptions of manufactures carried on, the raw materials for which come from abroad, but before manufacture into fabrics, &c., have to pass through many processes in themselves sources of considerable employment, such as cambrics, muslins, laces, embroideries, calicoes, domestics, cotton yarns, wineys, shawls, and other kinds of mixed fabrics; pins, hooks and eyes, straw-plait, artificial flowers, surgical instruments, machinery of every kind, locomotive and other engines, &c.

"Although it is not expected that many locomotive or other engines will be exhibited, yet the committee will be glad to place all the space they can at the disposal of machinists, so that that department may be as fully represented as possible. It cannot be overlooked how much the agricultural industry of the country is indebted to the department of machinery in the annual exhibitions of the Royal Dublin Society; and it is the intention of the society upon the present occasion to bring together as much machinery adapted to manufactures, especially to those at present promoted in the country, as they can secure, so that our manufacturers may have the opportunity of availing themselves of that information and of those appliances which the latest triumphs of mechanical science applied to manufactures affords, and of which, except by means of an exhibition of this kind, they might long remain in ignorance.

"It is likewise considered most desirable that none but *bona fide* manufacturers shall be admitted as exhibitors, and every care shall be taken to confine the exhibition to this purpose. When articles are only partially manufactured in Ireland, it will be necessary to specify which branches are manufactured abroad, and which at home.

"It is earnestly hoped that all those interested in the prosperity of the country will aid the present undertaking, by supplying the committee with information concerning the various descriptions of manufactures carried on, and the mineral wealth, such as copper, coal, iron, salt, &c., in their neighbourhood—

and, by inducing as many parties to apply for space, as will fairly represent the manufacturing industry of their respective districts.

"W. E. STEELE, M.D., Assistant Sec.

"May 20th, 1863."

The following are the proposed arrangements relating to the exhibition:—

1. The Royal Dublin Society have fixed the month of May, 1864, for the commencement of the exhibition, which will continue open for a period not exceeding six months. Goods should be ready for transmission to the premises early in March; but notice will be given, and forms of application will be forwarded in due time.

2. The exhibition building erected on the premises of the society, and used for the Fine Arts Exhibition of 1861, together with the other premises adjoining, recently added thereto, will be used for the exhibition.

3. A portion of the ground floor of the Agricultural Hall, and the Shelbourne Yard, will be appropriated to the display of machinery, at rest and in motion.

4. All articles, except machinery, to be exhibited, must have been manufactured wholly or in part, or have been produced in Ireland; and the exhibitor must distinctly state which parts are Irish, and which are of external manufacture. The decision whether goods proposed to be exhibited are admissible or not must in each case eventually rest with the exhibition committee.

5. No person will be permitted to make drawings, models, or photographs of any object without the leave of the exhibitor, and of the committee.

6. No rent will be charged to exhibitors, who must deliver and remove their goods at their own expense. They must also provide their own fittings and decorations, subject to the approval of the committee. For small objects the committee will, however, provide counters or wall space.

7. Goods may be sold in the exhibition; but cannot be removed until it finally closes without the order of committee.

8. The committee will not be responsible for loss or injury under any circumstances whatsoever; but they will give special attention to measures for the protection and safe preservation of the property of exhibitors.

9. Medals and certificates of merit will be given to the exhibitors of the best specimens of Irish manufacture, on the awards of juries to be chosen by the exhibitors, subject to the approval of the committee.

#### SHILLING ART UNION OF DUBLIN.

At a meeting of the committee of this Society held on Saturday, the 23rd ult., in the board-room of the Royal Dublin Society, R. J. T. Macrory, Esq., in the chair, a letter was read from the Rt. Hon. the Lord Mayor, consenting to act as chairman of the committee, and expressing his desire to support the Society and advance its objects.

It was agreed that the chromo-lithograph of "Tantallon Castle," by Edwin Hayes, R.H.A., (copies of which in a forward state, had been sent in by Messrs. Stark Brothers) should form a portion of the minor prizes for next distribution. The chromo-lithograph of "Clonmacnoise" will form the larger prizes.

The secretary stated that the issue of tickets was nearly completed, but until the returns from the agents were received, it was, of course, impossible to say exactly how the sale was progressing. There is some trouble in disseminating the tickets, and the committee, with a view of in some degree compensating their agents and stimulating their exertions, have arranged that any one who disposed of a book of tickets should be entitled to claim a copy of "Clonmacnoise," which could not be purchased at less than a guinea.

The chairman said he would have supposed that with succeeding years they ought to have been increasing the amount of their sales. He knew, of course, that their Society has to encounter considerable opposition from English Art Unions, they having agents in all parts of the country, and, in many instances, by offers of a high percentage, he had been told, inducing their agents to act also for them, and thereby inducing numbers to subscribe who would have otherwise sustained the Shilling Art Union of Dublin. He thought it strange that in each county in Ireland 2,000 persons could not be found to whom one or two shillings was no particular object, and who would contribute that to sustain and advance the art of the country; and besides contributing to this worthy and important object, have a reasonable chance of obtaining any of the prizes, which must fall to some, and the more their subscriptions, the more prizes. But he learned from the secretary that the bulk of the subscribers were in Dublin, and few counties contributed two or three hundred shillings.

Sir Thos. Deane and Dr. Sayers were nominated members of the committee.

# ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

A GENERAL meeting was held at the Royal Hibernian Academy on the 21st ult.,

Charles Lanyon, Esq., J.P., R.H.A., President, in the chair.

Present:—Jacob Owen, V.P., W. G. Murray, R.H.A., S. Symes, F. V. Clarendon, C. Papworth, E. T. Owen, J. J. Lyons, E. H. Carson, J. M'Curdy, and J. Longfield, Esqrs.

The minutes of previous meeting having been read and confirmed, Mr. E. T. Owen was introduced to and received by the president in due form as a newly-elected fellow.

Proposed by Mr. Clarendon, and seconded by Mr. Carson—"That the question of increasing the council from seven to ten, as proposed by Mr. Lyons, be brought before the council previous to the last general meeting of this session." Passed unanimously.

The president stated that he had seen His Excellency the Lord Lieutenant, in accordance with the resolution passed at the meeting of 23rd April last, requesting His Excellency to accept the office of patron of the Institute, and that His Excellency had appointed Saturday next, at 11 a.m., to receive a deputation from the Institute.

Proposed by Mr. Carson, and seconded by Mr. M'Curdy—"That the following gentlemen be requested to meet at the Royal Hibernian Academy, on Saturday, the 23rd inst., at 10½ a.m., for the purpose of proceeding on a deputation to His Excellency: Charles Lanyon, President; Jacob Owen, \*P. Byrne, and \*Sir T. Deane, Vice-Presidents; \*F. Darley, F. V. Clarendon, \*George Wilkinson, S. Symes, \*J. J. M'Carthy, J. J. Lyons, W. G. Murray, \*N. Montgomery, J. M'Curdy, E. H. Carson, and C. Papworth."

[Those gentlemen before whose names an asterisk is placed, not being present, were by letter from the secretary requested to attend.]

Mr. Lyons having requested the withdrawal of certain names from the balloting paper, in consequence of technical objections (but on the understanding that they were to be re-proposed), and same being agreed to, Mr. Murray proposed an alteration of Clause 4, and 2, respecting the non-admission of builders; this was seconded by Mr. Symes, and referred to council.

Proposed by Mr. Lyons, and seconded by Mr. Murray—"That a paper relating to the professional practice and charges of architects, adopted by the Royal Institute of British Architects, be printed and circulated amongst the members of the Institute, for discussion at the next general meeting." Agreed to.

Mr. Lyons brought before the Institute the subject of the "Architectural Alliance," stating its general objects and views, and suggesting that the Institute of Irish Architects should join the Alliance, as the various architectural societies throughout England and Scotland had done. He left it to the Institute to propose delegates to attend the next meeting of the Alliance, to be held in London in the first week of July.

Proposed by Mr. M'Curdy, and seconded by Mr. Murray—"That the matter be referred to the next council meeting." Agreed to.

Mr. Lyons having suggested that the letter of the secretary should be acknowledged at once, Mr. Murray proposed—"That the secretary of the Institute do answer the letter of the Architectural Alliance, stating that the matter would be taken into early consideration."

The scrutineers reported that all the candidates duly put forward were unanimously elected in the following classes:—

*As Fellows.*—Messrs. W. J. Welland, W. Gillespie, George Ashlin, J. S. Butler, Thomas Drew, W. R. Farrell, James Bell, Jun., John Bourke, W. Hague, jun., C. Geoghegan, J. R. Carroll, J. Boyd, W. Fogerty, F. Franklin, Charles A. Sherry.

*As Associates.*—E. P. Gribbon, Isaac Farrell, Martin Morris, James Bermingham, Wm. Gray.

Proposed by Mr. Murray, and seconded by Mr. Symes—"That the question of modifying the bye-laws as to the qualifications necessary for the admission of fellows, so as to admit gentlemen who are practising as architects, and have acquired distinction in the practice without having gone through the usual course of professional education, be postponed for the consideration of next meeting."

Proposed by Mr. Murray, and seconded by Mr. Owen, V.P.—"That the thanks of the Institute be conveyed to the council of the Royal Hibernian Academy for the use of their board-room, and that the secretary solicit the favour of its use for future meetings also." The president mentioned that he would, at his own expense, give a conversazione of the Institute, and expressed a hope that the Royal Hibernian Academy would consent to lend their rooms for the purpose.

Proposed by Mr. Murray, and seconded by Mr. Carson—"That a committee be appointed for the

purpose of conferring with the council of the Royal Hibernian Academy, with the view of obtaining the use of the building for a conversazione to be given by the president of the Institute, in the month of June next, and that the following gentlemen be appointed a committee: the President, Messrs. Jacob Owen, V.P., Murray, Symes, Lyons, M'Curdy, and M'Carthy; Mr. Lyons to act as secretary to the committee."

Mr. Lyons announced as donations the following books and papers, which were entrusted to him for the Institute, during the process of reorganization:—

Transactions Architectural Institute of Scotland, Session 61-62.

Royal Inst. Brit. Architects' Sessional Papers, 62-63, part i.

Do., part ii., No. 1.

Do., do. No. 2.

Do. Voluntary Examination Papers.

Do. Professional Practice Regulations.

Bye-laws and rules of following art institutes:—

Royal Institute British Architects.

Do. Architectural Association.

Do. Institute of Scotland.

Do. Glasgow Architectural Society.

Do. Liverpool do.

Do. Birmingham do.

Do. Bristol do.

Do. Northern Architectural Association, Newcastle-on-Tyne.

Minutes of First General Meeting of Architectural Alliance, with letters of Hon. Sec.

Report of Committee of R. I. B. A. on Public Competitions.

The meeting then adjourned.

[As at present arranged, a council meeting will be held on the 10th inst., when all arrangements respecting the conversazione and other matters at present on the *tapis* will be determined on.—ED.]

## THE DEPUTATION TO THE LORD LIEUTENANT.

The following gentlemen waited upon His Excellency at the Viceregal Lodge, on Saturday morning last, at 11 o'clock, viz.—Messrs. Charles Lanyon, J.P., President; Jacob Owen, V.P.; S. Symes, W. G. Murray, E. H. Carson, J. M'Curdy, and J. J. Lyons. The deputation having been introduced, the President explained to His Excellency the objects of the institute which are for "the general advancement of civil architecture, the promotion and facilitating of the knowledge of the arts and sciences connected therewith, the formation of a library and museum, the establishment of uniformity and respectability of practice in the architectural profession," &c., &c.; and, having read the list of newly elected officers and Council, the President respectfully solicited the honour of his Excellency's acceptance of the office of "Patron" of the Royal Institute. His Excellency replied in brief terms, dwelling particularly upon the manifest improvement that had taken place of late years, in the architecture of our cities and towns, and concluded by expressing his gratification in accepting the office to which he had been elected by the institute.

## THE "OBJECTS" OF THE INSTITUTE.

Now that the Institute of architects in Ireland is completely formed, admittedly on a partially broader basis as proposed, and with a considerable augmentation to its ranks, we pause to enquire what are its immediate purposes in the abstract. Those set forward as the proposed "objects" are, "the general advancement of civil architecture, the promotion of the knowledge of the arts and sciences connected therewith, the formation of a library and museum, the establishment of a correspondence with scientific men in other countries, enquiry relative to artistic subjects, and the establishment of a uniformity and respectability of practice in the profession of architecture."

First let us consider in what way is the Institute now comprising fifty-four members—prepared by its acts to contribute to the "general advancement of civil architecture," and then we shall take the other objects *seriatim*. One of its earliest steps, viz., the adoption of a systematic scale of remuneration for professional services has undoubtedly a practical tendency in this regard, and we presume that the more æsthetic elements of this "object" will follow by and bye.

It is of the highest importance for the advancement of any profession, that those who pursue it, should be fairly and amply remunerated for their skill and labour, and in none more than in that of architecture, which involves responsibilities and anxieties second to none other. "Reward sweetens labour," and the more lucrative an occupation is made consistent with the marketable value of things generally, the greater the inducement to partake of it and to excel in it, and the more uniformly the scale of payment is maintained the more conducive, unquestionably to its "general advancement." There is, however, a loftier aspiration connected

with this word "advancement," which, in the consideration thereof, we must not overlook. The Institute has it in its power to contribute to this, if it *will* but do so, and if it will not, the most important object of its mission shall have failed to be accomplished. For this purpose it was proposed in an article in this journal when the re-constitution of the Institute was in progress, that the reading of papers on art subjects by each individual member in his turn should be compulsory, or as a substitute the recording on the books of the Institute, as a subject for discussion, some one or more of those peculiar incidents which daily occur in professional practice, and which, if preserved in black and white, would form a most interesting volume for discussion at any time.

We have already stated, that although in their general professional attainments the architects of Ireland are quite up to the mark, nevertheless there are very few of them whose *forte* the writing of papers on art subjects happens to be; we have therefore little assistance to expect in that regard towards "the advancement of civil architecture," unless indeed that the very few who form an exception to the rule will by redoubled exertions compensate for the deficiency.

The second object, viz., the promotion and facilitating of the knowledge of the various arts and sciences connected therewith is so intimately allied to the foregoing, that we can hardly deal with it separately, but it occurs to us that a most fitting opportunity is, by this same object, now presented for the two professions and the two Institutes of civil engineering and architecture to interchange civilities. We are fully aware of the difficulties arising from professional prejudices and misgivings that present themselves to anything like an amalgamation of the two bodies, and we would, for a variety of reasons, be disposed rather to oppose than to countenance it; still we think that if each keep its proper distance from meddling in the business affairs of the other, it may assist its brother, and derive assistance from him in return in matters appertaining to science and art. For this reason, and for the more complete accomplishment of the object under consideration, we would suggest that it be at once proposed by the Institute of architects that the members of the one body should by courtesy be members of the other, with privilege to attend the general meetings of each, to read papers thereat, and join in the discussions; copies of the transactions respectively to be distributed alike and simultaneously. Most probably the suggester of this course—the conductor of this journal—will at an early moment adopt practical means for testing the general opinion of the members of each thereupon.

We come next to consider "the proposed formation of a library and museum" for the Institute, and the means adopted so far, or likely to be adopted, in furtherance of the object. As yet no steps have been taken towards securing any premises for such a purpose, nor does it appear to be the wish of the guiding powers that such a responsibility should be incurred; a direct falsification is therefore presented even at this early stage to one of the most important avowed objects of the Institute. Why, may we ask in the name of common sense, should a duly organized body comprising some 54 members—independent of many others still eligible for admission—with a fair amount of capital already secured, and with a liberal revenue accruing from annual subscriptions, not be able to maintain an establishment for itself independent of either the Royal Hibernian Academy or of the Royal Dublin Society. For what purposes ask several members are funds still required, if the Institute is to pay no rent, or to incur no expense for its future maintenance, it being possessed of a moderate capital already?

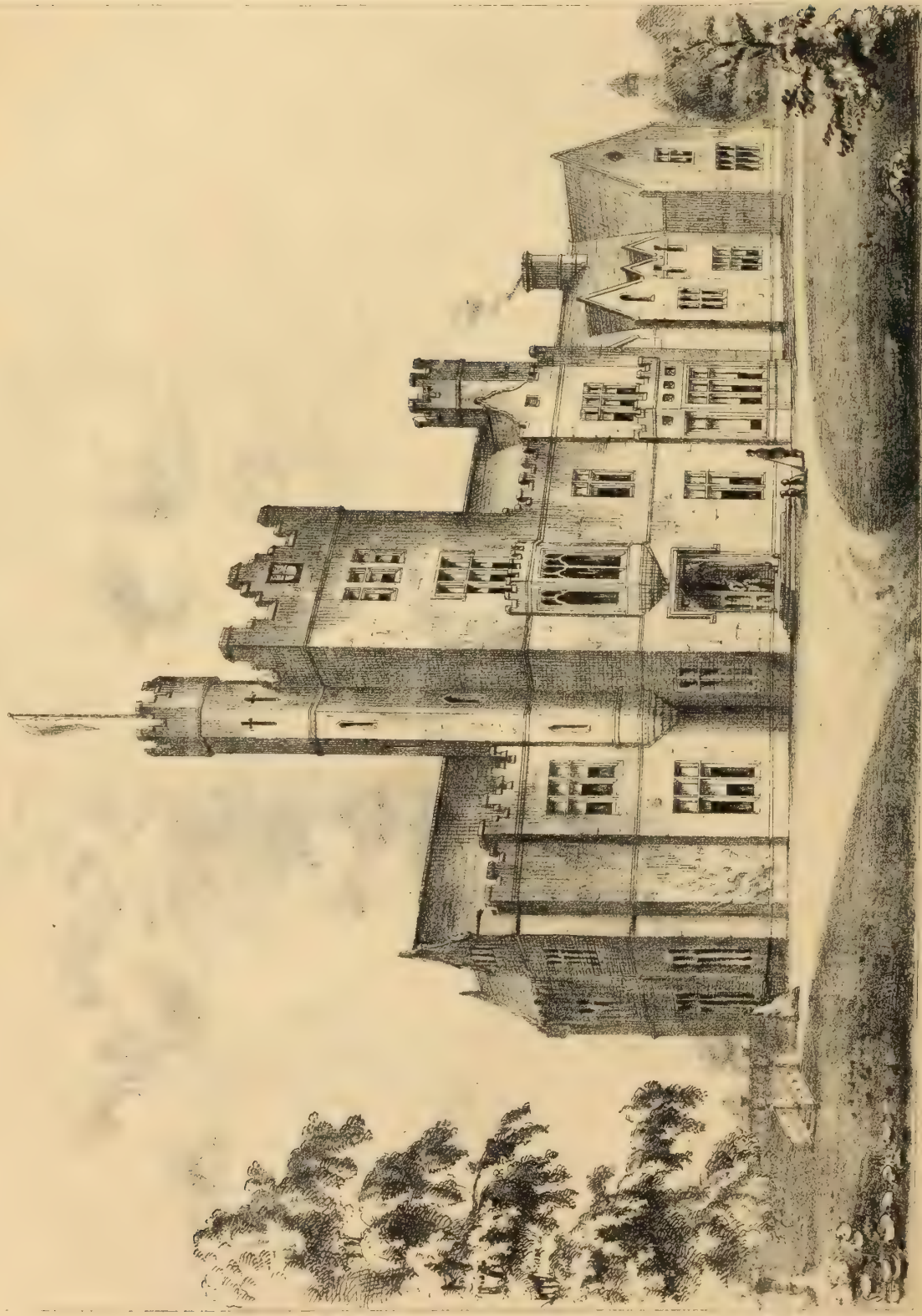
We are quite averse to any permanent connection whatsoever between the Institute of Architects and either of the institutions named, not from any personal prejudice, but on the principle that if the Institute be worth maintaining at all it should be solely self dependent, and the more so that it is, the more useful will be its sphere of action and the more independent its tone.

In the benefits to arise from the establishment of a systematic "scientific correspondence" with other countries we have little faith; it is quite right admittedly that there should be an *entente cordiale* with kindred institutions elsewhere, but further than an occasional communication we anticipate but very little in that regard.

Now, however, that the drudgery of preliminaries and modifications of bye-laws of the revived Institute is fairly over, we hope to see it go into its work earnestly, and even at this the eleventh hour lay the foundation for its future prosperity.

A neat little church has been erected at Drumheel, in the Co. Cavan, at the sole expense of Wm. Smith, Esq., J.P., of that town

THE LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



J. A. Roberts C.E. Architect

GURTEEN CASTLE C<sup>o</sup> WATERFORD.

Lewis Esq. 29 Dame St. Dublin

## NEW CATHOLIC CHURCH, BUTLERS-BRIDGE.

THE features of this new church, which is to be dedicated on the 14th inst., is described as follows in the columns of our able contemporary the *Ulster Observer* :—

The building occupies a good position, at the south end of the town, immediately fronting the main street, from which it is removed about twelve feet; the intervening space to be enclosed by an ornamental iron railing and gates. The style selected is the early pointed, the plans to be so carried out so that as far as possible the materials at the disposal of the architect may be contrasted, and thus compensate for the absence of ornament, which the funds would not afford. The church is built of freestone, externally, with bands of dark-coloured limestone introduced at intervals in the height of walls, and cut stone dressing of light-coloured limestone for the doors, windows, groins, &c. Brick arches in two colours are raised over the openings, and the slating on roofs alternates in three courses of red, and one of blue, to the ridge. The windows consist of two and three lights alternately, with spherical triangular windows at the east and west ends, and circular openings, in transept gables, filled with plate tracery of Dungannon freestone. All the sashes are glazed in diamond quarries, with coloured margins sparingly introduced, and stained glass in the triplet of west gable. The plan consists of nave, aisles, and transepts, indicated by gables rising from the aisle walls; chapels, chancel, with semicircular end and sacristy at the north side of chancel. The total internal length is 86ft. 2in. width; width across nave and aisles, 40ft.; and width of chancel 19ft. 4in. Access is obtained from the west end, through porches having separate entrances, to the nave and aisles, and over the former is placed the organ gallery with staircase leading thereto.

The west gable of nave projects in front of the aisles, thereby marking the main features of the building, the bell turret being carried up in the south side, assuming an octagonal form above the roof, supported on eight shafts having carved caps, from which spring cusped arches on each face; moulded and carved cornice, surmounted by a spirelet slated in ornamental quarries of two colours, furnished with a gilt cross of foliated iron rising to a considerable altitude above the street. The nave is supported from the aisles by cast iron columns, with wrought foliated caps, ornamental bands, and moulded bases standing on stone plinths, supporting the girders of main roof, as also the rafters of aisle roofs which abut upon the girders. Moulded arches, springing from the caps of columns, are constructed in each bay under roof plates, and aid materially in maintaining those characteristics, without which buildings of this class fail in the estimation of the critic or the lover of ecclesiastical art. All the roof timbers are wrought, stained, and varnished; those of the nave and aisles being plastered between the rafters; and the ceilings of transepts, chapels, and nave boarded on the under side, formed into panels with moulded ribs.

Sittings are intended to be provided in the nave only, the space under which being boarded. The aisles, passages, and porches are paved diagonally with the blue and red Staffordshire tiles, enclosed by margins of freestone.

The present altars are only temporary, and will be used until sufficient funds are available for the erection of suitable altars in accordance with the style of the church. The buildings and fittings have been designed by William Hague, jun., architect, Dublin and Cavan, and the works executed under his superintendence. We reserve for a future number a description of the organ gallery and other adornments in the church.

## THE ROYAL DUBLIN SOCIETY AND ITS PRIVILEGES VERSUS IRISH PUBLIC RIGHTS.

THE following is the appendix to a pamphlet under the above title, issued by the committee organized to try and prevent the proposed abolition of the Museum of Irish Industry, and the vesting of its property in the Royal Dublin Society.

It is proposed to consolidate in one Institution, the Museums, Schools of Science and Art, Lecture Theatres, &c., &c., of Dublin, we grant there is so much, *prima facie*, to favour the project that we should not be surprised at finding it supported by Englishmen and others, unacquainted with certain facts which must be known previous to the formation of just conclusions on the subject.

All who may have to deal with this question should clearly understand—

1. That the institution whose abolition is decreed is of the date of 1845, the one to be aggrandized is of the date of 1749. The one is the creature and the

representative of the new, the other an antique relic or fossil, a curious specimen of the old policy of government in Ireland.

2. The institution to be destroyed has been founded and is managed on constitutional principles, that is to say—founded by the State and supported by the State, it is managed solely by the servants of the State. It is a governmental institution, wholly under the control of the responsible advisers of the Crown. But the institution whose foundations it is proposed to enlarge is a private society, maintained for the greater part at the public expense. It is entirely anomalous in its functions and principles, has no parallel in England or Scotland or continental Europe, as nowhere public museums, botanic gardens, schools of science and art, are handed over to the management of a private society, save and except in Ireland, and in the case of the Royal Dublin Society alone.

3. The report recommending this measure emanates from a commission appointed by the Treasury, the permanent secretary of which is a vice-president of the Royal Dublin Society, and for many years an active member of its council. It was composed of two gentlemen unconnected with Ireland, and two others leading members of the council of the Royal Dublin Society. To these primary facts we subjoin others no less worthy of consideration.

The pamphlet then proceeds to inquire, How does the Royal Dublin Society Executive represent all Ireland? and afterwards to show how the society has grown in real membership. It says:

How the society has progressed in real members we think may be judged from the following:—On the 2nd of Dec. 1813, the society met to elect a professor of mineralogy, when there attended and voted for the two competing candidates 258 members. On the 25th July, 1861, the society met to decide whether it would or would not comply with the terms on which its parliamentary grant for that year depended. On this all important occasion to the society, when its very existence was at stake, there attended and voted for and against the required compliance 259 members, or one more than what attended and voted in a contest for a professorship in 1813.

It is next asked, How it has attended to parliamentary recommendations?

The select committee of the House of Commons in 1836 recommended the opening of Leinster Lawn (Merrion Square) to the public. The society persists to this day in jealously excluding the public from the lawn, and preserving it in a state of dreary isolation in the midst of a teeming civic population. Whatever may have been the reasons for the non-enforcement of the resolution of the select committee, in 1836 and subsequently, these reasons must now give place to public requirements.

On Leinster Lawn, since 1853, a National Gallery and a Natural History Museum have been erected at a cost to the country of over £40,000. The primary object of these erections, that of diffusing a knowledge of science and art among the people, will be altogether frustrated if the society is permitted to carry out their arrangements for preserving the lawn as a piece of private property.

On this point we (the committee) confidently and respectfully appeal to his excellency the Lord Lieutenant, and to all other noblemen and gentlemen residents in Dublin or acquainted with the locality, to judge for themselves, between the plan of admission which the spirit of corporate monopoly suggests, and the one which common sense would suggest as that calculated to afford the largest amount of public facility, and to attract the largest number of visitors.

The society, in order that the public may not desecrate the sacred soil of Leinster Lawn, have provided a back entrance from Kildare-street through the society's house, and along a narrow gallery or corridor to the Natural History Museum. Contrast that plan with the opening of a central gate at Merrion-square, leading by well-formed walks directly to the *façade* of either building, the National Gallery on the one hand, and the Natural History Museum on the other. Let us suppose the centre space adorned with a statue of the late Prince Consort, as proposed by the Memorial Committee, who have over £6,000 in hands for this purpose; suppose in addition a fountain and jet d'eau, groups of statuary, and some rare and beautiful specimens of the vegetable kingdom, artistically arranged over the lawn, and the whole thrown open as the daylight of heaven to all comers; suppose all this, and contrast it with what is to be, and we have what a good, wise, and enlightened government would do and ought to do for the education and moral and social elevation of its subjects, as contrasted with what will be doled out by a private corporation, more concerned in protecting its own privileges than in promoting the public interests.

The next question considered is—How it has progressed in public utility.

The department of the society which yields the largest amount of benefit to the public is the Botanic Garden at Glasnevin. The number of visitors there in 1862 was 250,000 out of the 320,000 who visited all the public departments of the society. Thus has

the society's expenditure at the place progressed. In 1815 the outlay was fixed by a resolution of the society at £1,500 per annum. In 1859, before Sunday opening, it was £1,713, but after Sunday opening the society's report, on the 26th June, 1862, sets down the outlay for that year at £1,396. And on this part of our subject we cannot avoid noticing that the £150 increased grant given to the society to provide for the expenses of Sunday opening in 1861, does not appear to us to have been expended in providing increased accommodation for the public. We observe the £150 is stated in this year's estimates to be for "police." We are not aware that the Society is charged for the police in the Garden on Sunday.

## PRESERVING WOOD WITH PYROLIGNEOUS ACID.

IN the New York *Daily Advertiser*, of Dec. 24, 1823, the following description was given of experiments that had been made in treating timber with pyroligneous acid, and its benefit and modes of application were clearly described. No railroads were then in existence, consequently its use was chiefly urged for ship timber exposed to rapid decay. It said:—"When seasoned timber or planks are hewn into the intended shape, put them under cover for a week or ten days to protect them from the rain. During this time let the acid be applied to the surface daily with a brush. It will penetrate an inch or more into the wood, and will be found an effectual preservative. The central part of the wood or heart of the oak being less liable to decomposition, it will require less of the acid. The frame of the ship or boat may be put together when all the external parts of the timber are completely saturated. Green timber cut in thick forests, after being saturated with this acid, will be nearly as good for ships, steam and canal boats, as the teak wood of the East Indies, or the live oak of our sea-coasts."

The pyroligneous acid recommended for this purpose was the condensed smoke of wood. The best way to obtain it is by the distillation of wood in an iron retort, and the condensation of its vapour in a refrigerator. The charcoal thus obtained in a retort is of excellent quality for smelting iron, and the crude pyroligneous acid may be applied without any further treatment to the timber. It was not only recommended for ships' timber to prevent dry-rot, but also for the timber of gun carriages, posts set in the ground, the sills of wooden buildings, &c. By smoking timber in the same manner that hams are smoked, similar results are obtained, for the preservative agent is the creosote in the fluid and the smoke. In coal tar there is a similar preservative agent, called carbolic acid, which in many of its properties resembles creosote. It answers the same purposes as an antiseptic for timber, and is used for this object, but it is disagreeable to apply; wherever it can be obtained conveniently, however, no better substance can be applied to timber intended to be exposed to moisture and the weather, more especially when in contact with the ground.

## BALLINASLOE.

A LARGE and substantial structure to serve the double purpose of dwelling house and school is in progress of completion at Ballinasloe, the site being near the back entrance gate to Garbally on the road to railway. It is intended by the Earl of Clancarty for the accommodation of Mr. Breakey, an eminent teacher in the town. The elevation is of neat and appropriate design. Mr. Maxwell is the architect, and Messrs. Seal and Clark the builders.

The noble earl (who is a most respected and improving landlord) is also causing the large block known as Craig's hotel at the end of the main street to be pulled down, and two houses erected on the site, from plans by Mr. Kempster, architect and C.E. The builders above named are the contractors for this work likewise.

## TIMBER TRADE.

MESSRS. William Kelly and Co.'s auction of wood goods, on last Thursday, 28th ultimo, was very largely attended, and the following quantities were sold:—

28,125 pieces spruce deals, planks, and battens; average price, £13 17s. 6d. per 120 of 12 ft. 9 x 3.  
1,349 pieces second quality Quebec pine, deals, planks, and battens, at £18 10s. to £24 per ditto.  
963 pieces red deals, at £20 to £23 10s. per ditto.  
1,682 pieces second and third quality ditto, at £16 12s. 6d. to £18 per do.  
98 tons St. John birch, at 62s. 6d. per ton.  
30 tons Memel, 67s. 6d. and 70s. per ton.  
40 tons under-sized, 65s. and 57s. 6d. per ton.

We observe from the Shipping List that this firm is at present discharging a cargo of mahogany from Minatitlan, in Mexico.

## ALCOHOL AND ART.

DURING the last few years the great improvement that has taken place, architecturally, both in the exteriors and interiors of what we may term our "Public houses" has been a subject for remark. Formerly many of those pursuing the most profitable trade were, in regard of appointments and outward show, little better than the ordinary "shebeens" so numerous in the country towns, but an emulative spirit seems to have sprung up lately amongst proprietors, and some very pretentious edifices, after the fashion of the London "gin palaces" have been the result. If not the most artistic of these, decidedly the most flashy and the most costly, is the large concern lately opened by Messrs. Fortune and Co., in a block of building erected by Mr. Graham Lemon, where little Grafton-street intersects Grafton-street. The decorative portions and fittings of the ground-floor, which Messrs. Fortune occupy, were undertaken by that firm itself, Mr. Lemon having completed the main structure. Before proceeding further we must reluctantly—for Mr. Lemon's enterprise is highly commendable—express a passing regret, that in the investment of so much capital Mr. Lemon should disregard the advantage derivable from proper professional aid. The exterior of the concern in question (which is surmounted by a photographic gallery, we believe now the largest in Dublin) is, to say the least, by no means architectural; and for the same outlay an acquisition to our street architecture might, through the medium of skilful hands, have been secured. This is a penny wise, pound foolish mode of proceeding, which objectionable, as it is in small undertakings, is vastly more so where some thousands of pounds are involved. Messrs. Fortune's store shows an apartment attractively fitted up and extending over an area of 54 feet x 23 feet, lighted by large plate glass windows, and approached both from front and flanks by several doorways. The counter is continuous, and has pannelled and moulded front, with fine marble slab at top; moreover carved oak screens are introduced at intervals, though for what purpose we hardly see, as they do not effect any classification so desirable in establishments of the sort. Around the walls are various landscapes, painted in panels, by Mr. Mannix, of Merrion-row, which, considering their position and their purpose, display a fair share of merit, and at one end of the saloon is an elaborate screen in stucco work, showing Corinthian antæ, with an entablature (of incorrect proportions) and figured niches in the interspaces. This screen is white, and so is the ceiling throughout, presenting too violent a contrast to the very high colouring on the walls. This, however, is not too late to be remedied, and, if attempted, should be done judiciously. Off the bar is a commodious private smoking apartment, decorated likewise, and appropriately fitted up. The names of the gentlemen engaged in the several departments of the work are Messrs. Hogan and Sons, in the plastering; Mr. Mooney, the gas-fitting; Mr. Dockrell, the glazing; Mr. William Butler in the marble-work; Mr. T. Fox, the Carpentry; Mr. Z. Jaques, the carving, &c.; the furniture was supplied by Messrs. Cannock, White, and Co.; the porter pulls, machines, &c., by Messrs. Merry; and the beautiful collection of coloured and plain glasses by Mr. Telford, of Henry-street.

## NEW PATENTS.

LETTERS PATENT, which have passed the Great Seal since the 5th day of May, 1863. Byrne and Lambert, Agents; Office for Patents, 4, Lower Ormond-quay, Dublin.

James McGeary, for "Improvements in the manufacture of gas, and the apparatus to be employed for that purpose."

Charles Littleboy, for "Improvements in implements for cultivating land."

John B. Rock, for "Improvements in apparatus for saving life and property from fire and other danger in buildings and mines."

Jean B. Lavoinne, for an invention of "A kitchen range adapted for cooking, warming the apartments, and generating gas for the use of private families, hotels, or gentlemen's public seats."

John J. Parkes, for "Improvements in lever bell pulls."

Robert W. Thomson, for "Improvements in obtaining and applying motive power, which improvements or parts thereof are applicable for raising, forcing, and measuring fluids."

William E. Newton, for "Improvements in producing stereotype plates for printing purposes."

Louis Leny Berg, for "Improvements in the apparatus for raising and lowering Venetian and other blinds."

Charles Stephens, for "An improved brick-making machine."

George Haseltine, for "Improvements in the manufacture of boots and shoes."

Francis Palling, for "An improved fountain pen-holder."

Gustave E. M. Gerard, for "Improvements in the fabrication of threads from vulcanized india rubber, and the apparatus connected therewith."

A copy of the specification of any patent, describing the nature of the invention, and the mode of carrying it into effect, can be had at the office for a sum not exceeding five shillings.

## RAILWAY NEWS.

RAILWAYS IN AMERICA. In 1852 there were only 168 miles of railway in Illinois and Wisconsin, and

the grain receipts of that year at Chicago were 6 million bushels. In 1861 there were 3,872 miles of railway in the two States, and the grain receipts at Chicago were 48 millions bushels. In 1811 the first steam-boat was put on the Western waters, and the steam tonnage there now is 293,000 tons. Fifty years ago the traffic on the Mississippi was carried on in flat boats, and it took 120 days to go from St. Louis to New Orleans. This traffic is now carried on in steamers, and the same distance is performed in three days.

NEWRY AND ARMAGH RAILWAY.—The important engineering work now going on at the Lisummon tunnel on this line of railway is progressing rapidly toward completion. Two more "meetings of the underground workings have taken place; and these were characterized by the same accuracy that marked the first junction—namely, that between shafts 4 and 5—when there was a deviation of no more than two or three inches. The "meetings" which have lately taken place are between the Newry open end of the tunnel and shaft No. 1, and between shafts Nos. 3 and 4. The hill is now pierced at a distance of 1,440 yards; and, the total length being 1,606 yards, it is anticipated that the last junction to be effected between the "headings" will take place about the end of August. The headings being carried only a short distance in advance of the finished work, the completion of the entire tunnel may be regarded as a matter of not very distant date.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

## THE LIFFEY-BED NUISANCE.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The plan I propose to obviate this (and let engineers and the Corporation concerned improve thereon) will, I think, be found to contain the three great points of effectiveness, simplicity, and inexpensiveness. Let iron sluices, or dams of sufficient height, beginning, say at Carlisle-bridge, be placed at the necessary intervals or levels of the river up to the King's-bridge, fitted into grooves, fixed at either wall, straight or curved—the latter perhaps would be found to answer best, as offering less resistance to the body of water when the tide is flowing out, and as less likely to interfere with the river boats—to be worked in concert by proper apparatus, by a couple of men appointed as superintendents on each side of the river, to raise and lower, or depress these dams at pleasure as required, from or into the river-bed. As soon as the tide is out or nearly so, let the dams be put down or closed, beginning at the upper one; when the tide begins to flow in, let them be raised, beginning at the lower one, sufficiently so as to let the water pass up under and over them, and so on alternately at each ebb and flow. Thus there would always be sufficient water left to cover the river-bed and annul and effluvia when the tide was out, and the dams being up or open, during nearly the whole ebb, any accumulations of filth would be carried down by its force. A couple of these dams might be tried first, and if found to attain the object sought, which I have no doubt of, then the remainder could follow.—H. M.

## THE ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

Dublin, 26, Lr. Gardiner-street.

TO THE EDITOR OF THE IRISH TIMES.

SIR,—I beg to correct some mis-statements in the letter of "E. A. M." in your impression of the 29th inst., relative to the original and the revived Institute of Architects respectively, which are calculated to place parties referred to in false positions. Your correspondent is in error in stating that the late Earl de Grey was ever "patron" of this Institute, most probably confounding that distinguished nobleman's connection with the Institute of British Architects (London), as president thereof, with our Institute—which are two distinct bodies. His Excellency the Earl of Carlisle, who has been graciously pleased to accede to the unanimous desire of the members of our revived Institute in becoming its "patron," now is, therefore, not the successor of Lord de Grey, but of His Royal Highness the late lamented Prince Consort, who, conjointly with Her Majesty the Queen, were respectively patron and patroness until the original Institute ceased to hold its meetings in the year 1856. The late Sir Richard Morrison was never even president of the Institute, its former rules precluding any one but a nobleman from being elected to the office, Lord Fitzgerald and De Vesel occupying that posi-

tion from its establishment in 1839 till 1844, when Lord Powerscourt was chosen to succeed him; and again, in 1849, the Marquess of Clanricarde became president, and remained so till 1856.

Under the revived constitution of the Institute—inaugurated at a general meeting of architects, held on 3rd January last, it was—to my mind, and without egotism I may add, on my suggestion, through the medium of my journal—wisely resolved that the president should be a professional man, and at the balloting for officers for ensuing session, the distinguished architect, Charles Lanyon, Esq. (ex-mayor of Belfast), became president.

In conclusion, while fully admitting the justice of your correspondent's claims on behalf of the late Sir Richard Morrison for recognition, as "the founder" of the Institute, I confess myself quite at a loss to know how his name is reasonably proposed now to be connected with "a reformed body, originally organized by him twenty-four years since."

Yours truly,

JOHN J. LYONS.

30th May, 1863.

## Public and Private Works.

The time has been extended for sending in plans for alterations, &c., at Grangegorman Penitentiary to 1st August.

We understand that there have been 150 applications for instructions to competitors relative to the proposed new cathedral at Monaghan, including many from English and Scotch architects.

The church of Glenavy, Co. Antrim, is to be enlarged and repaired under the direction of the Ecclesiastical Commissioners' architects.

A large sugar factory, for which Mr. S. H. Bolton is contractor, is being erected in Gt. Brunswick-street.

We hear that the Union Bank of Ireland have taken a block of houses in College-green, adjoining Church-lane, for the purpose of building a new bank. There is something suggestive of the increasing commerce of our city in the several important building works undertaken of late by our local banking establishments.

Extensive alterations have been commenced at Burton Hall, Co. Carlow, the seat of Wm. Fitzwilliam Burton, Esq. Mr. McCurdy, architect; Mr. J. F. Lynch, Carlow, builder.

Fonthill Abbey, Co. Dublin, the residence of the Hon. F. H. Needham, is to be remodelled, and to have extensive additions added on. The style of the building is to be Scottish baronial. Mr. McCurdy is the architect.

## Law Intelligence.

Duffy v. Rummons.—Action to recover £1,137 for work and labour, and for an alleged wrongful dismissal. The Plaintiff is a railway contractor, residing at Westport, County Mayo, and the defendant is a railway contractor in London, and the transactions between the parties had reference to an extension line of the Great Northern and Western Railway of Ireland. The Plaintiff relied on an argument of 6th December, 1862. The defendant denied that he ever entered into this agreement, and he also pleaded that it was rescinded by mutual consent. The defendant further pleaded that there was no work and labour done for him by the plaintiff, and that in the agreement in question there was a proviso that in case the defendant became dissatisfied with the work of the plaintiff he was at liberty to discontinue his services.

James Douglas v. Sir. C. C. W. Downie.—Action brought to recover a sum of £772 10s. 11d., balance alleged to be due for work and labour performed for defendant by the plaintiff, who is a builder. Defendant having allowed the action to go by default, the case came before the Master and a jury to assess the damages. The jury found (by consent) for the plaintiff for £712 10s. 11d., being £60 under the amount claimed.

## General Items.

The trustees of the Peabody Fund have nearly completed an arrangement for the purchase of a portion of the so long vacant ground in Victoria-street, Holborn-hill, London, for the purpose of erecting dwellings as contemplated by the munificent donor of the fund.

The next Congress of the Archæological Association will be held in Leeds, at the beginning of October, under the presidency of Mr. R. Monckton Milnes, when Ripon Cathedral, Fountains Abbey, Kirkstall Abbey, Aldeborough, Wakefield, Pontefract, and other places will be visited.

## Miscellaneous.

**PORTABLE WATER CLOSETS.**—A correspondent desires to be acquainted with the name and address of the best manufacturer of these articles, also to know if Gribbin's patent sash hinges are the best for their intended purpose. To the first query we prefer the manufacturers themselves to reply through our columns, but to the latter, we have no hesitation in recommending the application of Mr. Gribbin's patent as most effectual.

**REMARKABLE WORKS OF HUMAN LABOUR.**—Nineveh was 14 miles long, 8 wide, and 46 miles round, with a wall 100 ft. high, and thick enough for three chariots abreast. Babylon was 50 miles within the walls, which were 75 ft. thick and 100 ft. high, with 100 brazen gates. The temple of Diana, at Ephesus, was 420 ft. to the support of the roof. It was 100 years in building. The largest of the pyramids was 481 ft. in height, and 953 ft. on the sides. The base covers eleven acres. The stones are about 60 feet in length, and the layers are 208 ft. It employed 320,000 men in building. The labyrinth in Egypt contains 300 chambers and 12 halls. Thebes, in Egypt, presents ruins 27 miles round, and 100 gates. Carthage was 29 miles round. Athens was 25 miles round, and contained 350,000 citizens and 400,000 slaves. The temple of Delphos was so rich in donations that it was plundered of £10,000,000, and Nero carried away from it 200 statues. The walls of Rome were 13 miles round.

**PUBLIC WORKS IN IRELAND.**—On Wednesday was issued a return, giving an account by the Commissioners of Public Works, relating to loans in Ireland, to 31st March, last. The amounts authorized to be issued were £3,954,298, of which £405,894 remained to be issued; the remission had been

£1,348,056 and the repayments into the Exchequer £2,259,968.

**TIN-LINED LEAD CISTERNS AND PIPES.**—At a meeting of the Liverpool Chemists' Association, specimens of lead-pipe and sheet lead, electroplated with tin, were exhibited by Mr. Holt, and some discussion ensued respecting the use of lead coated in this manner for water-cisterns and pipes. It appeared to be the opinion of the meeting that the coating of tin, instead of preserving the lead, was far more likely to ensure its more rapid corrosion; for if the coating of tin by any means happened to be scratched off, even to the slightest extent, galvanic action would take place, and the lead would be destroyed very quickly. Dr. Nevins and Dr. Edwards stated that their experiments had proved that such would undoubtedly be the case; Dr. Edwards remarking that, in one case which he had examined, a cistern made of lead, in which was an accidental admixture of tin, was eaten out by well-water in six months, the lead being rapidly precipitated in the form of sulphate, &c.

**INGENIOUS MODE OF LIGHTING THE STREET LAMPS.**—In Perth, on Sunday last, a new lamp-lighting apparatus was used, consisting of a small lamp covered with gauze work, which is attached to the end of a stick of sufficient length to enable the man to turn the top cock and so light the gas. The plan wrought admirably, and a considerable saving of time was effected, even on the first night of trial—*Perthshire Courier*.

**MONUMENT TO THE LATE SIR G. MOLYNEUX.**—A handsome mural monument to the memory of the late Sir G. Molyneux, Bt., of Castledillon, and three of his children, has just been set up in Grange Church, near Armagh. It was executed by Mr. McCulloch, of Armagh, and is of pure white Carrara marble, having the family arms, and other appropriate sculptures. The tablet containing the inscription is surmounted by a niche, in which is a well-executed bust of Sir George.

The trustees to the will of the late Lord Lorton have determined that Rockingham House, lately consumed by fire, shall be rebuilt on its former site, and on an equal scale of magnificence.

## TO CORRESPONDENTS.

F. L., Belfast (certainly not).—J. SQUARE (try Archbutt's, Bridge-road, Lambeth, or Stanley's, Great Turnstile, Holborn, London; both respectable houses).—ENQUIRER (we think that the Conversazione of Institute will take place about the 20th inst.)—J. P. F.—(not in a case of dilapidations).—YOUNG ARCHITECT (you are entitled to 2½ per cent. on the proposed outlay, if your statement be not capable of contravention by your client).—OMEGA (we could not interfere editorially in such a dispute; you should consult an architect professionally, and pay him for his services, as you have to do your solicitor and your counsel).—RED TAPE (your complaint may have some reason in it, but the matter is not within our province).—STUDENT (declined, with thanks, being already more than amply discussed. You can have your MSS. on application).—MEMBER (this is the only journal in which a complete report of the Institute proceedings is to be found. Our London contemporaries (one of them especially) have taken little or no notice of them).—W. F. & Co. (The Farmers', and we believe the Stephen's Green).

**NOTICE TO PUBLISHERS AND AUTHORS.**—Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

Mr. J. J. LYONS, of 26, Lower Gardiner-street, Dublin, Architect, is the duly appointed Agent for Ireland for Messrs. Clark and Co., of Gate-street, Lincoln's-Inn-fields, London, the eminent patentees and manufacturers of revolving shutters, brass sashes, stall board plates, &c., &c. A model of Messrs. Clark's newest patent, which is remarkable for its simplicity (all gearing being dispensed with), may be seen, and price-books obtained, at Mr. Lyons' office.



## TO ARCHITECTS AND BUILDERS.

## Stained Glass.

FLAT LEAD, WINDOW, AND PATENT METAL SASH MANUFACTORY,  
107 & 108, MIDDLE ABBEY-STREET, DUBLIN.  
M. & R. SILLERY

Beg to inform parties requiring the above, that they have erected EXTENSIVE MACHINERY for facilitating the execution of STAINED GLASS, and are now prepared to furnish all descriptions of Work fully 30 per Cent. lower than any other House in Dublin, also of superior Designs and Finish, and respectfully invite an inspection of their Patterns.

PANES, per Foot super.	s. d.	BORDERS, per Foot Lineal.	s. d.
White Enamelled Ground and Clear Ornament	0 8	White Enamelled Ground & Clear ornament from 0	3
Ditto, richly coloured	1 6	Ditto, coloured	0 7
Enamelled Flocked Patterns for obscuring the view, suited for Water-closets	1 4	Ruby Ground, with Bright Ornament	1 3
Ornamental Enamelled White Panelled	0 10	Ditto, Blue	1 6
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Embossed Patterns on Ruby and Blue, with Bright Ornaments—a new and beautiful Description of Work for Panels in Doors. Quarries and all other descriptions of Ornamental Stained Glass, suited for Ecclesiastical and Domestic use. Ruby and Green Signal Lights, and all descriptions of Bent Glasses for Carriage and Car Lamps, in Stock and to order.

## ROYAL HIBERNIAN ACADEMY OF ARTS.

THE ANNUAL EXHIBITION IS NOW OPEN.  
Admission, One Shilling. Season Tickets, Half-a-Crown. Catalogues, 4d. Family Tickets to admit four, 2s.  
In the Evening, from 8 till 10 o'clock, admission, Sixpence. Children, Sixpence.  
By permission of the Colonel and Officers, the Band of the 36th Regt. will perform in the Academy THIS DAY.  
By Order,  
M. ANGELO HAYES, R.H.A., Secretary.  
Academy House, Lower Abbey-street.

## FOURTH YEAR.

## ART UNION OF DUBLIN.

(Authorised by the Privy Council for Trade.)

Patron:  
HIS EXCELLENCY THE LORD LIEUTENANT.

President:  
The Most Noble the Marquis of Drogheda.

Money Prize System. Right of Selection by Prizeholders.

Distribution of Prizes on the 24th of June, 1863.

HIGHEST PRIZE, ONE HUNDRED POUNDS!

(Lists close on the 16th of June.)

And as many others, ranging from £50 to £3, as the subscriptions will allow.

Also, a Minor Prize to every book of 100 Tickets issued.

Subscribers taking ten consecutive tickets will be entitled to claim an impression of the chromo-lithograph—"Watching the Moonrise"—size 13 by 9 inches—published at 7s. 6d.

Shares, ONE SHILLING each.

To be had of all Printers and Stationers, from the Agents, and from Members of the Committee.

(By order,) M. ANGELO HAYES, Secretary,

4, Salem Place, Dublin.

On receipt of Postage Stamps and a Stamped and Directed Envelope, Tickets will be forwarded by the Secretary.

All letters of inquiry must enclose a Stamp.

## WILLIAM TURNER,

## OXMANTOWN FOUNDRY AND IRON WORKS,

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Cast-Iron GIRDERS, Plain and Ornamental PILARS, Moulded and Plain GUTTERS, Tank Plates, Gas Retorts and Pipes, Kitchen Range Work, Millwright, Castings, Balconies, Brackets, Staircase Ballusters, etc., supplied. A large variety of Models for the above in stock.

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MAIDEN-LANE, HOLLOWAY, N., LONDON.

ESTABLISHED 1838.

F. and Co. beg to call attention to their reduced Price List of Varnishes, as under:—

	Per Gal.
Fine Elastic Oak or Wainscot, a durable and brilliant Varnish for Oak or Grained Work and Paper Hangings	7 6
Fine Copal Oak, a pale transparent highly-polishing Varnish, for all out-door work	9 6
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Fine Paper, a pale and glossy Varnish for papered walls	6 6
White Copal, a colourless and durable Varnish for light Sienna, grey, or white marbles and papers with very light grounds, much in request	10 0
Ground Colours always in Stock at equally reasonable prices.	

F. and Co., in their Printing Ink and Vegetable Lamp Black Department, have also made every reduction consistent with retaining their long-earned credit for quality. Price forwarded on application.

Carriage paid to Dublin on Orders of £5 and upwards. P. O. Orders to be payable at York-road King's-cross, N.

## THE NEXT LIVERPOOL PERIODICAL

AUCTION SALES OF MAHOGANY and other FURNITURE WOODS, will take place on Thursday and Friday, the 4th and 5th June, 1863, commencing each day at Twelve o'clock at noon precisely, in the Wood Sales Sheds, Brunswick and Tottel's Docks, when the following Woods, now landing, will be sold, and to which will be added other Woods meantime expected to arrive:—

280 Logs Honduras Mahogany, containing 150,000 ft., being the Cargo now landing, ex "Emerald," from Honduras;  
171 Logs and Curls City St. Domingo Mahogany,  
35 Tons Lignumvita,  
now landing, ex "Velos," from the city direct;

and if not previously sold by private bargain, parcels of Mahogany and other Furniture Woods withdrawn from last Auction Sales.

EDWARD CHALONER,

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## TO RAILWAY ENGINEERS, CONTRACTORS OF PUBLIC WORKS, ETC.

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"Unequalled for Durability, Cheapness, and ease of Fixing."

**MOREWOOD & CO.'S PATENT CONTINUOUS ROOFING SHEETS**, of Galvanized Iron, "Fire Proof," made in all lengths, from 50 feet upwards, and 2 feet wide, for the covering of Farm and every other description of Out-buildings, can be fixed with the same rapidity and ease as Felt, and at a less "total" cost. All particulars obtained of the Patentees' Agent for Ireland,

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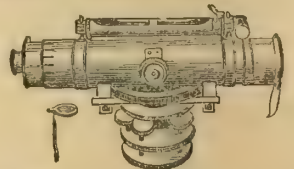
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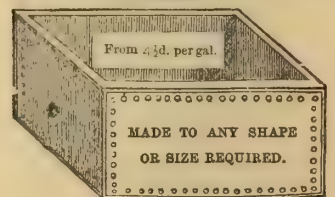


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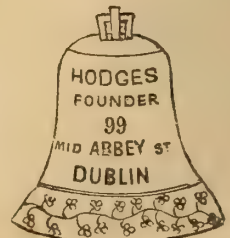
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# The Dublin Builder.

VOL. V.—No. 84.

## ARCHITECTURE AT THE ROYAL HIBERNIAN ACADEMY.

ALL things considered, the collection of architectural drawings in the Academy Exhibition this year is a decided improvement on past displays, although it by no means adequately represents *even yet* the ability of the architects of Ireland. We, however, hope that as the step so far made is of a progressive rather than a retrograde character, each succeeding exhibition will be better and better, and that never again in the Academy's annals shall we be afforded the opportunity of criticising so specially as our duty painfully compelled us to do on previous occasions, the manifest apathy of our local practitioners in contributing to this department of the Exhibition. The force of example is very powerful, and naturally enough the members of the architectural profession, who are not members of the Academy, withheld their contributions when they found the Academicians themselves not amongst the exhibitors; but with this year there certainly seems to be a new era inaugurated in the architectural section, for we find that each of the Academicians, viz., Messrs. Murray, McCarthy, Mulvany, and Deane, have contributed more or less to the collection. Most reasonably, we submit, may an exception be made to what, in the case of the gentlemen named, ought to be a requirement conditional with academicianship or associateship either, in favour of the other venerable octogenarian member of the profession to whose name the title of R.H.A. is appended, and we heartily wish him his honours without restriction.

As usual, the architectural drawings are placed in the sculpture room, which is only an appendage to the other apartments, and little better than a mere passage room. This we have already pointed out to be to our mind a mistake, for there is a necessary rigidity and coldness about all architectural drawings generally, that are rendered more apparent after the eye has been feasted on the bright colouring and richness of oil paintings; besides, architects don't like to see their works placed in an apartment which not one-half the visitors to the Exhibition think of entering. Probably some modified arrangement in future might be worth the consideration of the Council?

Inspecting the drawings in the order of the catalogue, we come first to No. 454, a design for a villa in the Tudor style, by Mr. Charles Papworth, but which we presume is one of that gentleman's earliest productions as it exhibits neither careful study in the design, nor labour in the execution. Mr. E. H. Carson contributes the entire series of his admirable drawings for the Dublin Exhibition Palace and Winter Garden, which for a long period engaged the attentive consideration of the committee of that project. The general composition of the principal façade strongly resembles the style of the Louvre, and, on the whole, has a most pleasing effect. In the foreground some figures are introduced, which denote the skill of a first-rate artist, of whom we had occasion to speak specially in our last number. The plans, drawn to a small scale, are very neat, and the arrangements are about the best of any submitted in that memorable competition. After all it is a sort of melancholy satisfaction for an architect to know, that, even though he may be unfortunate in gaining the day, his abilities are appreciated by an admiring public, and that, directly or indirectly, his labour may not be altogether lost in establishing a reputation for himself.

No. 456, showing Mr. J. McCurdy's design for Edmuntstown House, Co. Mayo, is a well worked-up drawing, with some peculiar and uncommon features. We are not surprised that No. 457 should have proved an unsuccessful design by Mr. J. S. Mulvany, for altering the Mariners' Church at Kingstown—being an inferior composition, and unworthy of that gentleman's well-known artistic ability. Mr. Atkins, of Cork, in his designs for the proposed Cathedral,

maintains his reputation as an architect of great taste,—the interior view (No. 470) being a remarkably able design, and the perspective beautifully worked up. On the exterior (No. 458) a massive but well-relieved tower and spire rises from the cruciform intersection of the nave and transepts, and plate tracery is employed throughout in the opens with great effect. Mr. Jones's successful design for the Dublin Exhibition Palace (No. 459) is an object of special interest, forming a very handsome picture. It is much to be regretted that this design is not to be carried out in its integrity, for it reflects the highest credit on Mr. Jones's ability.

In another portion of this journal we give a description of the work as contracted for.

Designs for altering the National Bank in College Green externally, and for a new cash office now in progress thereat, are shown in a couple of well-executed sketches by the architect, Mr. Geoghegan.

Mr. McCurdy also exhibits a view of a castellated entrance front to Knockdrin Castle, which we doubt not will look very bold and effective. The Kingstown Mariners' Church improvement is again the subject of a drawing by Mr. Drew, a young architect of uncommon talent, whose manipulatory skill is employed likewise on a drawing contributed by Mr. Murray, showing the latter gentleman's design for the Old Men's Asylum now in course of erection at Leeson Park, and which promises to be an acquisition.

Want of space compels us here to quit our notice for the present, with intention, however, to return to it in next number.

## TOWNS' SURVEY.

MULLINGAR.

WE were much surprised, during a recent visit to this important town, to find literally nothing doing in the way of local improvements, and, as far as we could learn, nothing even in contemplation. It is, however, to be admitted, that the general aspect of the town is healthy, the streets are well kept, the shops having generally neat and cleanly fronts; the main thoroughfare is more than ordinarily spacious, lanes and alleys are less frequent than in other towns, and the sanitary arrangements are less open to restriction than elsewhere. The inhabitants have also the advantage of gas-light, but pay far too dearly (7s. 6d. per 1,000) for it, we presume owing to monopoly. Of the existing buildings we jotted down the following few particulars.

The most remarkable and the most conspicuous structure is the Hevey Institute—more commonly known as St. Mary's College. This establishment, which is one of the most considerable of the public endowed schools in Ireland, was founded and endowed by the late Mr. James Hevey, of Mullingar. The building shows three fronts, and is executed in black and white limestone; the principal front being divided into five compartments, with three projections, surmounted by corniced pediments; and over the central projection rises an open campanile 80 feet high, surmounted by pediments and a cross. The plan of the building is in the shape of the letter E; the principal front extends 140 feet in length, and the wings return each 100 feet—the central portion between the wings is devoted exclusively to a convent for Christian Brothers, and contains in the basement the refectory, stores, and culinary offices; the principal floor contains the entrance hall, reception rooms, museum, library, and community rooms. The upper storey contains ten sleeping apartments, oratory, &c. Corridors traverse the entire length between the wings on each storey. One of the wings contains four school-rooms, each 40 feet long, together with halls, passages, and staircases. The schools accommodate from 600 to 800 free scholars, under the management of the Christian Brothers. The opposite wing contains a large study hall for advanced pupils, class-rooms, &c., together with dormitory, refectory, &c., for ten selected pupils who will be educated and supported by the establishment. This wing also contains a commodious and distinct dwelling for the professors who have charge of the advanced pupils. Mr. Davis, of Trim, was the contractor for the building, and Mr. John Bourke, the architect.

The Roman Catholic Church is a large and substantial building, cruciform in plan, with a square bell tower 100 feet in length, but without any architectural pretensions. Adjoining the church is a convent occupied by a community of nuns; it is a large and very plain structure, containing every extensive schools, which accommodate many hundred female children educated by the nuns.

A large military chapel has been lately erected in connection with the barracks. The style of the building was intended to be Mediæval, but it may be said to be literally Gothic, and is a melancholy example of the complete success with which Christian architecture can be caricatured.

The Lunatic Asylum, erected some ten years since, is a most important building, with an extensive frontage of pleasing and broken outline, showing a centre and gabled wings with intermediate projections of Tudor-Gothic design. Mr. J. S. Mulvany was the architect.

The railway station, which is constructed to accommodate the traffic both of the main line of the Midland Great Western Railway, and of the branches to Cavan and Longford, is peculiarly well arranged and commodious. There is hotel accommodation as well as excellent refreshment rooms therein, the whole being under the management of Mr. Jude, jun.

## LEINSTER LAWN AS A SITE FOR THE PRINCE CONSORT MEMORIAL.

As the Corporation are not disposed to hand over Stephen's-green to the Woods and Forests, as proposed in the bill promoted by Mr. Sharkey, we must consider the project of opening Stephen's-green in connexion with the erection therein of an Albert Testimonial as abandoned for the present. Where, then, is the memorial to be erected? I believe that there can be no second opinion that Leinster Lawn is not only the best but the only place which could be fitly devoted to the purpose. On either side are the new buildings—the National Gallery and the Museum respectively—erections which, if not immediately suggested by the late Prince Consort, were the result of direction imparted by him to public opinion to favour not only in Dublin but elsewhere the widest possible diffusion of a knowledge of science and art among the people. The statue or other testimonial might stand upon the precise spot where in 1853 the Queen and her illustrious Consort honoured Irish industry, in the person of William Dargan, by publicly complimenting him on the exalted patriotism and public spirit he displayed in the erection of the Dublin Exhibition Building. But there is yet more. The erection of the testimonial on this lawn necessitates its being thrown open to the public—a measure urgently called for—to render the new buildings as accessible as they ought to be to the public. A central gate facing Merrion-square, opening to well formed walks leading directly to the facade of the National Gallery on the one side and the Museum on the other, is an arrangement which common sense points out as the suitable one. The lawn thus utilised might be adorned with statuary, a jet-d'eau, and some rare and beautiful specimens of the vegetable kingdom—all forming additional testimonials to the virtues, the goodness, and the enlightened spirit of the late Prince Consort. But the fair vision must be dispelled, as the rights of property of the Royal Dublin Society in the place must not be interfered with! Let us very briefly discuss this matter. According to "Statement A," prepared by the Council of the Society in June, 1862, "showing the distribution of the Parliamentary grant of £5,500 to the several departments of the society," the item of £300 appears for "rent and insurance" of premises at Kildare-street. Now, by reference to "Appendix No. 3" of the society's report for 1860, I find these items stated more in detail, as "rent of lawn, &c., £252 9s. 9d.," "insurance on premises, £63 10s. 10d." Well, what is the opinion of the House of Commons, the body who vote the money to pay for this lawn, &c.? I quote the seventh resolution of the Select Committee of the House in 1836, adopted unanimously—"That the Museum, Botanic Garden, and the Lawn should be opened to the public under such regulations as the council may form." If this resolution was passed in 1836, before the erection of the National Gallery and Museum on the lawn, what may we conjecture would be the resolution of the House now?

## TIMBER TRADE.

(From commercial article in Freeman's Journal.)

AT Messrs. Martin's timber sale on Thursday last there was a very large quantity of goods sold, and though prices seemed very low, the increased disposition on the part of contractors and the trade to make purchases was very visible. The following is an abstract of the goods sold:—

25,080	pieces	St. John spruce deals, planks, and battens,	£12 to £14 5s. per 120 of 12 9 3.
3,050	do.	do., in miscellaneous lots,	£10 10s. to £12 17s. 6d.
3,200	do.	damaged spruce and scantling,	£9 12s. 6d. to £11.
1,250	do.	1st quality Quebec spruce,	£16 15s. to £17 10s.
950	do.	2nd quality do.	£13 17s. 6d. to £14 15s.
730	do.	1st and 2nd Quebec scantling,	£11 to £13 7s. 6d.
410	do.	9" 1st quality pine,	£17 10s.
650	do.	9" 2nd do. pine,	£14 to £15 2s. 6d.
3,235	do.	1st and 2nd red Norways,	£19 to £22.
720	do.	2nd quality do.	£15 to £17 10s.
840	do.	4th quality do.	£15 to £15 15s.
200	do.	small Memel, in miscellaneous lots,	50s. to 55s.
378	do.	1st and 2nd quality Memel,	55s. and 65s.
30	do.	St. John birch,	60s.
55	do.	St. John and Quebec pine,	52s. 6d. to 62s. 6d.
41	do.	red pine,	70s.
34	fathoms	Memel lathwood,	at £6 10s.
50,000	sawn	laths, 17s. 6d. to 22s. 6d. and 25,000 pickets,	40s. to 42s. 6d.

## CONSTRUCTION OF CHELSEA SUSPENSION BRIDGE.

At a recent meeting of the Society of Engineers Mr. Geo. Gordon Page read the following paper on this subject:—

The Chelsea Suspension Bridge, which has been opened to the public for the last five years, is a bridge remarkable in many respects; and which, in point of design, mode of construction, and economy of cost, presents features of great interest.

In the year 1846 an Act of Parliament was obtained, and the necessary funds granted for the construction of this bridge, which forms a communication between Pimlico, Belgravia, and Chelsea on one side of the river, and Battersea Park and the surrounding neighbourhood on the other.

In addition to the design for the suspension bridge, the engineer, Mr. Page, was instructed to prepare, for the consideration of the Metropolitan Improvement Commission, designs both for a bridge of seven arches, faced with stone, and one in cast iron of five arches; but, ultimately, the Chief Commissioner of Her Majesty's Works decided to carry into execution the suspension bridge originally mentioned in the Act.

### General Dimensions.

The length of the Chelsea Bridge is 704 feet from face to face of abutments: it consists of a centre opening of 333 feet, with two side openings, 166 feet 6 inches each. The piers are 88 feet long, and 19 feet wide, terminating in curved cutwaters: the piers are carried to a height of 7 feet 6 inches above high-water mark: the width of the bridge is 47 feet: the roadway at the centre of the bridge is 24 feet 6 inches above high-water, and has a curve of 18 inches rise, commencing at the abutments. The towers and ornamental castings are of cast iron. The girders and flooring of the platform are of wrought iron.

### Of the Abutments.

Too much attention cannot be bestowed on the abutments of a suspension bridge, as on their careful consideration and construction so much depends.

The abutment is the mass of masonry, or in some cases of natural rock, to which the extreme ends of the chains are made fast, and by the weight of which the strain from the chains is resisted.

The principles of the stability of the abutment of a suspension bridge are the same as those of the abutment of an arched bridge, but reversed.

In the former there is a tendency to upset or slide forward instead of backward, as is the case in the latter. The weight or gravity of the abutment should always be sufficient to prevent it from sliding on its base, and its form and dimensions should be sufficient to prevent it from upsetting. The tendency to sliding forward may be considerably lessened by making the base of the abutment, or a portion of it, slope so as to be at right angles, or nearly so, to the resultant of pressure.

Of all parts of a suspension bridge the abutments are the last in which solidity and stability should be sacrificed to motives of economy.

The weight of the abutment should be equal to resisting twice the utmost strain that can be brought upon the chains by dead weight; and the total power of resistance, combining the weight and the tendency of the abutment to slide from the ground on which it stands, should be at least equal to four times the utmost strain that can be brought upon it.

The resistance offered by the adhesion of the abutment to the ground on which it stands depends entirely upon the nature of that ground, and cannot by any general rule be accurately predetermined.

When piles are used in the foundation, they should be driven at an angle approaching as near as possible to the direction of the resultant of pressure.

With regard to the saddles on the abutment, by the aid of which the direction of the chains is changed, it is not always necessary to place rollers under them; but, as they must be capable of sliding to a sufficient extent, other means are sometimes resorted to in bridges of short span, and the saddles are sometimes laid on a bed of asphalted felt. In large suspension bridges rollers are, however, universally used, to allow for the expansion and contraction of a necessarily large extent of chain.

As it is most important that the chains or wire cables of a suspension bridge should be kept free from rust, the tunnels in the abutment through which the chains pass down to their fastenings are generally constructed of such dimensions as will allow of space for access for the purposes of examination and repair if required.

The abutments of the Chelsea Bridge consist of a mass of brickwork and concrete, measuring at the base 112 feet in length by 56 feet broad, and at the top 100 feet by 46 feet, and 40 feet deep.

The face of the abutment adjoining the river is composed of cast-iron piles and plates, somewhat similar to those of the pier, with the exception that the ironwork is not brought above the level of low water.

The portion of the abutment on which the land saddles and cradles bear, for changing the direction of the chains, rests upon timber piles, 14 inches square, driven deep into the bed of the river, and are from 3 feet 2 inches to 4 feet from centre to centre. These piles are cut off at the level of low water, 16 feet below Trinity high-water mark, and the spaces between filled up with hydraulic concrete. The cast-iron and timber piles are tied together with wrought-iron ties, 3 inches by  $\frac{3}{4}$  inch. On the top is hedged a series of landings, forming a table at the level of low water 53 feet 6 inches by 27 feet 6 inches, upon which a mass of brickwork is erected up to a mean level of 3 feet below the level of the roadway. Upon this 12-inch landings are bedded for the reception of the cradles which carry the saddles on rollers. The cradles are bedded in asphalted felt, and firmly secured by wrought-iron holding-down bolts, brought up through the masonry from below. An invert, springing from beneath each saddle, is built in the brickwork below, so as to distribute equally the pressure from the cradles over the whole area of the foundation.

The mooring-chains are carried down tunnels to the moorings, the tunnels forming an angle of 155 degrees with a horizontal line. The chains are secured to massive cast-iron mooring-plates, resting against three courses of 12-inch landings, respectively 12 feet by 8 feet 9 inches, 16 feet by 12 feet 6 inches, and 20 feet by 16 feet 3 inches. The tunnels are contracted at the bottom by elliptical brick domes, thus affording a complete bearing for that portion of the landings at the end of the tunnel. These landings rest against a mass of brickwork, with inverts, to distribute the pressure over the whole area of the abutment. This mass of brickwork rests on a series of timber piles, driven at the angle of 65 degrees with a horizontal line; the tops of the piles coming up above the level of the concrete, struts, and ties, and having a good bond with the brickwork, by which means the tendency to slide is greatly diminished, the whole space between the masses of brickwork being filled up solid with concrete.

### The Pier Foundations.

The construction of the foundations of the piers combines all the advantages of foundations on bearing-piles, made by means of coffer-dams, without the expense and obstruction to the waterway which they involve, and which would have rendered their use at Westminster Bridge all but impracticable.

The foundations of the piers consist of timber-bearing piles, 14 inches square, driven deep into the bed of the river at intervals of 3 feet over the whole area of the pier, varying in depth from 40 feet 6 inches to 25 feet below the level of low-water, according to the resistance offered by the bed of the river.

The face or external surface of the piers consists of a cast-iron casing of piles and plates driven alternately. The main piles are 12 inches in diameter and 27 feet long, with longitudinal grooves on each side for the reception of the plates. These piles are driven to a uniform depth of 25 feet below the level of low-water, and between them are driven cast-iron plates or sheeting 7 feet 2 inches wide, so that the pier is entirely cased from the foundations to the top, which is 7 feet 6 inches above Trinity datum. The space enclosed by this casing is then dredged to the hard gravel above the clay, and filled in solid with concrete up to the level of the top of the timber piles. On this foundation a flooring of stone landings is bedded, and on this the cast-iron plates, frames, &c., forming the base of the towers, are placed.

The portion of the caisson situate above low-water is hollow, being so formed to avoid throwing useless weight on the foundation, and is merely lined with brickwork, strengthened by cross walls and iron ties.

The whole of the ironwork below the water was covered when hot with a protecting coating of tar. The thickness of metal in the caisson is 1 inch.

### Of the Towers.

The towers which support the chains are entirely independent of the ornamental cast-iron casing surrounding them, and consist of a cast-iron columnar framing strongly braced both horizontally and vertically, carried to a height of 57 feet above high-water.

The columns are cast in pairs, and have a diameter of 10 inches, and thickness of metal 1 inch. They are arranged in clusters of fours, and the whole are connected with six horizontal frames, occurring at intervals. The columns are not verti-

cal, but incline towards each other upwards from either side of the pier, the columnar framing being 13 feet 6 inches at the base, and 9 feet 9 inches at the top. In the direction of the piers the columns are 4 feet 3 inches apart, and rise parallel to each other. There are two towers on each pier, 32 feet from centre to centre. The pressure from the chains coming directly from their centre, each tower carries therefore one-fourth of the whole weight of the bridge, or about 375 tons, or about 670 tons when the bridge is completely loaded: the sectional area of the columns is 284 square inches, and there is, therefore, a pressure upon them when the bridge is loaded of 2.36 tons per square inch of section. The weight of the towers, exclusive of the ornamental cast-iron casing, is 350 tons.

On the towers are fixed massive cast-iron cradles upon which the saddles rest.

### Of the Platform and Roadway.

The roadway platform is carried by two longitudinal trellis girders, running the whole length of the bridge from abutment to abutment, immediately beneath the chains, by which they are supported at intervals of 8 feet. These girders are suspended from the chains by wrought-iron rods 2 inches in diameter.

The weight of the roadway is distributed over the whole of the four chains by the coupling plates to which the rods are attached: the rods are jointed at the chains and at the roadway to accommodate any lateral motion that may occur, and are provided with screw coupling-boxes for their adjustment: the suspension rods pass through the longitudinal trellis girders, and support them from beneath.

The transverse girders which support the roadway are placed 8 feet apart from centre to centre, immediately under the suspension rods, and bear upon the bottom flange of the longitudinal girder; are 31 feet 10 inches long, 2 feet 2  $\frac{1}{2}$  inches deep at the centre, and 1 foot 11 inches at the ends, where they are connected by a system of riveting with cantilevers 7 feet long, which practically form a continuation of them, and serve to support the overhanging footpaths: the sectional area of the top and bottom flanges is 10 inches, and the vertical rib  $\frac{1}{2}$  inch thick, stiffened with T-iron.

The small roadway bearers between the transverse girders are from 3 feet 3 inches to 3 feet 10 inches apart, 8 feet long, and vary in depth from 1 foot 5  $\frac{1}{2}$  inches to 1 foot 9  $\frac{1}{2}$  inches, to suit the cambered surface of the roadway.

The several girders that support the roadway thus form a series of rectangular cells, which are covered with arched plates of wrought iron, stiffened with angle iron.

The haunches of the plates are filled in with a light concrete, composed of cork and bitumen. Previous to laying the bitumen concrete, the plates and girders are coated with asphalt.

The roadway is paved with oak blocks, 6 inches by 3 inches by 4 inches, bedded in bitumen, and trams of timber, flush with the roadway, with wrought-iron strips bolted down on the top for durability.

The preference was given to the cork and bitumen concrete as a bedding for the roadway blocks, on account of lightness compared with ordinary concrete. Concrete, moreover, in such a position, and in so thin a layer, is liable to crack, and become in time pulverised, and (then no better than loose gravel) liable to be deranged by passing traffic.

The footpaths are paved in the same way, only the blocks are of smaller dimensions. This pavement rests on planking placed on joists running longitudinally, resting on the cantilevers. The available breadth of the carriage-way is 29 feet, and footpaths 14 feet 4 inches.

The longitudinal trellis girder is 6 feet deep, and its flanges are composed of a top plate 10 inches by 1  $\frac{1}{2}$  inch, and two angle irons, 3  $\frac{1}{2}$  inches by 3  $\frac{1}{2}$  inch by  $\frac{5}{8}$  inch thick: the effective area of the top and bottom flanges is 12  $\frac{1}{2}$  square inches.

This girder materially stiffens the roadway, and prevents, in a great degree, that undulation to which suspension bridges are liable.

The handrail is of wrought iron, secured to the cantilevers at every 8 feet by brackets. The ornamental bosses and stays for supporting the railing are of cast iron.

### The Chains and Saddles.

The chains of the Chelsea bridge are four in number, two being placed on either side, at a distance apart of 32 feet. They consist of links of seven and eight bars alternately, 8 inches wide, and of lengths varying from 16.55 feet at the towers to 16 feet at the centre of the span, so as to admit of a uniform horizontal distance of 16 feet from centre to centre of the pin-holes of each link, and are connected by pins 4 inches in diameter. The aggregate section of the four chains at the towers is 230

square inches, and at the centre  $217\frac{1}{2}$  square inches. The span of the centre opening is 348 feet, and the deflection of the chain is 29 feet. The semi-span of the back chains is 183 feet, and the deflection 30 feet 6 inches. The length of the chain for the centre opening is 354 feet 5 inches, and the length of each of the back chains 186 feet. The mooring chains are placed at an angle of 25 degs., and are 95 feet long, and have an aggregate section of 235 square inches. The total weight of the chains is 340 tons. The chains are carried over the towers by means of saddles formed of No. 8 1-inch wrought-iron rectangular plates, 5 feet 8 inches long, and 2 feet 10 inches wide, placed at intervals of 1 inch apart, and bolted together by No. 10 bolts. The bottom edges of the plates are planed, and are let into a cast-iron plate 4 inches thick, also planed on its top and bottom surface, and which moves on ten 6-inch diameter steeled rollers, working on the cast-iron bed-plate fixed at the top of the towers. The chains are connected to the saddles in the same way as the links of the chains are connected together. At the abutments the chains are diverted down the tunnels by means of saddles of similar construction to those on the towers, based on cast-iron cradles, and placed at right angles to the resultant of the strains.

For mooring the chains the following means were adopted:—As has been observed in the description of the abutments, the tunnels for the mooring-chains are closed at the bottom by elliptical-shaped brick domes, against which the York landings are placed at right angles to the angle of inclination of the mooring-chains. The chains pass through holes formed in the centre of the landings (the dimensions of the landings were stated in the description of the abutments). A brick semi-circular arch or invert springs from the outer face of the landings, and connects the two sets of landings of each abutment together, by which means the whole weight of the middle portion of the abutment, it will be seen, is made to resist the pull of the chains. The chains are secured by means of castings, 21 inches deep, abutting against the landings, and are divided, each into four compartments, rather more than 2 inches wide, through which the chain-bars (here put two and two together) pass, and are moored by keys driven through the heads of the bars, and bearing against the mooring castings. Keys were here used instead of pins, to allow of an adjustment in the length of the chains. Similar means for adjusting the lengths of the chains were made at the saddles on the towers, but were not needed.

In calculating the length for the chains the curve may be assumed to represent a parabola, though, strictly speaking, the curve of the chains is peculiar to the construction; but, deduction being made for the stretch due to the tension caused by the appended weight, the weight so deducted will be found practically correct. Care should be taken to ascertain the exact distance of the span, as a small error in the horizontal distance will cause a serious error in the amount of deflection. It is well to provide for any discrepancy of this kind by leaving the centre links of the chains the last to be rolled; when, the error being known, it can be rectified without any serious interference with the rest of the construction.

For the erection of the chains four temporary chains were thrown across, made of 2-inch round bar-iron, and placed one on each side of the line of the chain to be erected. Upon these temporary chains travelling purchases worked, by which the bridge chains were hoisted and put in place. Four other and similar chains were thrown across beneath the former mentioned ones, to which timber platforms were suspended, and which served to carry the bars of the chains until the connection of the links was complete. In the hope that the description may be acceptable, a few observations are subjoined respecting the manufacture of the bars.

The bars for the chains of the Chelsea Bridge were manufactured by the process patented by Messrs. Howard & Ravenhill, by which the head and body of the bars are rolled of one piece, and was effected as follows:—Piles, or, as they are technically called, balls of cleansed scrap iron, of about  $\frac{3}{4}$  cwt. each, were heated (eighteen balls being the usual charge) in a reverberatory furnace of ordinary construction, and afterwards hammered into slabs about 2 inches thick by a 4-ton wrought-iron hammer. The slabs, while still hot, were then piled in sets, of the weight required for the respective bars, and again heated and hammered into oblong masses of iron called shingle, somewhat wider than the width for the bars, and about 2 feet 9 inches long. The time required for heating the balls of scrap was one hour and a quarter; that is, so much time elapsed from the time of charging the furnace to the withdrawal of the first ball; and the time required for hammering the eighteen balls into slabs was three quarters of an hour. It may therefore be observed, that the last ball withdrawn was

nearly twice as long in the furnace as the first ball was; and it may, consequently, be supposed that some of the balls of scrap were too much and others too little heated; but the precautions adopted in the management of the furnace prevent any great irregularity in this respect. The balls first withdrawn were placed nearest the furnace; and, as withdrawn, the remaining balls were pushed nearer the furnace, or otherwise, as their state required. The time for hammering a pile of slabs into shingle was about five minutes. By the two heats and hammerings the loss of iron was about 13 per cent.; and after the shingle was rolled into bars the total loss of iron was 20 per cent.; that is, the bar weighed one-fifth less than the scrap iron weighed from which it was manufactured. For converting the shingle into bars of the required form the shingle was heated to the required temperature in the furnace of the rolling-mills, and was then passed longitudinally through rollers till reduced to a width of 8 inches, and to a thickness of  $2\frac{3}{4}$  inches. It was then transferred to other rollers, and passed through sideways; these rollers being so constructed as to act only on the extremities of the bar, which, by this means, were spread out to the width required for the heads. The bar was then passed again longitudinally through ordinary rollers, till reduced to the length and thickness required, after which, while still hot, it was straightened by being beaten with wooden mallets. The time required for rolling a shingle into a bar was eight minutes.

The next process was boring the pin-holes. In doing this the bars composing each link were placed one on another, and bored by one operation, by which means uniformity of length was obtained. Shearing the heads of the bars to the proper form was the next operation. To do this the bars were fixed eccentrically on a table revolving in contact with shears, which, as the table turned, cut off the superfluous portions of the heads.

Every bar of the chains at this stage was tested with a strain of  $13\frac{1}{2}$  tons per square inch; the contract requiring, in order to insure material of the best quality, that the iron used should stand this strain without a permanent elongation of more than one-fortieth of an inch in a ten-feet length; it having been found from experiments made that up to this strain the best commercial iron did not extend more than the very best iron that could be manufactured. It may be observed, that notwithstanding this amount of strain very few of the bars had to be rejected.

The last process in the manufacture of the chains was numbering the bars and lettering the links, that there should be no mistake in erecting the chains, as to every bar being in its proper place. A few words will suffice to explain how this was carried out. The chains were divided into eight portions, and named A, B, C, D, E, F, G, H, respectively. The chain A extended from the moorings on one side to the centre of the bridge, where it was joined by the chain B, which continued to the moorings on the other side, and so of the other three remaining chains. The heads of every bar of every link were then stamped with the letter of the chain to which it belonged, and numbered; the heads of the first links at the moorings being numbered 0, and the heads at the other extremity of these links 1. The heads of the second series of links were numbered 1 and 2; of the third series 2 and 3; and so on throughout the whole length of the chains. The bars of every link were also numbered 1, 2, 3, 4, 5, 6, 7, 8, showing the position they occupied in the link during the operation of boring.

The engineer considered it highly advantageous to the successful completion of this part of the bridge that the chains were prepared by Messrs. Howard, Ravenhill, and Co., who spared no pains and no expense to carry out his instructions to produce a perfect structure; and so far from their making any attempt to evade any condition of the contract for their own advantage, the perfection of the work was their chief consideration.

It will show the excellence of the iron they produced to state that, whereas the late Mr. Barlow deduced that the stretch of iron was at the rate of one-ten-thousandth part of its length for each ton, the iron which Messrs. Howard, Ravenhill, and Co. produced for the chains of the bridge only stretched from one-fifteen-thousandth to one-fourteen-thousandth part of the length per ton, being above fifty per cent. less than Mr. Barlow's.

As so much depends upon an honourable contractor in the execution of a work, Mr. Page authorized me to make these observations in justice to Messrs. Howard, Ravenhill, and Co.

#### Of the Probable Load.

Before considering the degree of strain to which the chains are liable, it would be well to investigate the amount of load to which a bridge may be subjected.

M. Navier, a great authority on suspension bridges, calculated the load likely to occur on a bridge at 42 lb. per square foot. The standard proof for suspension bridges in France is 200 kilogrammes per square metre, which amounts to 41 lb. per square foot, the proof load required by the French Government.

For troops on march, 21 inches in rank and 30 inches in pace are allowed, giving 4.37 superficial feet per man; which, at 11 stone each, would be  $35\frac{1}{4}$  lb. per square foot.

The load taken in the calculations for the Menai Bridge was 43 lb. per foot super.

An experiment was made by the engineer of the Chelsea Bridge, by packing picked men on a weigh bridge, with a result of 84 lb. per superficial foot; but it is not within the limits of probability that such a crowd could accumulate on any bridge.

Seventy pounds per square foot of platform are assured as a standard for the load that may come on a bridge, as being the utmost load that the platform could hold; supposing it, in fact, quite filled with people crowded as close together as they could be. This, it is true, is not often likely to happen; but it may do so on a public occasion, and needs, therefore, to be provided for.

The march of cavalry, or the passage of cattle, is not so productive of dangerous effects as troops on the march, inasmuch as cavalry take up more room in proportion to their weight, and do not preserve a uniform pace.

As regards the greatest moving load or crowd, it is an acknowledged fact that it is impossible for a body of people on the move to occupy per man less space than trained troops; and as I have before shown that troops on the march do not produce a greater dead weight than  $35\frac{1}{4}$  lb., one may safely assume that the dead weight due to a moving crowd will not amount to so much.

#### Of the Strain on the Chains.

Having described the various loads that may come upon a bridge, it may be useful to show the strain produced on the chains of the Chelsea Bridge under the several circumstances.

The strain on the chains from their weight alone is 1 1-10th ton. The strain from the weight of the platform and road alone is 3.32 tons, giving a total strain produced by the structure alone of 4.42 tons, or 9.08 tons below the proof strain.

The strain on the chains from the weight of the structure and a load of 70 lb. (being the weight per square foot of a dense crowd) is 7.60 tons—or 5.9, nearly 6 tons, below the proof strain; so that the chains will carry, in addition to the weight of the structure, nearly three times the greatest crowd that can come upon the bridge, before the proof strain is arrived at. Taking the breaking strain of the chains at 28 tons, we should require seven and a-half times the greatest possible load to be brought on the bridge to produce that strain.

Before concluding these observations on the Chelsea Bridge, it may be interesting, without taking into consideration the high quality of the iron, to compare the strain on the chains with other suspension bridges; and for this purpose I may refer to the Hammersmith and Pesth Bridges as fine examples of bridge engineering; both being built by the same engineer, Mr. Tierney Clarke, at distant intervals; the Hammersmith Bridge having been open thirty-six years, and the Pesth fourteen years.

The Hammersmith Bridge is 710 feet 8 inches between abutments, the span of the main opening is 442 feet 6 inches, the deflection is 29 feet 6 inches, the useful width of platform is 30 feet, the sectional area of the chains is 180 square inches, the weight of a square foot of road 63 lb., and the strain per sectional inch upon the chains from a load of 70 lb. is 8.86 tons; the chains were proved up to 9 tons, leaving a margin of 14 tons between the proof strain and the strain from the greatest load.

The Pesth Bridge is 1,262 feet between abutments, the central span is 666 feet; the deflection of the chains is 47 feet 6 inches, or 1-14th of the span; the available width of roadway is 36 feet 3 inches; the weight of a square foot of suspended roadway is 74 lb., and the chains have a sectional area of 510 square inches.

The strain produced on the chains with a load of 70 lb. per square foot is 7.72 tons, or 1.28 tons below the proof strain, all the bars having been proved up to 9 tons.

The margin or allowance between the strain from the greatest load and the proof strain is therefore as follows:—

Hammersmith Bridge..	..	..	14 tons.
Pesth Bridge ..	..	..	1.28 tons.
Chelsea Bridge ..	..	..	5.9 tons.

On Whit Monday last the foundation stone of a new church at Killavry was laid in the presence of a large course of people.

### LAYING THE FOUNDATION STONE OF THE DUBLIN EXHIBITION PALACE.

FRIDAY last, the 12th inst., being the day appointed for this event, a vast concourse of people, comprising our citizens of all classes even to the humble tradesman, assembled within the grounds of the proposed Winter Garden, which were suitably provided with marquees, gaily decorated sheds, &c. At a little after 3 o'clock the Lord Lieutenant, accompanied by some members of his Excellency's staff, arrived, and was received by the Duke of Leinster as chairman, Mr. Guinness deputy chairman, Messrs. Dargan (deputy vice-chairman), Vance, J. P., Gresham, Campbell, Moylan, Sir J. Power, Sir J. Bradstreet, &c., who accompanied his Excellency to a handsomely furnished tent specially prepared for his reception. The architect, Mr. Alfred Jones, was called upon to lay the plans of the proposed building before his Excellency, and to explain the principal features thereof, of which the following will be found to be a correct description:—

It will be composed of two divisions, the principal one being of stone, with a structure of glass and iron encircling it on one side and partly on another, and opening into it. The latter of these comprises the exhibition building and winter garden; the former or main building is to contain the grand concert halls, the lecture-room, reading-room, &c., and the offices of the company. The front of the main building will look towards Earlsfort-terrace, and at the rear will appear the principal elevation of the structure to be devoted to a winter garden. The front of the main building will have a pedestal, with Corinthian columns, supported by Doric pillars; along the front below will extend an elegant colonnade, with windows in the Byzantine and Italian styles. The grand entrance is underneath, and over same will be the company's board-room. The entrance admits the visitors to a central hall, 40 feet in width and 18 feet in height, leading across the entire main building, opening into the Winter Garden. Over it, on the second floor, is a hall of corresponding dimensions. A grand staircase leads from the lower to the upper central hall. These halls, which are to be decorated with Corinthian columns, divide the main building into two parts. That to the left will contain the principal concert-room, a splendid chamber intended to accommodate 3,000 persons, the length of which will be 130 feet, the breadth 65, and the height that of the building itself. Its walls will be decorated with Corinthian columns and ornamental entablatures, and will be surmounted by an elegant covered ceiling. At one extremity will be the orchestra, capable of accommodating 500 performers. A spacious gallery will occupy the other sides. This gallery is to be approached on one side from the upper central hall. To the left of the grand concert-hall, on the ground floor, will be retiring-rooms for the performers and cloak-rooms, over which will be a large dining-room, 107 feet long by 30 feet broad. An excellent plan of dividing this chamber into two parts has been devised, so that either the entire chamber or two smaller rooms can be used at pleasure. In the front of the building will extend, below and above, two corridors intersecting the main hall, both being 14 feet wide, while the lower one will be 18 feet, and the upper one 23 feet in height. On the right hand side of the building will be the second concert-room, 90 feet long by 50 broad, to accommodate 1,500 persons. This will have a gallery round three sides, the same as the other, and be approached from the upper main hall, and corridors connected with it, stretching to the right. To the right, on the ground floor, will be a general practice room for musical performers, 65 feet by 38, and over it a lecture-room of the same dimensions. The second concert-room will also have separate retiring-rooms and cloak-rooms. Both concert halls are to be pierced by numerous door-opening into the spacious corridors. Above the retiring-rooms belonging to the smaller concert-room will be situated the picture gallery, 95 feet by 22, and to be lighted from the roof. The galleries will be approached within the building by suitable staircases. The exhibition building will have a separate grand entrance from Earlsfort-terrace, and the visitor, on arriving at the end of the exhibition building, remote from the entrance, will, on turning to his left, walk directly into the Winter Garden. This is to be the larger of the glass edifices, being intended to be 471 feet long by 84 in breadth, height 60 feet, and to accommodate 10,000 persons. It will have a wooden floor, partially open at proper places for the plantation of trees and shrubs and for fountains, and will also be ornamented by statues, aviaries, and aquariums. It will be fitted with galleries 16 feet wide, approached by staircases, and also from the corridors and the central hall of the main building. One side of the Winter Garden will face the Park and ornamented grounds, and will have a large and handsome circular transept, with

galleries projecting upon a terrace without. Numerous doors from the transept and in the wall of the structure will open upon the terrace, which will look down from an elevation upon the rest of the ornamented grounds. The Exhibition Palace will cost about £50,000. Immediately in connection with the Palace Building will be "the Winter Garden," or conservatory portion thereof, on the west, presenting a handsome glass extended frontage to the Gardens of from four to five hundred feet in length, and of proportionate width and elevation. In front of this imposing façade are the principal architectural terracings and geometric Grass Garden, with its circular basins, statuary, vases, and panelings. Then, as a terminus to the central broad walk or terraced promenade, a capacious basin is being made some 80 feet across to be constructed in rustic or rockwork fashion, so that, from a second basin of minor dimensions, elevated about 14 feet to 16 feet, an overall cascade of water will be projected, and so constructed, that it may at pleasure, with facility, be illuminated, possibly in various colours. The broad margin of this rocky fountain will be tastefully studded over with a rich garniture of some of the more beautiful and spreading Alpine plants, &c. The levels of the several fountains, basins, &c., will be so adjusted that a ready circulation of the periodic supplies of water may be made continuous, falling from one to the other, and again sent by steam power or otherwise up to the more elevated large rocky fountain alluded to. The present design, when completed, the designer hopes will present a fair example of the principle he has been more or less studying in the course of his professional practice to introduce in ornamental gardening—namely, the easy blending of the bold geometric architectural foreground with the mazy softness of our so-called English curved lines, with their moundings, plantings, root and rockwork, &c.

A procession was formed, and his Excellency, conducted by the Duke of Leinster, Mr. B. Lee Guinness, Mr. W. Dargan, the other members of the committee, and Mr. Parkinson, proceeded to perform the ceremony of laying the foundation stone. When he reached the point where the stone was to be laid, Mr. Parkinson came forward and read the following address:—

**MAY IT PLEASE YOUR EXCELLENCY.**—We, the directors and shareholders of the Dublin Exhibition Palace and Winter Garden Company, beg leave respectfully to tender our grateful acknowledgments for the readiness with which your Excellency responded to our wishes in consenting to lay the foundation stone of the proposed buildings. We would very briefly on this occasion call the attention of your Excellency to the objects expected to be attained by the promoters of this undertaking. Notwithstanding the largely increased population of Dublin within the last four years, and its rank as the second city in the empire, it has long been a matter of observation and surprise that it contained no institution where the citizens might meet for the purposes of rational amusement blended with instruction—no gardens or place of assembly of a character similar to those existing in many of the continental cities. To supply this want the buildings which your Excellency has this day commenced are intended. They will comprise a winter garden, where horticultural exhibitions and promenades may be held; a concert hall, suitable for the production of the works of the great masters with an effect not hitherto attainable in this city; a smaller concert hall, adapted for the musical societies of Dublin; a gallery, for the exhibition and sale of pictures; a department for the display of manufactures and useful arts; a polytechnic museum and theatre for lectures on popular subjects, the whole to be placed in ornamental pleasure grounds, in which the skill of the landscape gardener will be displayed. Some delay was experienced in procuring a suitable plan to embrace the various objects mentioned, but the directors have much confidence that the buildings when completed will be found as advantageous and appropriate as the capital at their command warranted them undertaking. The company has been founded on sound commercial principles. The capital was subscribed in a short space of time by upwards of 600 shareholders, including, among persons of every rank, his Grace the Duke of Leinster, who has, as chairman, given the company the benefit of his valuable advice. Through the generous co-operation of our vice-chairman, Mr. Guinness, the greater portion of the land occupied by the company has been placed at its disposal on most advantageous terms, and we venture to express a hope that the Dublin Exhibition Palace and Winter Garden will prove by its ultimate success that the anticipations of its founders have not been formed in vain. In conclusion, it is a subject of much congratulation to us that the building will be commenced by a nobleman who has always given a helping hand to institutions calculated to advance the social condition of the people of Ireland, and has, in this instance, given

a marked proof of interest in our enterprise by becoming a shareholder in the company.

His Excellency said—I can assure you that I have come to the discharge of my allotted part in the ceremony of this day with special pleasure. I feel this in two capacities. In my first, as one of your brother shareholders, I cannot fail to witness with interest and hope the inauguration, under such auspicious circumstances, of an undertaking which, I trust, in addition to other advantages to which, in a moment, I will allude, will prove highly remunerative. Next, as the chief governor for the time being of this country, I cordially sympathise with the higher and more disinterested motives which have presided over the whole progress of the design. I rejoice sincerely that among the multiplied instances of the increasing enterprise and improving taste of this community among the number of ecclesiastical, collegiate, municipal, and commercial structures which rise on every side of us, one spot should be set apart for bringing rational and refined entertainment within the reach of all classes, and adding to the public stock of blameless amusement. It will, indeed, be the best, though we do not wish it to be the only, reward of the friends and patrons of this enterprise when they shall be enabled to see large numbers of their fellow-citizens, with their wives and families, issuing perhaps from humble homes, and closing the labors of the counter and the factory, in the unrebuked enjoyment of the beauties of nature and the treasures of art. The list which your address presents of the varied attractions which are to be gathered on this favoured spot, portrays an enchanted scene, where Flora is to girdle the shrine of every Grace and every Muse. I feel, however, that we have no need to resort to fable or to fancy, when we find our undertaking fostered and supported by the genial patronage of Leinster—the untiring benevolence of Guinness—the practical energy of Dargan. May the blessing from on High allow, prosper, and hallow our work. His Excellency concluded amidst loud and general applause.

Mr. Jones, the architect, and Mr. Beardwood, the contractor, handed his Excellency a magnificent trowel of Irish manufacture, made and designed by Mr. Thomas Brunker, of 111, Grafton-street. The handle is of Irish bog oak, carved with shamrocks, harp, crown, &c., and enriched with wreaths of silver, shamrocks, Irish diamonds, &c. The blade is silver, beautifully ornamented with designs emblematic of the arts and sciences, with a view of the intended palace and grounds; the whole filled in with shamrocks and other national emblems. It bears the following inscription:—

Presented to his Excellency the Earl of Carlisle, K.G., Lord Lieutenant General and General Governor of Ireland,

On the occasion of his laying the first stone of the Company's Concert and Exhibition Buildings, June, 1863.

His Grace the Duke of Leinster, Chairman.

Benjamin Lee Guinness, Esq., Vice-Chairman.

Wm. Dargan, Esq., D.V., Chairman.

H. Parkinson, Esq., Secretary.

Fred. Darley, Esq., Advising Architect.

Alfred A. Jones, Architect.

Messrs. Beardwood and Son, Contractors.

A glass jar, hermetically sealed, and containing the Dublin morning papers of yesterday's date, several coins of the realm, and a parchment scroll, on which was inscribed a statement of the origin and objects of the Exhibition Palace and Winter Garden, the names of the chairman and the other members of the committee, the names of the architect and builder, and that the first stone was laid by his Excellency the Earl of Carlisle on the 12th of June, 1863. The glass jar having been deposited in a cavity prepared for its reception, his Excellency used the trowel most dexterously in spreading mortar on the surface on which the suspended stone was to be lowered. At the proper time the first stone was gradually let down to its destined position, and his Excellency having been handed a square and plumb line of elegant workmanship, ascertained that the stone had been properly adjusted. He was then handed a mallet, made of beautifully polished wood, with which he struck the stone three times, and said, "I declare the first stone of the Exhibition Palace and Winter Garden is well and truly laid." This announcement was received with loud and long continued cheering.

The Duke of Leinster having thanked the Lord Lieutenant on the part of the committee for the honour he had done them, the proceedings terminated.

### DILAPIDATIONS.

WE understand that an important case of dilapidations is marked for trial before a special jury in the Court of Exchequer, on Wednesday next. Several eminent architects are engaged on both sides, and as the question of professional responsibility is involved, much interest is attached to the intended proceedings. The premises forming the subject of the action are situated in Middle Abbey-street.

FIG. 1.

SECTION OF RAIL &amp; CHAIR

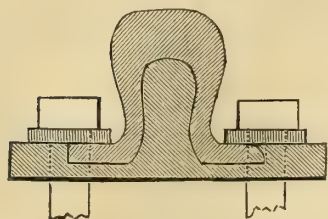


FIG. 2.

SECTION OF RAIL



FIG. 3.

PLAN OF RAIL &amp; CHAIR

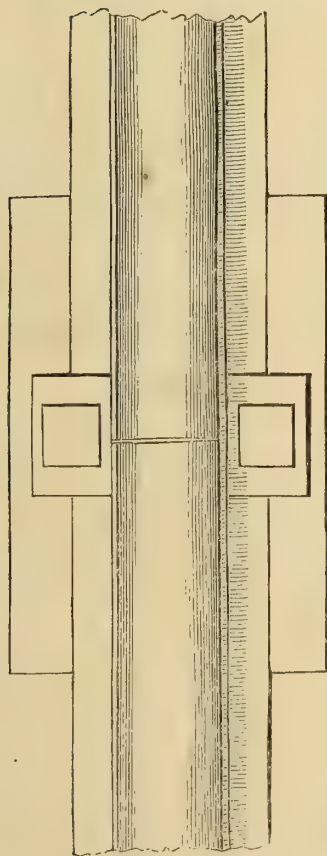


FIG. 4.

SECTION OF CHAIR

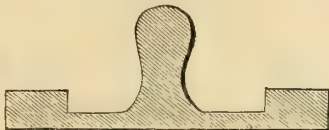


FIG. 5.

PLAN OF CHAIR

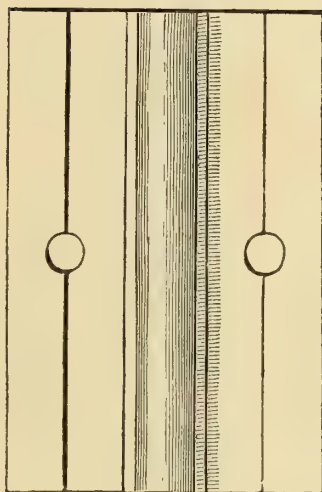
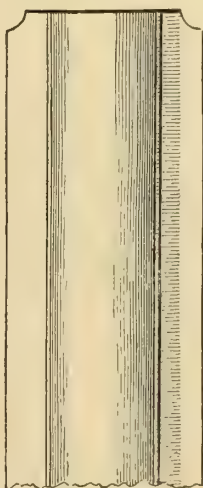


FIG. 6.

PLAN OF RAIL



Scale 2½ Inches to One Foot.

## CORBET'S PATENT RAIL AND CHAIR.

WE have been favoured by Messrs. Byrne and Lambert, solicitors and patent agents, with a full description of an invention just patented for Mr. Charles Corbet, of 69 Upper Gardiner-street, for an improvement in bridge rails and the manner of joining same. The bridge rail, which has many advantages, has been going out very much of late, we confidently believe for want of a good and economical joint; if our views be correct on this subject, no want that has been felt in the engineering world for many years has been more ably filled than this by Mr. Corbet's invention (a full sized model of which we have now before us), and in such a plain simple manner that success is visible even to an inexperienced eye.

Many disadvantages attend lines of rails laid with a faulty joint. 1st. A very unpleasant road for passengers to travel over; most of our readers will some time or other have experienced in a railway carriage a jerking uneven motion, which was caused principally by a defective joining of the rail ends together, and as about every second revolution of

the carriage wheels pass over a joint, on a very bad line, this uneven motion becomes incessant. 2nd. The injury to that expensive item as shewn in half-yearly railway reports—the rolling stock—volumes could be written on this subject alone, but as our time and space is limited we must content ourselves with a few remarks. When the complicated nature of the machinery of a locomotive is considered, the quantity of bolts and rivets used in fastening this costly work together, the immense weight when loaded to start with a train (now usually about 30 tons), the number of revolutions of the wheels per minute which bear this weight, we must come to the conclusion that any unevenness in the lines must shake the whole engine more or less according to the velocity at which she is travelling and the jerks received; the same reasoning will apply to carriages, in a less degree, and to every other description of rolling stock; consequently a bad permanent way must very much increase the item of repairs to rolling stock. There is, however, another destructive agent at work which we cannot refrain from mentioning; on a principle well known and proved by experiment, if you hang a piece of iron by a

string, and get it hammered while suspended, you will destroy the atomic cohesion of the metal, and render it quite brittle. The wheels of an engine can only touch the rail on a very small point at any time, and, consequently, when jerked over defective joints at full speed will come, to a certain extent, under the same principle; this may add to the frequent breaking of tyres and axles, which is often followed by serious consequences—too often by loss of life, coroners' inquests, actions against the company, and, in all such cases, the revenue of the shareholders must pay the attorney's modest bill on both sides and the damages. 3rd. The rails themselves (no trifle in railway expenditure, as they cost about £1,500 per mile of double line) are worn out before their time, and must be replaced out of the revenue of the shareholders.

By the use of Corbet's patent no motion can possibly take place at the joint, while perfect freedom of contraction and expansion is permitted longitudinally, so that a line of rails, no matter how long, can be made the same as if one continued unbroken rail; in fact by the use of this permanent way we believe the ends of the rails where joined will be more solid and secure than any other part, while the first cost will be less than that of any other rail now in use.

Mr. Miller, the respected engineer of that great system, the Great Southern and Western Railway Company, which all Irishmen should be proud of, and whose opinion on this point, as well as on many others, is, we believe, the first in this country, has already recommended a trial of this permanent way to his directors, who, with their usual fairness, having fully investigated its merits, ordered it to be laid down on their main line, that its advantages may be tested as soon as possible.

In conclusion, we have only to wish the inventor the success he so justly merits; and we should not be surprised to hear, in the course of time, that the dividend of the shareholders was increased on any line of railway where Corbet's permanent way is adopted.

Fig. 1 represents the rail with combined chair and internal fish in its place, which being of a dovetail shape, prevents all motion at the joint; the raised ribs on the chair, as seen more plainly in fig. 4, prevents the flanges from spreading. This rail having its sides curved inwards, will carry the force of any pressure on top inwards, which will tend to make the joint more solid and secure by wear.

Fig. 2 represents a section of the rail by itself.

Fig. 3 represents a plan of rail and chair. The bolts pass through the washers, chair, and sleeper, and would be sufficient in themselves, if kept screwed home, to prevent any motion of the rail ends.

Figs. 4 and 5 represent the chair in section and plan.

Fig. 6 is a detached plan of rail, which is slipped on to the chair, and shows the notches left to allow the bolt heads a better grip of the flange.

When this chair is used as a hanging joint between sleepers it will be made longer, and special bolts will be employed to fasten the flange of rail to the chair.

## BATHING SHEDS.

THE enervating heat to which the human frame is exposed during the continuance of the summer season generally induces, when practicable, a recourse to the counteracting and invigorating influences of open sea bathing; and the inhabitants of a city or town having such a luxury within reach must be regarded as possessing a pre-eminent advantage over those otherwise circumstanced. Perhaps in the kingdom there is no seaport town more favourably situated by nature in this regard than our "fair citie" of Dublin, flanked as she is on her north-eastern and south-eastern shores completely by a broad expanse of water, of quality, in some localities, fully equal to that of the most fashionably frequented watering-places—of a Margate, a Ramsgate, a Kilkee, &c.; yet the accommodation provided for her inhabitants who might desire a bath under "the open canopy of heaven" is most shamefully deficient. Along the coasts of even the pettiest and the poorest fishing villages of both North and South Wales may be seen comely, spacious, and freshly painted "bathing boxes," so constructed on wheels as to admit of bathers being rolled out into deep water, and taking "a header" without the necessity of wetting their feet previously—an advantage of "the bath," we believe, universally admitted by the faculty—but in the immediate vicinity of this great crowded metropolis there is not only no such accommodation, but our bathing boxes are an outrage on "common decency."

Within two English miles—walking distance—of the heart of the city, both in the northern and

southern suburbs, extends a coast on which the sea bi-daily ebbs and flows, not so pure, admittedly, as further onwards, but sufficiently so to contribute refreshment by ablution, and to brace up the wearied persons of those who work for their daily bread, and can neither afford time nor money to expend in railway or other travelling in search of better water. True, that at both of the places referred to, viz., Clontarf and Sandymount respectively, there are provided by private speculators suitable "baths," to which access may be had for a comparatively small charge (we believe 4d.), and which are by suction pumps supplied with seawater from the adjoining shores, and for the more independent classes of the community these may be suitable in every respect. But the tradesman, on his 30s. per week or less, who may have a wife and from one to six or more young children, cannot afford to pay for their bathing, even tri-weekly during the season, at the rate of 4d. per head, and his family are therefore compelled to shelter themselves in a bathing box close by, wherein they are huddled with the scum of society, and supplied with ragged garments called "bathing dresses"—save the mark! at one penny per head. Worse again is it for males both near and far. At the well-known slip near the North Wall, popularly termed the "smoothing-iron," and within the city boundary, some hundreds of the "great unwashed" of the rising generation chiefly, denude themselves daily without shelter of any kind; and little better is the accommodation afforded at the island opposite, to which a sort of modern Charon transports the multitude at the moderate charge of one penny per head. Let us look now to the North Bull, that semi-natural, semi-artificial breakwater at the Channel's mouth, which by its position affords fine facility for sea-bathing, and which, though somewhat extensively availed of, is admittedly a *refugium peccatorum* under difficulties, and is destitute of any accommodation whatever. Surely a comparatively trifling outlay would in each case remedy this state of affairs. The erection of suitable "bathing sheds," either of timber or of iron (as manufactured by such houses as Macfarlane and Co. or George Smith and Co., of Glasgow), along the Clontarf and Sandymount strands respectively would be a vast improvement on the present dilapidated "boxes;" and similar structures at the smoothing-iron and "the island" respectively would be hailed as a desideratum. A walled-in space for bathers at the North Bull, enclosing a shed with five or six stalls, would, we apprehend, produce a remunerative return for the amount of the investment, and we must again and again urge upon the consideration of the landlord the necessity thereof until effected.

#### THE INSTITUTE.

THE ordinary monthly general meeting of the Royal Institute of the Architects of Ireland will be held on Thursday, the 18th inst. The subjects for consideration will be—

- I. The admission of builders as associates.
- II. The desirability of sending a delegate to represent the Institute at the intended meeting, next month, in London, of the Architectural Alliance.
- III. Revision of the existing arrangement of classes of membership.

We have reason to know that the first proposition will be strenuously, if not unanimously opposed; and, indeed, it is but just to add that very many builders of eminence have expressed their disapprobation thereof, and even, if it were adopted, they would not be disposed to join an Institute of Architects. The feeling seems to be so strong on both sides respecting this matter that it appears to be quite idle to press it.

As for the Institute sending a delegate to represent it at the Alliance meeting, we believe that it ought not to be singular; and that if it be worth the while of the associations of London, of Glasgow, Edinburgh, Liverpool, Manchester, Birmingham, Newcastle, and Bristol, to send their delegates, so ought the Institute of the Architects of Ireland be represented thereat. We are not aware what special questions are to be brought forward at the next Alliance meeting, but, doubtless, when the delegates of each society assemble, various subjects of a general character and of interest to the profession throughout the kingdom, will be presented for discussion. The meeting held last July, at which the conductor of this journal attended unofficially, was merely preliminary for statement of objects, adjustment of rules, &c., &c.; but it is to be presumed that at the next some practical results of the Alliance mission will be made apparent.

The necessity for a change in the present constitution of the Institute was clearly illustrated at the last election, when a gentleman stated to be not eligible for fellowship (though we maintain that he

is so quite as much as others elected to that rank), was proposed as a student.

How ludicrous for a gentleman (the other side of thirty) who holds a responsible government situation in an architect's office, and who completed his apprenticeship some twelve years since with an architect of eminence in this city, to be introduced as a student of the Institute!

The members of the Institute would have been saved the trouble of discussing the result of this very palpable error now, had proper consideration been given to a resolution proposed by Mr. J. J. Lyons, at the general meeting of the 23rd April last, for the amendment of the very rule relating to the classes of membership, and which was as follows, viz.—

"That the constitution of the Institute be fellows, members, associates, students, and honorary members, instead of fellows, students, associates, and honorary members."

In proposing the above, Mr. Lyons explained that many young architects, applicants for admission, might not be of sufficient professional standing to render them eligible for fellowship, while, on the other hand, they would deserve something better than associateship, which latter class included gentlemen not necessarily architects at all.

#### THE OFFICERS OF THE INSTITUTE.

As the success or failure of every undertaking of a collective character mainly depends upon the abilities and the exertions of those immediately entrusted with its management, and as it is only right that, if exertion be used, it should be appreciated and acknowledged, while, on the contrary, that if it be not, the delinquents should be called to account, we may here state that, in connexion with the management of the newly organized Institute, it is the intention of Mr. J. J. Lyons to move, at next general meeting, on Thursday next, for a return of the attendances of council members to be presented annually at the last general meeting of each session, in order that the members of the Institute may have a fair account of their respective stewardships, and see whether or not they may be justified in re-delegating the trust of council membership to same parties during the ensuing session. Mr. Lyons will also move that the absence of council members, without satisfactory explanation, from three consecutive council meetings shall disqualify them from re-election at next ballot.

#### THE ARCHIEPISCOPAL PALACE, ARMAGH.

THE commission appointed by the Lord Lieutenant to value the dilapidations at the Palace, Armagh, was opened on Tuesday, the 2nd inst. The Commissioners are the Dean and Archdeacon of Armagh, Frederick Darley, W. J. Barre, and W. H. Lynn, Esqrs., architects, assisted by Messrs. Sharp and Cherry, as examiners. The buildings are of great extent, and as they were considerably enlarged by the late Primate, we understand there is a heavy charge against the living.

The investigation of the commissioners will be of a protracted character, embracing as it does the whole period of the primacy, over forty years.

#### THE NEW CATHOLIC CHURCH AT DUNNYBROOK.

THE ceremonial of laying the foundation stone of the new church at Dunnybrook was performed on the 12th inst. by the R. C. Archbishop of Dublin, in presence of a large assemblage. The site which has been obtained for the building is most advantageous, being bounded on three sides by roads which lead from every quarter of the populous district, for whose benefit the church is intended. It is at the corner of the Stillorgan-road, just after crossing the bridge over the Dodder, outside the village of Dunnybrook. The front of the church will be on the mainroad; one side will be along the road, in the centre of which stands the Morrison Monument, and at the other is the road to Seaview-terrace. At this side a fine road is about to be made across to the Booterstown-road, across the Bishop's Fields, which now form portion of the Pembroke property. The church will be of a highly ornamental character, designed by the architects, Messrs. Pugin and Ashlin, Stephen's-green. The style selected is the early French of the 13th century. The building comprises nave, aisles, chancel, side chapels, sacristies, and porches. The internal dimensions are 148 feet in length, by 58 in width. The tower and spire will rise to the height

of 150 feet, and will form the central object of the building as seen from Dunnybrook. The stone selected for the exterior masonry is granite; however, Whitehouse sandstone will be used for the tracery of windows and other ornamental portions of this work. The columns supporting the nave arches are proposed to be of Cork red marble, polished on white marble bases.

#### GALWAY HARBOUR IMPROVEMENTS.

MR. Roberts, C.E., according to instructions from the Galway Harbour Commissioners, waited on Lord Dunkellin and Mr. Gregory, in London, and expressed to them the anxiety of the Board to ascertain their views as to whether it would be prudent to take steps at present to carry out the improvement of the harbour, such steps involving aid from the government. They replied that they did not see why there should be any delay now; but that it would be necessary to be in a position to satisfy the government that, with the aid they sought, they would be able to carry out the works in their integrity. He next visited Mr. Vallance, the solicitor of the Atlantic Company, and submitted to him a statement of the revenue of the port. Mr. Vallance said the only practical way of carrying out the improvements would be by a company, that company to have a subscribed capital of one-half the money which is necessary to carry out the improvements. If they could then satisfy the government that the works could be executed for that sum, he considered they would have a strong claim for the other moiety. Mr. Vallance did not think there would be any difficulty in raising £60,000 or £70,000 on their securities, if the government could be induced to give a grant of a similar sum. To make their protective security marketable they should make a settlement with the Atlantic Company as to the sum they would give annually in lieu of toll during the continuance of the contract. He next waited upon Mr. Wrigley, a contractor, with whom he had been in communication on the subject, and he said he was prepared to carry out the works for the amount of their estimate. On his brother's return from Holyhead he said he would send him and their engineer to Galway to make an estimate of the works, and he would put himself in communication with Mr. Vallance as to the financial matters. It would be desirable to have arrangements definitely made before the close of Parliament, which would be in about two months. The first step would be to appoint a committee to take measures with Mr. Vallance to launch the company.

#### CHEMICO AGRICULTURAL SOCIETY OF ULSTER.

A COUNCIL meeting of this Society was held on Friday, the 5th inst., at the Laboratory, Upper Arthur-street, Belfast.

Dr. Hodges said that he had been favoured with a communication from Sir Richard Griffith, Bart., enclosing a letter from M. Livio, French Consul at Dublin, who stated that his Government were at present instituting inquiries with respect to the influence on health of various branches of industry, among which was the preparation of flax and hemp by retting in water, and the nature of the effects which the process employed exercised on the public health, in the chief seats of these operations. He (Dr. Hodges) was not aware that in Ireland any injurious effects upon health had been observed in the districts in which flax was prepared in large quantities. In France, and especially in Italy, the exhalations from the pools in which hemp was subjected to fermentation had been regarded as a cause of disease; but in this climate, even in marshy districts, ague and other febrile diseases were at present almost unknown. Fifty or sixty years ago ague was not uncommon in several marsh districts in Ireland.

Mr. Dickson remarked that the use of flax water by animals as drink was well known by its effects in causing stiring of the coat in horses, and it also destroyed fish in the rivers.

Mr. Andrews, and the other members present did not consider that flax-steeping was, in this country, productive of disease.

A resolution expressive of the loss which the Society had experienced in the death of Lord Massareene, was entered on the minutes of the Society.

**FINE-ART GOSSIP.**—The grateful English nation voted a monument in St. Paul's to Wellington, hardly so long ago as that still remaining unfinished to Nelson in Trafalgar-square, but more than ten years since, and long enough to have got the thing executed three times over. We buried the Great Duke November 18th, 1852. They performed funeral services for him at Vienna and Madrid a month or six weeks before. Our national monument was, after a competition, entrusted to Mr. A. Stevens, a sculptor, or architect, unheard of before or since. Will anybody in Parliament ask about the monument?—*Athenæum*.

## SHILLING ART UNION OF DUBLIN.

A MEETING of the committee was held in the board room of the Royal Dublin Society, on Tuesday, the 9th inst. J. R. Kirk, Esq., R.H.A., in the chair. The minutes of last meeting were read and confirmed.

The secretary was directed to make application to the council of the Royal Dublin Society to request that they would, as heretofore, favour the committee with the use of the Lecture Theatre, for the annual general meeting and drawing of the prizes on the 24th inst.

The secretary stated that great inconvenience was experienced last year from many of the agents holding over their books, almost to the day of the drawing, without sending in their returns. It was essential for the proper working of the Art Union, that all agents should send in their returns and remittances immediately after the 16th instant. All tickets not returned by the 20th instant, at the latest, should be considered as sold, and the numbers placed in the ballot-box, holding the agents responsible for the amount.

## LANDED PROPERTY IMPROVEMENT.

AMONGST the recent applicants for loans from the Board of Public Works, for the erection of farm-offices and labourers' dwellings, respectively, are the following, viz:—

For farm offices—Andrew McCreight and Mary Anne McCreight, £200, Ednageeragh, Lower Dunganoo, Co. Tyrone.

For labourers' dwellings—Thomas Braddell, £500, Coolmelagh, Scarawalsh, County Wexford. Viscount Powerscourt, £480, Kilmolin, Annacreevy, Rathdown, County Wicklow.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

## LIGHTING STREET LAMPS.

SIR,—I have just read in your valuable and interesting paper of the 1st inst., that the authorities of Perth, N. B., have introduced the method, long in use in many parts of the Continent, of lighting the street lamps by means of a pole, the light being on the top, enclosed in a tin case, without a top or lid. I have known of this plan for years, and some time since I wrote a letter on the subject, which was published in one of the leading Dublin newspapers, besides taking some trouble personally to explain the system and its advantages to the managers of one of the gas companies. Nothing, however, ever came of it. I would now again, through your columns, endeavour to stir up the Dublin gas companies to follow the example of their Perth brethren. By this mode of lighting the lamps much time is saved, and the use of a short ladder avoided. As described, the foreign plan is by means of the pole with a light on top, enclosed in a tin case; this is introduced through an open space left in the bottom of the lamp, the cock pulled down, and the lamp lit. Nothing can be more simple or effective, and the result of its adoption would be a great saving of time, as well as fatigue, and some danger to the poor lamplighter.

London. L. H. KING HARMAN.

## TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—In reference to a paragraph which appeared in your last impression of the DUBLIN BUILDER, alluding to works executed by us for Messrs. Fortune and Co., Grafton-street, amongst other remarks you mention that "the entablature is of incorrect proportions." We beg to state that same has been strictly carried out according to plans furnished to us.

JAMES HOGAN & SONS,  
June 13th, 1863. 168, Gt. Brunswick-st.

## TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—It may interest some of your readers who remember how much public attention was attracted to the buildings erected for Turkish Baths, on Dr. Barter's plan, in Lincoln-place and Temple-street, Dublin, and on Dargan-terrace, Bray, to learn that while these establishments on a large scale for public use have been successfully established, it has latterly been shown that it is practicable to build, for private use in the country, bath-houses, on such a moderate scale of expense, that this most important sanitary improvement may now be brought into very general domestic use throughout the country, or attached to infirmaries and dispensaries, where

it was formerly looked on as impracticable on account of the cost.

Happening to visit a clergyman's house in the north of Ireland about a week ago, I was agreeably surprised to find a small Turkish bath-house in full working order, conveniently situated in a shrubbery close to his dwelling-house and offices, and proving the greatest comfort and benefit to his own family and establishment, as well as to his poorer parishioners, to whom he most kindly offers its occasional use in sickness. The bath-house is a neat thatched cottage, divided into two rooms, one for the bath, and the other for a cooling room. There is convenient space for two bathers at a time, and the requisite arrangements for washing, and the douche of cold water, together with proper ventilation and the regulation of the temperature have been most ingeniously and economically made by Mr. J. E. Scriven, of Tynan, who superintended the construction of this bath, and who has, I understand, set up others in country places of such sizes as were required.

In this instance the owner informs me that the cost of his bath-house complete, with all the heating apparatus, &c., did not exceed £50, and that it is kept always ready for use at a cost of not more than four shillings a week for fuel. He states that he finds it of most important use, and mentioned that the credit of bringing such a novelty within the reach of people living in the country, and on moderate means, is due to the ingenuity and professional skill of Mr. Scriven, who thus enables many of Dr. Barter's patients from Blarney to follow out his treatment at their own homes.

Your paper, which is devoted to purposes of public utility, and diffuses so much useful knowledge through Ireland, may spread the requisite information on a subject which is now of very general interest, and therefore I send these passing notes to your columns.

June, 1863.

A WELL-WISHER.

## Public and Private Works.

The church of Glenavy, Co. Antrim, is to be enlarged and repaired.

A new class-room and play-sheds are to be erected, and various alterations and additions made at Omagh Lunatic Asylum. Tenders are invited.

Additions and alterations are to be made at Limerick Gaol, according to plans and specification by Mr. William Atkins, of Cork, architect.

A portion of Merchant's-quay, at Waterford, is to be piled and rebuilt.

A range of farm offices is about to be erected within 6 miles of Ballinasloe, for Mr. Potts, the proprietor of *Saunders's News Letter*, under the direction of Mr. Charles Papworth, architect.

A new and handsome church is to be built at Jonesborough, in the Co. Armagh, at the expense of Lord Clermont. A portion of the barracks will be fitted up as a temporary place of worship until the new building is completed.

## General Items.

The Operative Cork-cutters of this city have issued an address to their fellow-citizens under (what they state are) "peculiar difficulties," in the following terms:—

"In consequence of the removal of the tariff, facilities have been afforded to agents who are endeavouring to force a trade here in corks of foreign manufacture. To the citizens of Dublin it is but too evident what an injurious effect upon native industry the extensive importation of English manufactured goods has had; but in our case it would be even worse again, for while in the one case the labour market in England would be opened to the Irish workman, denied employment at home, in ours it would transfer the manufacture to Spain, where it would be rather a stretch of the imagination to suppose either Irish or English workmen would travel in quest of employment."

The Belgian government has offered Louis Sillart 20,000*fr.* for an unfinished painting, "The Palace at Tournay;" but the artist expects to receive a larger sum for it.

We wish, says the *Athenaeum*, Sir Edward Landseer may live for ever, but one-third of his number of sixty years and one has passed since he received the commission to execute the famous African Lions that will some day astonish us in Trafalgar-square. No man has yet seen even the models for them, nor anything more solid than a drawing on paper, and it is reported that the sculptor's visits to the Zoological Gardens, where he has dissected several lions, are incessant and so alarming to those brutes that each one turns tail when the growl is passed that he has arrived.

The Directors of the Royal Marine Hotel Company, Kingstown, have notified the closing of their Share List on Saturday next, the 20th inst. We understand that the applications for shares have been numerous.

The next meeting of the British Association will be held at Newcastle-upon-Tyne, under the presidency of Sir William Armstrong.

Petroleum is fast becoming an important article of commerce, not less than 11,806 tons having been imported into this country in the first four months of the present year. Of this quantity, 97 tons were brought from British North America, 11,962 tons from the United States, and 747 tons from other countries.

## Miscellaneous.

WONDERFUL INVENTION.—A discovery is said to have been made by the Abbe Casselli. It is a telegraph apparatus which transmits everything as it really is. Thus it will telegraph a portrait, as it was done in Paris the other day, when the Empress sent her's to a friend in one of the provinces. The Abbe Casselli telegraphed a picture of a full-blown rose from the Paris Observatory to the Telegraph Administration Office. The rose, as it appeared on its arrival at the office, was of the most brilliant red and bright green as the original drawing. Rossini telegraphed a melody; and many other trials were made, all of which proved successful.

SIGNALLING ON RAILWAYS.—A good deal has been said lately in London about "steam trumpets" as a mode of signalling on railways. It appears that these instruments are the invention of a Dr. Upham, of Boston. About a year ago he obtained the use of two locomotives for the purpose of an experimental talk by the sounds of the steam whistle. The inventor had attached several contrivances to the whistle in the shape of bells, trombones, and clarionet, and by the means of these he was enabled to represent the sounds of the alphabet by very different sounds. He found that by their means he could convey a message to a distance of three miles, which could be heard and understood even amid the more immediate sounds produced by the movement of a railway train. The doctor has found it possible by the simple trumpet to transmit any message, however complicated, the distance of a mile.—*Court Journal*.

MODEL SCHOOLS, IRELAND.—A parliamentary return, moved for by Major O'Reilly, proves that the model schools in Ireland have been and are exceedingly expensive. There are in this country 17 district model schools and 7 minor model schools. The cost of erecting, including fittings, furniture, &c., £124,466. The cost of the schools for the year 1862 was £21,422; or an average of £900 a-year for each school. But the school of Belfast cost £3,834. The number of pupils on the roll was, boys, 4,529; girls, 3,769; infants, 2,631; but the average daily attendance was boys, 2,276; girls, 1,743; infants, 1,221. The total number of pupil teachers trained in the year is 136, and the paid monitors were 224. The cost of the schools is very great compared with the amount of work done.

## TENDERS.

For erecting a block of three Villas at Sunday's Well, Cork; Mr. Richard H. Brash, Architect.

	Stone.	Brick.
Edward Murphy .. ..	£1595	£1680
John Crane .. ..	1458	....
Daniel Barrett .. ..	1396	1446
Robert M'Sweeney .. ..	1330	1365
Robert Walker .. ..	1398	....
Richard Longfield .. ..	1290	1330
Henry Bible (accepted for stone) ..	1250	1350

## TO CORRESPONDENTS.

T. J., Belfast (photograph received; thanks; shall be attended to).—M. F. F. (preparing).—S. Williams, Dingle (on Wednesday next).—SUBSCRIBER (your question is not sufficiently intelligible; please, repeat it in other words).—S. H. H. (declined, as unsuitable for a journal of this class).—K.—L.—(not at present, but probably hereafter).

NOTICE TO PUBLISHERS AND AUTHORS.—Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

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(By order,) M. ANGELO HAYES, Secretary,

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# The Dublin Builder.

VOL. V.—No. 85.

## PUBLIC MEN.

SIR JOHN GRAY, M.D.

**N**EVER was honour more graciously conferred by Viceregal favour, more worthily earned by the recipient, or more heartily approved of by the public voice, than was that, by which, on the 30th ult., a distinguished fellow-citizen was raised from the rank of a commoner to the first grade of nobility. For the last quarter of a century the name of "Doctor" Gray has been most prominently before the public; first, as an earnest politician in a lengthened and painful struggle for justice to the land of his birth; next, as a journalist, conducting a most able and influential organ—a venerable centenary; and lastly, as the leader of every great industrial project calculated to confer national or local benefits. In this latter capacity *only* it is *our* proper province to refer to "the Doctor's" career—a career which is as distinguished for its earnestness of purpose, for its indefatigability, as it is for the transcendent talents of the pursuer. In the earlier period of an acquaintance, now extending a little over a decade, it was our pleasing privilege personally to witness and admire, the working out of the conceptions of "the Doctor's" eminently scientific and practical mind, in an invention\* to which he devoted both time and money, and which, strange to say, had a significant connection with that subsequent greater project, the development of which must be regarded as "the event" of his career, which brought in its wake that honourable distinction recently conferred, and for which we offer our hearty congratulations.

Men may excel in one regard, and be singularly deficient in many others; but the man who first achieves position in one learned profession, then in another, and again by untiring application, but without the aim of professional distinction, acquires a knowledge—of which even a great professor might be proud—enabling him to work out a great scientific undertaking to its consummation, must be regarded as a modern Crichton—"a man of an age." When Doctor Gray became a member of our corporation some eight or nine years ago, the pavement of our streets was defective, and unsuited to the growing traffic of this great city; there was no properly organized fire-brigade, and in the event of any unhappy emergency, systematic application of assistance to overcome the destroying element, or to save life or property was almost wholly absent; the inhabitants were indifferently supplied with water of worse than *indifferent* quality; public fountains were not to be seen, and many other were the wants not supplied; but owing to "the Doctor's" energetic action mainly—(without, however, withholding honour from all others likewise to whom honour is due)—our streets are now substantially paved, our pathways are increased to spacious width, our houses are better sewered, and an ample supply of good pure water secured *in futuro*, as a consequence of the hard contested battle of the Vartry, in which the now valiant knight was the distinguished generalissimo. And it must not be forgotten that, while "the Doctor's" master mind was being devoted with intense application to the achievement of such objects for the good of his fellow citizens, his personal duties also were replete with anxiety, toil, and responsibility, all of which could only be accomplished by most unceasing labour, and rigid economy of time. For the foregoing and other public and national services—too numerous to mention—and in effecting which a most determined opposition, almost amounting to persecution, had in some instances to be encountered, it was not altogether unreasonable to anticipate that a distinction might possibly, *some time* or *other*, be conferred by the ruler of this portion of

the kingdom, whose wise perception and 'amiable appreciation of talent and worth are pre-eminent; and we rejoice that the time had at last arrived, when circumstances admitted of the gift being bestowed in a spontaneous and peculiarly happy manner. Whether or not this may be but a prelude to a higher dignity hereafter—for the ermine mantle has been placed on shoulders with less clear heads and less gifted spirits,—we desire most cordially to record thus *specialty* our congratulations, for a dignity conferred on one so intimately identified with the progress and improvement of our city in regards which from time to time formed subject matters for discussion in this journal. We shall also be glad soon to notice the consummation of the more substantial compliment to Sir John Gray's great talent in the presentation of the proposed memorial, apparently too long—but we presume unavoidably—delayed.

## THE LIVERPOOL EXCHANGE COMPETITION.

The following is a list of the designs submitted:—

No.	Motto or Device.	Architect.
<b>NORTH ROOM.</b>		
1	Fair Play.	
2	Every man's work shall be made manifest.	
3	290 .. ..	Messrs. Finch, Hill, & Paraire, London.
4	Fuimus .. ..	Messrs. Mayhew and Calder, London.
5	Bursa .. ..	L. De Ville, London.
6	Sine Labore Nil .. ..	W. J. Green, London.
7	Aleph .. ..	Angus Kennedy, Glasgow.
8	Absque labore nihil.	
9	M. .. ..	Edward Salomons, Manchester.
10	Cosmopolitan .. ..	R. P. Pullan, London.
11	Fides.	
12	Enterprise.	
13	Res non Verba .. ..	George E. Grayson, Liverpool.
14	Non quo sed quomodo.	
15	Labor omnia vincit .. ..	Thomas Allom, Barnes, Surrey.
16	A. B. C. .. ..	A. B. Phipson, Birmingham.
17	Fortiter et Fideliter.	
18	Ich Dien .. ..	Worth and Crumpsall, Sheffield
19	Cotton.	
20	Nobis bene nemine male .. ..	Wm. Parnell, New-castle-on-Tyne.
21	Q.	
22	Alpha.	
23	Veritas.	
24	N. B.	
<b>MIDDLE ROOM.</b>		
25	Au bon Droit (with an anchor).	Thomas H. Wyatt, London.
26	Labor et Honor .. ..	Messrs. Cunningham and Audsleys, Liverpool.
27	Speravi .. ..	T. J. Kilpin, Liverpool.
28	Spes et Patientia .. ..	H. H. Vale and J. N. Crofts, Liverpool.
29	Utile Dulci.	
30	Three Circles.	
31	Suo Marte .. ..	Charles Hermann, Liverpool.
<b>SOUTH ROOM.</b>		
32	A Townsman .. ..	C. O. Ellison, Liverpool.
33	Iota.	
34	Harold.	
35	Dandolo .. ..	W. and J. Hay, Liverpool.
36	Lux.	
37	Fiat Lux .. ..	James K. Colling, London.
38	Au bon Droit.*	
39	Putavi et Computavi .. ..	H. P. Horner, Liverpool.
40	Colonnade.	
41	Once more.	
42	Experiment.	
43	Agenda.	
44	Delta.	

First Prize of £1,000 awarded to No. 25; Second Prize of £250 awarded to Nos. 26 and 20.

## TERRA COTTA MANUFACTURE.

THE *Illustrated News of the World* in a recent notice (accompanied with illustrations) of the Terra Cotta manufacturers of Mr. Blashfield of Hampstead, Lincolnshire, says in reference to that gentleman's collection at the International Exhibition, of last year:—The articles made of terra cotta by the patentee, Mr. J. M. Blashfield, are of greater hardness, closer texture, and smoother surface than those anciently produced. The higher degree of fire to which this terra cotta is subjected, renders it impervious to moisture, and gives it a durability only equalled by bronze or granite. It will bear the extremes of heat and cold without injury, and it retains a sharpness of surface unimpaired by changes of atmosphere or climate. The fragments in the British Museum, upwards of 2,000 years old, will fully bear out the fact of the great durability of this material. Nearly a century has now elapsed since the introduction of the terra cotta manufacture into this country by Wedgwood, and by Coad, of Lambeth, and works of

sixty to seventy years' standing, executed by Coad, may now be seen as perfect as when first executed, while the natural stone in and about the same buildings will in many instances be found to have gone to decay. Among the earlier works may be mentioned the Gothic screen and font at St. George's Chapel, Windsor, together with the statues of King Edward III., Madonna and child, and St. George and the Dragon; the pediment in the west front (subject—death of Nelson); statues and other works in Greenwich Hospital; Lord Hill, at Shrewsbury, seventeen feet high; the statue of Britannia, twelve feet high; and all the sculpture on the Nelson monument at Yarmouth, facing the sea, (the stone of which is rapidly decaying); sculpture and various works at the Bank of England; colossal statue of Britannia in the Town Hall at Liverpool; the Corinthian capitals, friezes, statue, trophies, and other sculpture on the outside of Buckingham Palace; the frieze and capitals of St. Paul's school; the statues and capitals of St. Pancras' Church, and the bassi-relievi outside Her Majesty's Theatre. Among the more recent works, and those executed by J. M. Blashfield, by his improved process, are the frieze and capitals at the Duchy of Cornwall office; coping at the Royal dairy farm, Windsor; vases at her Royal Highness the Duchess of Cambridge's; vases and tazzas at Hampton Court Palace; vases and tazzas at the Royal Gardens, Kew; the roof of the Sheepshanks' Gallery at the Kensington Museum; ornaments for the new barracks, Woolwich, colossal statues in the gardens, and the fountains in the Renaissance Court of the Crystal Palace, Sydenham; the roofs of the Pompeian House and the Alhambra Court, Sydenham; colossal fountain statue at the Radcliffe Infirmary, Oxford; terminal ornaments at the New Royal Italian Opera House; the details of the lodges of the new Chelsea bridge; also vases, tazzas, statues, balustrades, and other works in the houses and grounds of his Royal Highness the Duc d'Aumale; the Dukes of Hamilton, Northumberland, and Sutherland; the Marquis of Lansdowne, the Earl of Craven, Lord Overstone, Sir Thomas Sebright, Bart., and many other noblemen and gentlemen; Kew Gardens, mausoleum at Frogmore, &c. Many thousands of architectural details, such as capitals, consoles, balusters, friezes, tracery, &c., have been executed since 1851, for buildings in England, Ireland, Scotland, and Australia, at a cost far below that of similar works in stone. The grand saloon and staircase of the Reform Club House, may be named as specimens of J. M. Blashfield's scagliola work. The Venetian *pisé*, an extremely hard description of scagliola work for flooring, was first executed in England by J. M. Blashfield, for H. T. Hope, Esq., on a large scale, at Deepdene, in the year 1839. In the year 1841 J. M. Blashfield suggested to the late Mr. Herbert Minton the manufacture of tessellæ, for forming Mosaic pavements, and in 1842, 1843, 1844, and 1845, he contrived, laid down, and exhibited many hundreds of specimens of the pavements, now known as Minton's Mosaic Pavements—(vide Owen Jones' work on Mosaic Pavements, Mr. Digby Wyatt's work on the "Geometrical Mosaics of the Middle Ages," and the "Transactions of the Society of Arts.") The Mosaic pavements in the Conservative Club, are early specimens of the revival of this art.

**IMPROVEMENTS IN PARIS.**—We learn from a contemporary that there are numerous improvements at present in progress in the remote quarters of Paris. The demolitions, commenced some weeks since on the Boulevard Haussman (left bank of the Seine), between the streets Soufflot and Abbé de l'Épée, are finished, and the road is being levelled. It is to communicate with the Rue Royer-Collard by a flight of steps, but there can be no access for carriages on that side. A new entrance has been opened to the public from the boulevard to the garden of the Luxembourg. The iron gate which replaces the ancient Porte des Chartreux, is at the corner of the Rue Abbé de l'Épée, and gives access to a staircase which leads to the garden. The repairs of the fountain of Medicis, commenced some time since, are nearly completed. The great basin is lined with cement throughout, and the five cascades are complete. The vases are about to be placed round the reservoir, together with the group which is to ornament the niche in the centre. This group, composed of three figures, is to represent Acis and Galatea surprised by Polyphemus. It is to be executed after a model in plaster, which figured at the last Exhibition of the Fine Arts. Another fountain is being constructed at the back part of the monument, which is to face the new street, and of which the sculptural ornaments are being completed. The avenue which is opposite the Rue Soufflot has been transformed into a grassplot, leaving a footway for pedestrians. The entrance opposite the Rue Royer-Collard is to have a porch ornamented with vases, and that which opens on the avenue of the Rue de Fleuris is raised to the level of the street.—*Building News.*

\* We refer to the ingenious and most effectual flushing apparatus invented by Dr. Gray, about the year 1845.

## PICTURESQUENESS IN ARCHITECTURE.

BY THE REV. J. L. PETIT, M.A., F.S.A.\*

WHEN we talk of picturesqueness, I suppose we know what we mean by it ourselves; though it does not follow that we have all the same meaning, or that we all have a right notion of it. Indeed, I am inclined to think that a true sense and appreciation of the picturesque is by no means so universal as an appreciation of beauty. Probably there are hardly any persons to be found without the latter; and such as are wholly deficient in it might almost be classed among those who are defective in some of their bodily senses. I should say that it cannot be implanted where it does not exist; though it may be greatly developed by culture, or on the other hand, distorted, or even destroyed, by perverse influences.

But a feeling of the picturesque may, I think, be implanted. Perhaps, in most cases where it exists, it has been implanted; and I daresay many of us could, upon reflection, distinctly trace the source whence we derived it. The lover of the picturesque will look with pleasure at many forms and combinations which at a former time he would have passed by with unconcern, or even with distaste. But the love of neatness and regularity, which is a natural taste, and closely connected with the love of beauty, is apt to interfere very much with the love of the picturesque, as is proved by the rage for restoring old buildings, so prevalent wherever there are the means of gratifying the passion—for removing what are called unsightly excrescences, supplying defects, correcting irregularities, and doing away with the results of those accidents which make a subject invaluable to the artist. I am not blaming this propensity; far from it. I only say that it shows the love of the picturesque to be at least restrained within somewhat close limits.

Again, of those who profess a love of the picturesque, I believe many have no further idea of picturesqueness than that it consists of unmingled and incongruous associations, irregularity, and confusion. They will point out, as the most picturesque scenes, those which it is impossible to convey in anything that can be properly called a picture. Their mistake is that they regard certain objects and conditions as being essentially picturesque, when they only become so by certain combinations.

I am willing to accept, so far as it goes, Mr. Ruskin's very clever definition of picturesqueness, that it is "parasitical sublimity." It certainly is so in a great many instances. The ferns, mosses, and ivy that cling to an old building, and the rough decaying sheds and cottages that cluster round its walls, could not be characterized by a happier term. But still, it does not comprehend everything. A group or object may be thoroughly picturesque, and yet have nothing parasitical about it. Its outline, composition, play of light and shade, may be extremely striking, and at the same time owe their effect to permanent and intrinsic qualities. We must employ terms of a wider meaning, if we would arrive at anything like a full definition. In the first place, though it may be necessary to speak of beauty and picturesqueness as distinct qualities, I should be sorry to admit that they are opposed to each other, or that they are anything else than different forms or phases of the same thing. I might here enlarge upon the subject, and show that the pleasure communicated by picturesqueness is of a refined nature, belonging to the mind rather than the eye. I might speak of picturesqueness as a quality not limited to material objects which are presented actually to the sight, but as being conveyed to the mind by poetry, history, or fiction. But I only touch upon this for the purpose of reminding you that the ancient Greeks, whom we know from their existing works, both in sculpture and architecture, to have had the most exquisite appreciation of beauty, and to have conceived its highest standard, had a very strong feeling of the picturesque. Whether Homer was blind or not, his imagination gave him ideas of picturesqueness which cannot fail to be communicated to his readers, even though his actual descriptions of natural scenes may be comparatively few. At present, I can only recall one that could actually be brought within the compass of a picture, but that is quite a Turner,—

As when a cloud, whose folds of darkness rest  
In stern repose on some huge mountain's crest,  
The Thunderer moves; at once each towering height,  
Each cliff's projecting buttress, springs to light;  
And pine-clad slopes, and shadowy rifts between,  
In quick succession fill the expanding scene.  
In flakes afar the shatter'd vapours fly,  
And the rent cloud reveals the brilliant sky.

H. 16th.

The Greek dramatists were essentially picturesque; many passages might be given in which objects of natural scenery are dwelt upon with a carefulness which shows how much influence they

had upon the mind of the poet. And to what extent the Greeks regarded material picturesqueness we may judge from the Acropolis itself of Athens and its neighbourhood, which is picturesque, not merely from the ruined condition of the buildings, but from the reverence with which the inhabitants preserved the natural features of the place from change and innovation.

The very essence of beauty is harmony; but there are two sorts of harmony, that of resemblance and that of contrast. You will easily understand this in the case of colours. You may obtain a harmonious effect by tender gradations of tints, so that one shall flow imperceptibly into another; and whatever variety there may be in the whole mass, yet any two adjacent parts will be so like that you cannot tell where the change takes place. Again, you may produce harmony by placing in immediate contact colours the most opposed to each other. Where the contrast is the greatest—namely, between two complementary colours, as red and green, blue and orange—the harmony is the most perfect, and it is not injured by abruptness. There are also harmonious contrasts between neutral and positive colours, and between light and shadow, which will bear the most immediate juxtaposition—an arrangement we often find in nature, and therefore we are sure it is not necessarily inharmonious. We also see contrasts of form, of mass, of number, which are very pleasing to the eye, and often made to be still more so by association.

It may, I think, be stated that what we usually speak of as beauty has for its predominant element the harmony of resemblance, while picturesqueness abounds rather in the harmony of contrast. It must be observed that mere contrast is not sufficient—it must be harmonious contrast—there must be nothing harsh or incongruous about it, or the result will be ugliness and deformity, which is a very different thing from, indeed wholly opposed to, picturesqueness. And now we see how the term "parasitical sublimity" properly denotes a certain phase of the picturesque; for it implies the contrast of what is slight, perishable, and accidental with solid, massive, and durable substances. It is in such contrasts that picturesqueness is most frequently recognized, but there are others which are no less conducive to this quality. The contrast between art and nature, between regularity and confusion, and between the present and the past, gives images which are picturesque in the fullest sense of the word.

An old building is not necessarily picturesque, but it is more likely to be so than a new one; first, because it is a work of art which has long been left in the hands of nature, whose marks are impressed upon it in various tints which art could not imitate, and in changes of surface and texture which denote the lapse of centuries; and next, because it brings together the present and the past; for even if there is no modern work at hand to remind us that it belongs to an age different from our own, still we see and feel that it does so, and the appreciation of picturesqueness, as well as of beauty, is an operation not merely of the bodily sense but of the mind; our perception of the contrast is enough, even though it is not forcibly presented to the eye. Still the presence of objects of a period approaching more nearly to our own, if they be not repulsive by their incongruity, adds much to picturesqueness. I am inclined to question the artistic propriety of introducing, in pictures of ancient buildings, figures in the costume of their period, that is, if picturesqueness be the object sought after. The working costume of the present day seems more available to this purpose, as giving a stronger contrast between the two different epochs.

I need not remark that there must be some homogeneous element in things to be contrasted; form must contrast with form, colour with colour; not form with colour, or colour with mass. But a double or compound contrast may take place, as when a small spot of brilliant colour gives effect and life to a large surface of neutral tints. The smallness of the spot contrasts with the larger size of the surface opposed to it, and the brilliancy of the point with the quietness of the surrounding colours. So the contrast of mass with number may be considered as a compound one. Some of the finest towers consist of a simple unbroken mass up to a certain point, while the part above is broken up into a multitude of panels, niches, or pinnacles, connected by open work—an arrangement not confined to Gothic, but which reappears in fine steeples of the revived Italian. Now, here the large mass below contrasts with the smaller parts above, while its unity and simplicity contrast with their number and complexity. Such towers, in whatever style they may be, are eminently picturesque—in fact, most of any note partake in a greater or less degree of this principle of composition. In presenting a scene to our view, a good artist will not, however, be satisfied with a mere reproduction, so far as his materials will allow him to give, of the lines, colours, or

shadows of the objects it comprises; but he will show what was the general impression produced by it on his own mind. He will have fixed upon some principles of composition, to which he will contrive to adapt his subject without deviating in any material degree from correctness of representation. But nature and accident do so much for the artist, that if he chooses his point with judgment, an exact transcript of what he sees will often be as good a picture as he could make by any modification of arrangement. I am sure you have often seen photographs, not merely of architectural groups, but of scenery, which no variation that could be suggested by the artist would improve; indeed, I consider photography as valuable in showing how well nature does compose. Again, if you will walk along a country lane by twilight, in any tolerably-wooded district, you cannot but observe how perfect a skyline for artistic composition is constantly occurring. I am sure in some parts of the country you would meet with a dozen or more such in the course of half-an-hour's walk; and many of them, if seen by daylight, would be found to combine well with the foreground; from which I am inclined to infer that truth is the very basis of picturesqueness, and if it be so, we shall admit that it is a very necessary element in picturesqueness of architecture.

Before we speak of building picturesquely, we ought to consider the value of structures that in their present condition are picturesque, and whether, since picturesqueness is certainly a kind of sublimity, as well as beauty, it is not advisable to preserve them as they are, if we can consistently with propriety and convenience.

Buildings which are incomplete, whether from decay or ruin, or from the design not being fully carried out, are often far more picturesque, and sometimes even more beautiful, than they would be in a perfect state. Many of the old abbeys in Ireland are as picturesque as it is possible for buildings to be. Their roofs, generally speaking, have been destroyed; but the gables remain, as well as the towers and greater part of the walls, so that the whole design is not only shown, but more strongly marked out than if the roofs still existed. Of this, the abbeys of Adare, Quin, Ross, Moyné, and Ballindown are good examples. They are so perfect, that a complete restoration of all the abbey buildings of the four former, and of the church of the latter, might be easily drawn, without resorting to conjecture or imagination, for nothing is required but the roofs, whose exact places and pitch are marked out by their gables; and by making such restoration you will see at once that the completion by no means improves the picturesqueness of the outline, though it cannot be said altogether to destroy it. In many cases, the absence of a pinnacle gives a character; and the lowering of roofs, the gables of which remain untouched, is in almost every case an improvement. The restoring of them to their old pitch may often be necessary on account of weather, but it seldom adds to beauty or picturesqueness. The sweeping away of all later additions and alterations, thus destroying the records of its architectural history, has robbed many fine structures of nearly all their interest, as well as their picturesque beauty. And, after all, a restoration of what has actually been destroyed amounts in most cases to no more than a conjecture, which may be a reasonable and well-grounded one, but has no historical value. And the best restoration of decayed work is tame and formal in comparison with the original. The only plea for restoration is its necessity. In churches, almost everything beyond mere repair takes away from dignity and solemnity, instead of adding to it; and the marks of antiquity may be preserved without giving the idea of neglect.

But it is of that picturesqueness in architecture which is independent of ruin, or combinations of the work of different styles and periods, that I now wish to speak—the picturesqueness which is the result of outline, proportion, and the proper adaptation of different masses to each other—and the question is, to what extent this picturesqueness is to be studied. In one sense, not at all; in another, the architect must not lose sight of it for a moment. He must not professedly build for it, or make it appear that this is principally his object. He must not give his new buildings those parasitical sublimities which he so much admires in old ones; but he may adopt such manner of design as has been found to result in picturesque development. Architectural picturesqueness, generally speaking, is a contrast between order and irregularity. The tendency of design is to symmetrical order; that of accident, to irregularity. And there are other accidents besides those of age, ruin, or the additions and insertions of different periods. The nature of the ground, or some particular requirement, may render it necessary to deviate from symmetry of design; and the architect should rather make it appear that such deviation has been forced upon him by cir-

\* Read at the Architectural Exhibition.

cumstances, than that it has been voluntary. If there is no positive reason why his work should be deficient in symmetry, the deficiency will be no merit, nor will it in general give picturesqueness to what in itself is unpicturesque. A tower, for instance, may have a projecting staircase turret at one of its sides or angles, and advantage may be taken of it by the architect to vary his outline; but if he arbitrarily puts a pinnacle upon one angle, merely for the sake of producing irregularity, he is guilty, to say the least, of an affection. I do not myself like a front with a single tower on one side of it, though such frequently occurs, even in old work. I should much prefer the tower placed on the side of the building, at some distance from the principal front, the symmetry of which never prevents the general outline of a church from being picturesque. At the same time, it would be had taste to reduce to uniformity a front that has accidentally become irregular. We should not like to see the fronts of Rouen or Chartres Cathedral rendered symmetrical; and I believe most antiquaries, as well as artists, regret that such an operation was performed at Canterbury. But it cannot be too strongly impressed that there are many arrangements and compositions which ought to be preserved, as nearly as possible, in the state in which we find them, and which yet should not be taken as examples to be imitated. I am inclined to think that all important buildings should have at least one regular front, of perfect symmetry, or at least with no discordance of detail that would strike the eye of the spectator at a reasonable distance. Such fronts are common in Mediæval buildings of the most picturesque outline. Romanesque churches, when untouched, are mostly very regular. In many of them both the eastern and the western views present perfectly symmetrical compositions. That of which I give the elevation is a typical form. The apse projects from the gable end of the chancel, which is flanked by perfectly similar transepts, each with its own apsidal chapel; while the square tower, enriched also with its own arcades, which are set with entire regularity, crowns the whole. One side is precisely the same as the other; and the same is the case with the west front in most cases. The importance attached to regularity of composition in fronts may be inferred from the usual practice of flanking them with equal towers or steeples, where, for the purposes of a belfry, one would have been amply sufficient; and even though some differences of detail frequently occur, these appear to be, as they probably are, purely accidental, owing, perhaps, to change of workmen, or advance of style, and they rarely interfere with the effect produced by a completely symmetrical arrangement.

The same may be said about irregularity of skyline. The architect should take care to avoid monotony; but anything like fantastic variety should appear to have come accidentally, and not to have been the result of design. The tendency should be rather towards simple unbroken lines and compact masses. A really good outline will not owe its effect to a number of pinnacles or small spires scattered over it. I believe that the Italian pinnacle is more right in principle than the Gothic, though the latter, in itself, is infinitely more beautiful. The Italian, in its best form, is a mere obelisk, set to give emphasis to some particular point of the building, or value to a long horizontal line, but not to attract attention on its own account; whereas the Gothic pinnacle, by its careful and elaborate workmanship and the richness of its detail, evidently is meant to be an important part. It both catches and fixes the eye, and demands an undue share of notice, considering how small is its real constructive importance. In a tower, however, the group of pinnacles may be valuable as adding to height, without endangering the structure by its heaviness, and also by giving a distinctive character, which is one of the chief uses of a steeple, as Sir Christopher Wren evidently felt when he designed that wonderful cluster of steeples which give an unrivalled beauty and picturesqueness to the view as we look eastward from Blackfriars or Waterloo-bridge. At the same time, I must say that I think more of a massive solid looking tower, which owes its beauty to a simple and regular form, like the central tower of York, than of one abounding in these beautiful excrescences.

But if the architect should not depend for outline upon comparatively useless excrescences, much less should he upon perishable ones. I could name a building whose outline, evidently a studied one, though perhaps not very successful, is altogether made up of perishable stuff. Take that away, and every vestige of its design disappears. In the Irish abbeys I have named, the whole design, notwithstanding the destruction of the roofs, remains in the hardest and most imperishable stone that exists; and in this respect, as in many others, their architectural merit is great, notwithstanding their plainness and even rudeness. In many districts on the

Continent, wood is nearly as imperishable as stone, so far as the action of weather is concerned, and, therefore, wooden spires, steeples, and turrets are less objectionable. But, in England, I am sure this kind of work should be reduced to as small a compass, and made as subordinate an architectural feature as possible. The central spire of Amiens, beautiful as it is, ought not to be imitated in England, or, at least, ought not to make a prominent part in a composition. If we must employ a wooden dome or belfry, it should be so introduced as to show that it is adopted from necessity, and not as an architectural beauty; care, indeed, must be taken that its form shall be agreeable to the eye, and shall harmonize with the building; but in other respects, it should appear to be unstudied; and, if it is wholly unpretending, it will, as long as it lasts, add to picturesqueness—in fact, as we have remarked, the contrast between the solid and the perishable is an harmonious one, provided the latter be not allowed to usurp too large a share of notice.

We have now to consider the contrasts of lines and the combination of masses. We may divide architectural lines into three kinds—vertical, horizontal, and oblique. Vertical lines are all straight, or nearly so, and parallel, or nearly parallel, to each other. I say nearly, because I would not exclude the outlines of columns, which are neither perfectly straight or upright, but may be treated as if they were. Horizontal lines may be either straight or curved, so long as they lie either in the same plane as that of the horizon or planes parallel to it. And oblique lines may be either straight or curved, with a single or a double curvature, but do not lie in a horizontal plane, nor parallel to any vertical line—such are the sides of gables or pediments, all manner of arches, and the sections of brackets and horizontal mouldings. I think it is clear that both the vertical and the horizontal line should predominate over the oblique, for these are what mark the main parts of a building, and represent its construction. They distinguish a pile of masonry, arranged in regular layers, each one supporting those above it by a force acting vertically, from an embankment of loose stones or earth, which press upon each other in every direction. A strong marking of the horizontal line represents the flat layers which give masonry its firmness and durability independent of cement, and the vertical line gives the direction of pressure and support. These are necessary elements in all sound construction. The oblique line is necessary to meet certain contingencies which may or may not occur. The pediment or gable, for instance, is useful, where a sloping roof is required on account of weather; and the arch is a necessary expedient, where a space or opening has to be covered over which is too wide to be spanned in any other way. As these exigencies do very constantly occur, the oblique line properly demands great attention from the architect. The Greeks, accordingly, took care to make their pediments beautiful features, though their constant use of the horizontal cornice which supports the pediment shows that they intended the sloping lines to be subordinate; and the Mediæval architects enriched their gables with sculpture or panelling, and their arches with intricate moldings. Those gables which are without the horizontal cornice, and have the sloping lines marked by deep, full, heavy cornices, if they can be so called, and those arches round which a cornice is carried, as at Spalatro, are never pleasing or satisfactory.

The contrast between the horizontal and vertical lines is the most forcible, and, as in complementary colours, the most harmonious that can be attained, probably because it is the most natural. We feel at once that it is right; and, if it offends the eye, it must be from its being improperly treated. Which of the two ought to predominate, is a question involved in that of the respective merits of Classic and Gothic. Perhaps it is necessary that one of the two ought to predominate, to avoid indecision and consequent feebleness of effect. Yet, in the finest and oldest Romanesque churches, neither the horizontal or vertical line can be said to prevail, while their architectural effect is extremely striking; it may be this is owing to their perfect balance. Where the tall slender shaft is introduced, it somewhat detracts from the dignity of the building. But, before I enter into the question, I would remark that the following rule will, I think, hold good with but few exceptions. We should not allow any continuous oblique line to stop or divert from its course a horizontal or vertical one. For instance, a horizontal line running across a gable above its spring, as we often see in the French Romanesque, I have no hesitation in saying is wrong, much as I admire the buildings in which it occurs; so are the upright shafts running into the gable in the Lombard churches; so are the horizontal strings deflected into labels above the spring of an arch. The cornice brought round the arch at Spalatro, of which I have already spoken, is very

bad, as it is turned from its horizontal course by the arch at some distance above its spring. In good Gothic work, if a horizontal string is ever turned from its course to form a label, the deflection occurs, if I mistake not, at or below the spring of the arch, so that the horizontal line is stopped, in fact, by a vertical one. Where a vertical and oblique line terminate in the same point, as at the spring of a gable, we need not consider the former as being stopped by the latter, but as being carried up to its full height, and then met by it. But I doubt whether a horizontal and oblique line should be allowed to stop each other in the same way. The more unlimited nature of the horizontal line, which may be carried all round a building, and, consequently, have no termination, seems to suggest the difference. A horizontal string, however, may very well be turned into a label at the spring of a perfect arch, because at that point the line of the arch is a vertical and not an oblique line, and consequently may stop or turn a horizontal one. I am perfectly aware that the rule I have proposed, if it be one, is often violated in Italian Classic or Gothic (I doubt if it is in the Greek), but the effect is not pleasing. I think the worst windows ever designed are those semicircular ones, so common in Venice, with bars or mullions running into the head. A similar composition occurs in St. Sophia, and also in the round church of Ottmarsheim in Alsace. The stopping of the mullions by the arch, in a perpendicular window, is less offensive—not because it is less wrong, but because it does not so decidedly catch the eye.

If we discuss the respective claims to pre-eminence of the horizontal and vertical line, I take it much may be said on both sides. My impression is that the latter implies more effort, while the former is more in accordance with nature; that the vertical principle is calculated to cut up a building into numerous parts, while the horizontal tends to breadth of effect, repose, and unity; that, at the same time, the great variety of direction assumed by horizontal lines gives them a certain advantage over the vertical, which have but one; and that the picturesque effect which results chiefly from ground-plan and the disposition of horizontal lines, is of a more refined character than that which is obtained from the varied form of vertical sections. In large buildings, nothing gives greater dignity than long continuous horizontal lines, interrupted only by occasional groups rising above, sufficient to give value to the predominant line, and by projections in the ground-plan contributing to the same effect. Chelsea Hospital, plain as it is in detail to the verge of meagreness, is, from this principle of composition, a building of wonderful grandeur; its long lines of roof, broken or rather marked at intervals by groups of chimneys of the happiest, because the simplest, design, and the elegant cupola in the middle of the principal front, the only ornament almost throughout the whole, give it a character, I may say, of sublimity, which we do not meet with in many structures which abound in ornament, and appear to be far more carefully studied in regard to architectural effect.

(To be concluded in our next)

#### IMPROVEMENT OF HOWTH HARBOUR.

TARDY as ever is the Government in granting the wherewith to effect necessary public improvements in Ireland, it has been markedly so in the matter of Howth Harbour, which, for want of a small expenditure, has for years been useless, within eight miles of the metropolis; and although possessing many fine natural advantages, and the facility of approach by railway. While vast sums are voted ungrudgingly for sundry works in England and Scotland, an odd thousand or so for Ireland has to be dragged out of the imperial exchequer by main force; and while two millions of money is being expended on a great mistake at Holyhead, a mere atom of that amount is withheld from Dublin to provide a second harbour of refuge for the legion of fishing and other crafts that are perpetually beating about her glorious bay. "Better late than never," though; we are to have a £5,000! at last for Howth, to make it suitable: and it is now admitted by the important functionary, Sir Robert Peel, that, "as it is the only harbour for fishing vessels on the east coast of Ireland, its preservation is a matter of much importance."

The bill now before the house recites that, "whereas the harbour has become an important station and place of refuge for vessels engaged in prosecuting the sea fisheries on the east coast of Ireland, but that it had of late years been gradually silting up, whereby its value and usefulness had been materially injured and lessened, it is, therefore, expedient that it should be deepened and otherwise improved, and that power should be given to expend on the improvement of the said harbour a sum of money not exceeding £5,000."

# ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A GENERAL meeting was held on the 18th ult., CHARLES LANYON, Esq., J.P., R.H.A., President, in the chair.

Present—Jacob Owen, V.P., W. Gillespie, W. Welland, John Lanyon, C. Geoghegan, Thomas Drew, E. P. Gribbon, W. F. Caldbeck, J. Bell, jun., J. S. Butler, C. Papworth, Trevor Owen, W. Hague, jun., W. Fogarty, and J. Franklin, Esqrs.; J. H. Owen, hon. sec.\*

The minutes of the previous meeting having been read and confirmed,

The President reported the result of the deputation to his Excellency the Lord Lieutenant, which had been arranged at the meeting of the 21st of May last. The deputation consisted (in addition to himself) of Messrs. Jacob Owen, V.P., S. Symes, W. G. Murray, R.H.A., E. H. Carson, J. M'Curdy, and J. J. Lyons. His Excellency had kindly accepted the office of Patron of the Institute.

It was proposed to increase the members on the council from seven to ten, which was passed unanimously.†

Mr. Drew proposed and Mr. Bell seconded the admission of Messrs. Francis Nolan and Henry Wilmot as students. To be submitted for ballot.

Mr. J. H. Owen proposed, and Mr. Gribbon seconded the admission of Mr. J. C. Burne as a Fellow of the Institute. To be balloted for.

Proposed by Mr. Longfield, and seconded by Mr. Papworth—"That Clause 4 of the bye-laws be altered as follows: 'Associates shall be persons connected with science or the fine arts, qualified to concur with architects in the advancement of professional knowledge, but who are not practically engaged as building contractors.'" Passed unanimously.

It was suggested by the President that the rates for professional services adopted by the Royal Institute of British Architects be also adopted by this Institute.

Proposed by Mr. Caldbeck, and seconded by Mr. Bell—"That the clause relating to extra services be amended, so that it shall stand as follows: 'The per-centage not to cover professional services in connection with the first visit for the purpose of determining a site, negotiations for same, arrangements respecting party walls or right of lights, nor services incidental to arrangements consequent upon the failure of builders whilst carrying out work; but all such services are to be charged for in addition, the basis for charge being the time employed.'" Passed unanimously.

Proposed by Mr. Longfield, and seconded by Mr. Butler—"That the regulations referred to be signed by the president and secretary (as amended), and printed for circulation." Passed unanimously.

Proposed by Mr. Caldbeck, and seconded by Mr. Drew—"That a ballot-box be provided for the election of members, but that the election of the council be conducted as heretofore." Passed unanimously.

Proposed by Mr. Papworth, and seconded by Mr. Butler—"That the question proposed by Mr. Murray, and seconded by Mr. Symes, at the last meeting, relating to a suggested modification of the bye-laws, be postponed for the consideration of next meeting." Passed unanimously.

It was resolved, with reference to the proposed conversation, that the consideration of the matter be further postponed until an answer shall have been received from the Council of the Royal Hibernian Academy.

[In addition to the above proceedings, we learn that the council on previous day recommended the Institute not to send a delegate to the meeting of Architectural Alliance, to be held in London on this day. Our views upon this subject are already fully known, and we need not now comment upon the resolution so arrived at.—ED.]

## ARCHITECTURAL ALLIANCE.

Programme of the Annual Meeting announced to be held on this date, at 9, Conduit-street, Hanover-square:—

THE following delegates representing societies which sent in their adhesion on or before August 15th, 1862, to meet at 9-30 a.m.:—

1. Bristol Society of Architects—Messrs. S. B. Gabriel, C. Underwood, Edward W. Godwin.

2. Manchester Architectural Association—Messrs. L. Booth, Darbyshire, R. W. Aitken.

\* Mr. J. J. Lyons (Assistant-Secretary) was unavoidably absent from this meeting, being in Liverpool inspecting the designs for the proposed new Exchange.

† It should be in the recollection of our readers that this resolution, now adopted, was originally proposed by Mr. J. J. Lyons at the general meeting of 21st May last, and then negatived. It is well, however, to see that the Institute acknowledges, and rectifies, its errors even at the eleventh hour.

3. Northern Architectural Association—Messrs. T. Austin, T. Olliver, J. P. Pritchett.

BUSINESS.—Admit the following societies into the Alliance, all of them having been represented at the Conference, July 2nd, 1862:—

1. Architectural Association (London) Delegates—Messrs. T. Roger Smith, T. M. Rickman, Arthur Allom, J. A. Bunker.

2. Institute of Scottish Architects—Messrs. John Lessels, Robert Matheson, John Dick Peddie.

3. Birmingham Architectural Society—Messrs. Botham, Chamberlain, A. B. Phipson.

4. Liverpool Architectural and Archaeological Society—Messrs.

5. Glasgow Architectural Society—Messrs. Alex. Thompson, Angus Kennedy, Campbell Douglas.

General meeting to commence at ten o'clock.

## BUSINESS.

1. Report for the past year from the Hon. Secretary, *pro tem.*

2. Election of officers, viz.:—A president, vice-president, treasurer, and honorary secretary.

3. To be moved by one of the delegates from the Northern Architectural Association, "That this meeting do now proceed with the preparation of a scale of charges, which, when completed, to be recommended to the various allied societies, for the use of their members."

4. To be moved by one of the members from the Northern Association, "That this meeting do now proceed with the preparation of a circular, which, when completed, to be sent by the officers of the Alliance, to the promoters of all public architectural competitions, pointing out what the members of the Alliance consider the proper course to be adopted in the preparation of conditions and instructions, and the adjudication of premiums."

5. To be moved by Mr. Pritchett, "That this meeting do now proceed to consider the best method for securing the concurrent action of the allied societies, when such is required."

6. The Hon. Sec., *pro tem.*, to submit the accounts for the past year; to consider the audit and payment of them.

After the meeting, the delegates will dine together at Bouquet's Dining Rooms, Castle-street, Leicester-square, at six p.m.

J. B. PRITCHETT, Hon. Sec., *pro tem.*

## NEW INSURANCE BUILDINGS IN VICTORIA STREET, BELFAST.

It is a matter of great surprise that, with all the modern erections in the important and growing commercial capital of Ulster, there has not, up to the present, been one specially designed for the purposes of insurance business. An exception, however, is about to be made by the Scottish Amicable Life Assurance Company, who have secured an advantageous site for a large block. The following descriptive particulars are in the words of the *Northern Whig*:—

The new buildings will be situated on the ground hitherto vacant at the corner of Waring-street and Victoria-street, adjacent to the Northern Bank. They will form a square of about 75 feet, and have fronts on three streets—on Victoria-street, on Waring-street, and on the new street from Victoria-street to the steps of the Custom House. They will also contain several suites of chambers for mercantile purposes, and these will be of great value, both from their situation and construction. According to the plans, the style of the contemplated buildings is Italian. The height will be about 55 feet, consisting of three storeys and a basement. The basement will be of rough blue limestone, rising about 5 feet from the level of the pavement. The front will be in Victoria-street, and the chief projection, in which is the entrance to the offices of the society, is 31 feet. The building is then recessed 3 feet 6 inches, and upon each side of this recess it stretches for about 12 feet. Bold carved corners carry back the front a depth of about 12 feet from Victoria-street, and in each of these curves the building goes back on Waring-street, and on the new street before mentioned, some 63 feet, and in each of these wings is an entrance to the suites of offices up stairs. The entire front will be of the best Dungannon stone, and on the wings Dungannon stone will be mainly used. The pilasters on the second and third storeys of the wings will be of the best white brick, manufactured by Messrs. Allan and Mann, of Glasgow. The entire building is to be fire-proof, and stone staircases will exclusively be used throughout—an appropriate example for an insurance company to set. Entering by a handsome doorway in Victoria-street, a wide hall leads into the general office, which is a spacious apartment lighted by a dome. Off this are cash offices, and running parallel with the hall, and on each side of it, are two rooms, one to be used as a board-room and medical officers' room, and the other as the private

office of the secretaries. From the cash office a staircase leads to the basement, where will be the safes of the society, &c. The only means of heating to be used is the good old plan of fire-places, which are liberally distributed throughout the entire building. The plans have been prepared by Messrs. Thomas Jackson and Son, Donegal-place, architects, and the contract for the building has been taken by Messrs. John Lowry and Son, of Great George's-street, who have already made good progress with the foundations.

## THE DUBLIN METROPOLITAN RAILWAY SCHEME AGAIN.

SOME hopes were confidentially entertained during the past month that the promoters of this ill-conceived and, if ever matured, commercially ruinous project had, in deference to the weight of public opinion, consigned the bill "to the tomb of the Capulets," but we are startled to find their intention announced of proceeding on to-morrow (Thursday) to prove compliance with the standing orders of the House of Commons. If our surmise—viz., that this is *virtually* a "Government job," merely to ensure facility for transport of troops and stores—be correct, all the well organized and determined opposition of the opponents, will assuredly prove fruitless, and the best we can now hope for is that between the three schemes respectively suggested by Barry, Lefanu, and Barton, there may be some modified arrangement effected to rid the original project of its most pernicious features.

If there must be a junction effected with each of the metropolitan railways, let it be done as unobjectionably as possible to the appearance of an admittedly handsome city, else what shall the inhabitants of Dublin in 1963 think of their ancestors' reverence for art and beauty?

## ART UNION OF IRELAND.

THE Managing Committee met on the 29th ult. in the Royal Hibernian Academy, Mr. Abbey-street.

Present—John Barton, Esq., in the chair; George Petrie, LL.D.; T. Maxwell Hutton; Walter Sweetman, J.P.; and George F. Mulvany, R.H.A., Hon. Secretary.

The minutes of last meeting being read and confirmed, several letters were read enclosing subscriptions.

Mr. Mulvany stated that, although the present subscription list was much less than those of previous years, the Committee, by a rigid economy in the working expenses, would be enabled to distribute in prizes a sum much larger in proportion to the receipts than that distributed on any former occasion.

The committee then proceeded to allocate the prize-fund, and delegated to the scrutineers the power still further to extend the prizes in proportion to the additional subscriptions received to the close of the subscription lists on yesterday (Tuesday) evening.

Mr. Mulvany read a draft of the report to be submitted at the general meeting on this date, which was approved of.

Dr. Petrie and Mr. T. Maxwell Hutton were appointed scrutineers of the ballot.

It was determined that the distribution of prizes should take place on this day, at half-past three o'clock, in the Council Room of the Royal Dublin Society, which had been kindly placed at the disposal of the committee for that purpose.

The Hon. Secretary then read a long list of subscriptions received since last meeting.

The committee then adjourned to this day, at the appointed hour, for the drawing of prizes.

## OPENING OF THE CORK AND KINSALE RAILWAY.

ON Saturday, the Cork and Kinsale Railway was opened for the first time. The line runs through one of the richest agricultural districts in the country, and the country around is highly cultivated, and admits of diversification by hill and dale. The junction with the Cork and Bandon Railway is formed at a point about three miles beyond Ballinacorney, where a very tasteful structure has been put up to serve the purposes of a station. Proceeding towards the town of Kinsale, the line opens with a gentle curve for upwards of a mile. The remainder of the line is pretty straight, and the manner in which it has been constructed is much to the credit of the engineer and contractor, who have evidently spared no pains to make the work as complete as possible. Its extent is about ten miles in length, and this is run over in almost twenty-five or twenty-six minutes. The terminus at Kinsale stands upon an elevation, and the prospect beneath is indeed charming. It may be fairly expected that the passenger traffic will be important.

## IMPORTANT TIMBER SALES AT LIVERPOOL.

THE following circular has been addressed to the trade throughout the kingdom by Mr. Edward Chaloner, of Liverpool, Wood Broker:—

The Auction Sales, on next Friday morning (3rd inst.), will be started at eleven o'clock precisely, with the cargo of Porto Plata mahogany, just landed ex Joseph Cape, from Porto Plata direct. This wood is of good quality, and particularly fresh and sound; and there are many richly mottled and plum figure veneer logs; also some very prime table logs. The curls are of medium and large dimensions, and mostly sound—many of them are superb, and of drawer-front and panel lengths. There are also curls attached to some of the logs.

At twelve o'clock the sale will be suspended until after Messrs. Duncan, Ewing, and Co.'s sale, after which it will be resumed with the following, viz:—

The City St. Domingo mahogany and lignumvitæ, ex Henry Lorensen, from the city direct; the former is of prime quality and colour, and embraces many richly-figured and mottled veneer logs. The lignumvitæ is also of prime quality.

The City St. Domingo mahogany, ex Gertruida Anna, consists of very choice logs and curls, especially selected for this market. The particulars will be given in the Appendix.

The Tobacco mahogany, ex John Bright, is of first-rate quality, straight, sound, and of large dimensions: there are most excellent table logs, with others for panels and counter-tops.

Afterwards the Havana and Honduras cedar will be sold: these are on sale, in the meantime, by private bargain.

The 427 planks of Rio rosewood, ex John Harley, are fresh, dark-coloured, and of very superior quality; the veneer pieces, which are numerous, are mostly of excessive richness, variegated with orange and rich dark stripe. The chair planks are also of prime quality.

The parcels of Italian walnut, per Corinthian and Euphrates, contain much useful chair wood, with a few veneer planks.

The bird-eyed maple, ex John Bright and Thornton, is fresh, white, and full of bird-eye, whilst many of the planks are of large dimensions.

The crown wainscot oak billets are of very prime quality and good sizes: one parcel will be sold without reserve.

On sale by private bargain are 93 logs of Belize Honduras mahogany, especially selected for ship-building, which may be secured at 4½d. per foot, Liverpool sale measure, or £7 10s. per load, there being but 87 loads in the parcel. The particulars are set forth in page 514.

Referring to the Catalogue for the Sale in Hull, on Thursday, the 9th July, I beg to inform you that, on Wednesday and Thursday, the 15th and 16th July, I shall sell by auction here a cargo of Honduras mahogany, now landing, ex Regina, together with various other woods meantime expected to arrive.

The following woods will be sold by auction immediately after arrival, of which due notice will be given the trade; in the mean time, specifications may be seen at my office, viz:—

The cargo of yellow and red pine, oak, elm, birch timber, bright pine deals, and standard and puncheon staves, daily expected to arrive, per Coronella, from Quebec.

The yellow and red pine, elm, ash timber, pipe and puncheon staves, daily expected to arrive, per French Empire, from Quebec.

The cargo (380 standard) of pine and spruce deals, boards, scantling, palings, and lathwood, daily expected to arrive, per Diadem, from St. John, N.B.

The cargo (600 standard) of spruce deals, boards, scantling, lathwood, and palings, daily expected to arrive, per Pensacola, from St. John, N.B.

The cargo (200 standard) of spruce and pine deals, daily expected to arrive, per Elizabeth, from St. John, N.B.

The cargo of wainscot oak billets, crown redwood deals, and lathwood, daily expected to arrive, per Flora, from Riga.

All on account of the original importers.

On sale by private bargain:—

Two small cargoes of Richibucto deals (150 standard each), now ready for shipment there, specifications of which may be obtained on application to

EDWARD CHALONER, Broker,

Who is prepared to sell several cargoes of Mexican (Tonala) mahogany, for delivery at any safe port in the United Kingdom. Two cargoes, of 150 and 200 tons respectively, are daily expected to call for orders, as also a larger cargo.

## PREVENTIVE WORKS FOR THE SHANNON INUNDATIONS.

IN our several notices of towns in the western and midland counties of Ireland, we had occasion to refer

to the lamentable spoliation of landed property caused by the perpetual overflowing of the Shannon's banks, and we also recorded the general proceedings of the inquiry, instituted by direction of the Government before a Royal Commissioner, with a view—at least as alleged—of remedying the evil. All the valuable evidence adduced at such inquiry, together with an able and comprehensive report by the commissioner, Mr. Bateman, an eminent C.E., has of course found its way into that mysterious tome, "the blue book," and therefrom we collect some items, together with an estimate of the proposed expenditure which are of special interest.

It seems that hitherto the Board of Public Works have been comparatively powerless in arresting the progress of the all destroying element; that the prevention of the inundations would save property of an annual value of £30,000; and that this may be almost completely effected by works to confine the river at a rise of 9 ft. 6 in. high, except in the case of great floods.

The following is the statement of expenditure:—

Works at outlet of Lough Allen, including damage to land on the margin of the lough at present subject to flooding	£6,410
Wooden Bridge—Erection of a new bridge and deepening the channel of the river, including purchase of mill site, and improvements in the outlet of the river Feorish Jamestown—Removing present wier, erecting new wier and other works above the bridge and deepening channel of river below bridge	3,156
Roosky—Alterations in connexion with present wier, excavations in channel above wier, &c.	5,000
Carnadoe Bridge—Additional arch, and clearing out approaches	6,000
Tarmonbarry—Works at Wier at Tarmonbarry, including excavations and enlargements in river between Tarmonbarry and Roosky, and purchase of land	1,500
Embanking the Rivers Camlin and Fallon—Embankments and back drains, including purchase of land	16,600
Between Tarmonbarry and Lanesborough—Excavations and enlargement of river, including land required	4,156
Athlone Wier—Works connected with the discharge of the water at the wier, &c.	23,650
Between Athlone and Banagher—Enlarging channel of river at Derryholmes, including land for spoil, £25,750; new channel at Bishop's Island, including purchase of land required for works and spoil, £26,666; excavations in other portions of the river, including land for spoil, &c., £7,850	6,000
Meelick—(First scheme, described in report; probable cost, £55,800.) Second scheme—Suggested alteration in navigation between Meelick and Banagher; new wier at Banagher; removal of existing wier at Meelick; opening out of old channels; deepening shoals on the river where required; bridge, &c.; and purchase of land	60,236
White's Ford—Excavations and improvement in river, cleaning out entrance to old channel, including purchase of land required	56,646
Killaloe—Alterations in connexion with wier, protection to present navigation channel, excavations in river above wier, removal of old arches of present bridge, and cost of replacing same with iron arches, purchase of land, &c.	4,356
Parteen—Excavation in bed of river, purchase of land for spoil	20,092
O'Brien's Bridge—Removal of old arches of bridge and replacing them with iron ones, excavations in river approaches, &c., &c.	1,425
World's End—Removal of existing wier, replacing same with sluices; deepening bed of river between wier and Castleconnel, including purchase of land for spoil	5,500
Flooded land between Corbally wier and World's end, right bank of River; Embankments, back drains, syphons, culverts, &c., including land required	19,317
Flooded Land, left bank of river—Embankments, back drains, syphons, culverts, &c., including land required	6,420
New Tail Race, from the Corbally Mills to Abbey River—Excavations, including purchase of land, &c.	4,025
Embankment across the Abbey River, exclusive of sluices if required	2,270
Relieving land at the opposite side of the river, by a syphon into the Abbey River, including embankments, back drains, and land required	1,000
	3,157
	256,916
Contingencies, 10 per cent	26,084
Total,	£283,000

## PRIZES FOR WOOD CARVING: SOCIETY OF ARTS.

THE following are the awards of the judges:—

First Division: Human Figure in Alto or Bas Relief.—First prize of £8 and the society's silver medal, not awarded.

Second prize of £4 to James Meiklejohn, 29, William-street, Regent's-park, for "Apollo Playing to the Shepherds," alto relief, in oak.

Third prize of £3 to G. Rumford, 9, Ecclestone-street, for "The Rose Bud," a child's head in lime-tree.

Second Division: Animal or Still Life.—First prize of £8 to Mark Rogers, 111, Tachbrook-street, Pimlico, for a panel, in walnut wood, of dead game, in a wreath of oak, blackberry, fern, &c., intended for the decoration of dining-room, sideboard, or chimneypiece,—modelled and carved by him.

Second prize of £4 to be divided between — Green and Charles Humphriss, with honourable mention to T. H. Kendall, their employer, for "Life and Death," modelled by T. H. Kendall; executed by T. H. Kendall, — Green, and Charles Humphriss.

Third prize of £3 to W. Perry, 5, North Audley-street, Grosvenor-square, for the "Willow Wren" (property of Miss Burdett Coutts), "Robin in the Oak" (box-wood), "Thrush" (lime-tree), "Nightingale and Hawthorn," "Sedge Warblers and Dragonfly" (property of W. M. Coulthurst, Esq.)

Third Division: Natural Foliage, Fruit, or Flowers, or Conventional Ornament in which grotesque figures or animals may form accessories, preference being given where the work is of an applied character for ordinary decorative purposes, as representing commercial value:—

First prize of £8 to T. H. Baylis, 69, Judd-street, Brunswick-square, for his "Casket in box-wood."

Second prize of £4 to T. H. Kendall, of Warwick, for "Paper-knife, stiletto, and Christmas box."

Third prize of £3 to R. Flipping, for "The fish and shell panels," portions of sideboard exhibited by Messrs. Gillow and Co.

Two extra prizes are awarded by the Society of Arts, of £2 each, to J. M. Leach, of Louth, Lincolnshire, for a panel for the pilaster of a cabinet, designed and executed by him; and to C. J. Herly, of 2, Camden-place, South-street, Taunton, for a door panel, designed and executed by him.

## LABOURERS' COTTAGES, IRELAND.

BY the report of the judges appointed by the Royal Agricultural Society to inquire into the construction of cottages intended to compete for "prize cups and medals" during 1862, it appears that there were but five competitors for the Leinster challenge cup and for the provincial gold medal; and that to Lord Clermont, the successful competitor of 1861, have also been awarded this year both the cup and the medal. The cost of Lord Clermont's cottage is under £62. The following suggestions are contained in the report:—

"We know how difficult it is to arrange the space within the limits of a cottage so as to avoid defects; but there are some remarks generally applicable which we think it right to make. The size of the cottage is the consideration. As a general rule it seems to be thought requisite to have three bedrooms in every labourer's dwelling; yet practically we find that in not more than one cottage out of three can three bedrooms be occupied, and in many cases even a second bedroom is not required. Cottages should, therefore, be built of different sizes, and if the same extent of land is attached to each cottage, labourers, as their families diminish in number, will not object to move from larger cottages.

"The aspect of cottages is not sufficiently attended to. The appearance of the building from the high road is often more considered than the comfort of the inmates.

"A large living room or kitchen is not necessary—a square of twelve or thirteen feet will usually be sufficient; but there should not be an open stair in it, which acts like a chimney, renders the living room comfortless, and the upper rooms of the cottage cold. This may be remedied by boarding up the stair and placing a door at the foot.

"The windows of cottages should not open on hinges; such windows are seldom staunch or secure.

"In order to prevent the pig from being brought into the cottage, there should be no gate to the pig-gery yard; but a feeding trough with a moveable flap should be built into the wall of the yard.

"Dormer windows in the roof should be avoided, as they are expensive, and skylights in the roof often admit wet. It would be better to raise the side walls of the cottages a little higher, and thus obtain room for the upper windows. The ashpit should not be placed against the back wall of the house, or too near it."

## UNVEILING THE ALBERT MEMORIAL.\*

THE ceremony took place on the 10th ult. The Prince and Princess of Wales, Prince Alfred, and other members of the Royal family, arrived in state carriages at 4 p.m., and proceeded to a gallery erected at the back of the Exhibition buildings. They were received by a large number of officials, including many provincial mayors; several of the ambassadors were present, Lord Palmerston, Mr. Disraeli, and several other leading political personages also were present.

The weather was cold and gloomy, and a smart shower soon after 4 somewhat disconcerted the 30,000 well-dressed spectators, but subsequently the weather cleared up.

After the Royal party were seated, the National Anthem and Coburg March were played.

An address was then presented to the Prince, and replied to, and the unveiling of the statue took place amid the playing of bands and discharge of artillery.

A procession was then formed and went round the gardens, passing the statue. The Prince wore his Guards' uniform, and the Princess a mauve moire antique dress, and white bonnet. The whole of the Royal party joined in the procession, and left the ground about half-past five o'clock.

The following is the address to the Prince, read by Mr. George Godwin, F.R.S., Hon. Sec. to the Memorial Committee, and Editor of the *Builder* (London).

"May it please your Royal Highness—

"In the year 1853 a meeting convened by the Lord Mayor of London, Mr. Thomas Challis, M.P., and presided over by him, was held in the Mansion House, to consider the propriety of erecting some memorial of the Great Exhibition of 1851, in connection with a tribute of admiration to its great founder, the Prince Consort, your Royal Highness's illustrious and lamented father. The propriety of the step was at once recognised; and it was at once resolved unanimously, as well by the country at large as by the meeting, that the Exhibition 'was an event of the greatest importance to the nations of the world, by enabling them to observe the relative influence of science, art, and national characteristics upon production, by furnishing the means of a valuable review of the past, and by making a new starting point for the future progress of productive industry, and giving it an increased stimulus.' The meeting saw, too, with the wise author of the undertaking, that its tendency had been to promote useful intercourse between all peoples, and to induce in them feelings of goodwill towards each other. Money was accordingly subscribed for the erection of a memorial, and active steps were taken to obtain a place for the intended monument on the site of the Exhibition in Hyde-park. Artists of all countries were invited to submit drawings and models in competition, and, ultimately, out of nearly 50, the design sent in by Mr. Joseph Durham was selected. The endeavours to procure a site in the Park having failed, we, the Executive Committee, who had met with difficulties that might not have been anticipated, sought the aid of the Prince Consort. This was at once freely accorded on the condition, characteristic of his Royal Highness's noble self-denial, that the memorial should be in no way personal, but one to which he could himself subscribe. The Royal Horticultural Society granted the fine site before which we now stand, on land belonging to the Royal Commissioners for the Great Exhibition, and therefore appropriate, the Commissioners themselves concurring in the grant; and from then till the last his Royal Highness continued to give consideration and personal assistance of inestimable value in completing and carrying out the project. Guided by his cultivated judgment, and aided by an increase of the funds, the design was enlarged and improved to its present form; and the last public act of the Prince in London was the approval of the statue of her Most Gracious Majesty the Queen, then intended to surmount the memorial. A letter from your Royal Highness after the painful event that had plunged the nation into grief, conveying the will of the Queen that instead of her Majesty's statue that of her beloved husband should crown the memorial, and offering on your Royal Highness's own part to present the statue proposed to be thus placed—a letter which touched the heart of the country—enabled us to carry out the original desire of the subscribers, which was emphatically to offer a public and lasting tribute in connection with the Great Exhibition of 1851 to the good Prince, 'to whose far-seeing and comprehensive philanthropy' (as now recorded on the face of the memorial) 'its first conception was due, and to whose clear judgment and untiring exertions in directing its execution the world is indebted for its unprecedented success.' We take the liberty

of expressing our great satisfaction with the admirable manner in which Mr. Durham has executed the commission confided to him. He has produced a work that we believe to be honourable alike to himself and to the country; and we trust this feeling will be generally shared in, especially by those eminent persons who assisted in the Great Exhibition, and whose names he has consequently recorded on enduring granite. In concluding this brief account of our proceedings, we tender most grateful thanks to the Queen for the interest her Majesty has been pleased to show in the progress of this work, and the all-important assistance thus rendered us in our self-imposed labour. And we pray heartily and devoutly that Almighty God may, in His goodness, long preserve her Majesty's life—a life most precious to her loyal and loving people. It only remains for us to acknowledge most respectfully the anxious readiness with which you, sir, accompanied by the illustrious Princess whom all the kingdom welcomes with open heart, and by your Royal brothers and sisters, have graciously taken part in the proceedings of to-day. We offer in the name of the subscribers our earnest thanks, and we solicit that your Royal Highness will now be pleased to command the uncovering of the memorial."

To this address, the reading of which was interrupted by repeated applause, the Prince of Wales returned the following answer:—

"Gentlemen,—I have listened with an interest, which I am sure will be shared by all present, to the details which you have given in connection with the memorial to my lamented and revered father which we are assembled this day to inaugurate. As a son I cannot but be deeply affected by that part of your address in which you have referred to the beloved parent whose aid and counsel were never wanting when work was to be done, or when difficulties were to be overcome. I am confident that our proceedings in commemorating so proud a year in England's annals would have met with his approval, and I am sustained in the part which, in obedience to the Queen's command, I have undertaken by the conviction and grateful sense that the sympathy of the entire nation accompanies me. I have now the pleasure of directing that the memorial—of which the artist may well be proud—be now uncovered."

The last words with which his Royal Highness concluded were scarcely audible beyond the splendid circle which were assembled round him in the balcony, but, as if intuitively, the whole assemblage turned towards the covered monument, from which neatly and quickly, as the boom of the first gun sounded, the covering was instantaneously withdrawn, showing a memorial of which, as the Prince truly said, the artist might well be proud. It is entirely constructed of red and grey granite, as far as relates to the artist's design. The under base of Portland stone does not belong to the memorial proper, and would have been better if in unison with the granite work, and the arches, keyed with unmeaning masks, materially detract from the composition. It is, we believe, the first public monument in which both red and grey granite, accompanied with bronze work, has been combined, at least in this country, and is in other respects new in its architectural features. The bronze statues have been produced by means of electro-deposition, which in this instance gives decided evidence of its importance in rendering the correct handling of the artist, as well as preserving the exact size of the original models, which could not be the case where the old method of casting is used.

The form of this memorial is that of a temple, with projecting bases at four equal distances, of sufficient size to carry seated figures of 8ft. high. The entire height of the memorial, exclusive of the under work with arches, is 42ft.; the width across the angles of the granite is 18ft. The entablature is broken to correspond with the projections of the base. The four seated bronze statues represent the quarters of the world in an allegorical manner, but divested of the old conventional type. Beneath, and in front of each statue there is a bronze medallion inserted in the granite base, the four medallions being enlarged copies from the prize medals awarded to successful exhibitors of 1851. Behind each of these statues arise two pilasters and two pillars of the Corinthian order, from stylobates placed above the heads of the statues. The capitals and bases of the columns are of bronze, the shafts of polished red granite, the effect of which is very good as an architectural decoration. Polished red granite is also introduced with equal effect in the crescent side panels of the base, and upon the circular side panels of the body of the temple. Upon the four latter panels there are inscribed in gilded incised lettering the principal features and facts relating to the first International Exhibition, including a record of all those who were actually engaged in any responsible position connected with the manage-

ment of that national event, commencing with the Royal President of the Commission, the late Prince, whose statue in bronze surmounts the Memorial. It is 10ft. high, and in the mantle and with the insignia of the Master of the Order of the Bath—the Queen, as Sovereign, being head of every other illustrious Order.

The statue of the Queen, as personifying "Peace," was intended originally to have been the crowning figure, but has been exchanged for that of the Prince by express desire of Her Majesty.

The frieze of the Temple bears upon it, in gilded lettering, two inscriptions, one from Isaiah, "Let all the nations be gathered together, and let the people be assembled;" and the other is from the Psalms, "I will remember the works of the Lord; surely I will remember Thy wonders of old." On the north tablet is the dedication of the Memorial itself, as follows:—

Erected  
By public Subscription.  
Originally intended only to commemorate  
The International Exhibition  
Of 1851.  
Now  
Dedicated also to the Memory of  
The great Author of that Undertaking,  
The good Prince,  
To whose far-seeing and comprehensive Philanthropy  
Its first Conception was due;  
And to whose clear Judgment and untiring Exertions  
In directing its Execution  
The World is indebted for  
Its unprecedented Success.  
ALBERT FRANCIS AUGUSTUS CHARLES EMANUEL,  
The Prince Consort,  
Born August 26, 1819. Died December 14, 1861.

"He was a man! take him for all in all,  
We shall not look upon his like again."

## THE DUBLIN WATERWORKS.

## DIVERTING THE COURSE OF THE VARTRY.

ON yesterday the Lord Lieutenant, accompanied by some members of the Viceregal household, and in presence of a vast assemblage, composed of nobility, gentry, corporation members, &c., &c., and a considerable sprinkling of the fair sex, performed a most important ceremonial in connection with the vast works now in progress for the improved supply of water to this city.

A monster special train conveyed his Excellency and the numerous guests of the contractor, Mr. McCormick, M.P., who were invited to witness the interesting ceremony, from Harcourt-street terminus, at 11 o'clock, and, after proceeding at a rapid pace, it was slowed as it approached Stillorgan, that the party might inspect the works at

THE PRINCE OF WALES RESERVOIR, of which, together with the works in connection, the following is a description:—

This reservoir is constructed in two parts, and in fact consists of two reservoirs, connected by pipes and valves. The wall round the entire reservoir is already perfect. The great embankment, with its puddle trench in the centre, is also raised in some places within five feet of its summit level, and much of the excavation is already completed. A visitor to this portion of the works has an opportunity of seeing the excavations for the puddle trench—the care taken to reach a solid water-tight foundation—the gathering of the puddle—the working and formation of the great elastic impervious wall, which is to render the bank water-tight, and the incipient arrangements for the construction of the valve-house. The present proposed arrangement for the construction of the valve-house is such that the caretaker can, at his discretion, send water through the main pipes, which run along the Donnybrook-road from either of the subdivisions of the reservoir at Stillorgan, or send it down direct from the filter beds at Roundwood, without entering the reservoir at all; thus in effect sending the water from the upper Vartry, according as it is filtered, to each house in Dublin, and not allowing it to stand for an instant in its passage from Roundwood to the water-cock in each house. The pipe laying from the Stillorgan reservoir along the route to Roundwood has already commenced in two places. They are laid nearly half the way along the length of railroad between Stillorgan and Carrickmines. Near Carrickmines Hill, on the right of the railway passage along to Bray, the first relieving tank is visible. The line of pipes here diverges from the railroad, passing across the Dargle, and was not visible again from the route taken by his Excellency until after passing Bray, and close to where they touched the road at Hazlebrook. Here the pipes pass nearly along the line of road till within a very short distance of the Glen of the Downs.

On arrival at the Bray station, which was gaily decorated for the occasion, a guard of honour was drawn up, and after a brief delay the numerous vehicles in waiting became fully occupied, and a vast cortege was on its route to Roundwood, passing through the Glen of the Downs, Delgany, and

\* Omitted from DUBLIN BUILDER of 15th ult. from want of space.

other beautiful spots of the far-famed county of Wicklow. His Excellency and party alighted to inspect

#### THE TUNNEL AT DUNRAN,

which is about 2½ miles in length, and contains a great receiving tank. Here were in attendance, for the purpose of explaining the nature of this portion of the works, Mr. Parke Neville, city engineer, Messrs. Andrews, Palles, and Crosthwaite, resident engineers, Mr. Greene, contractor's manager, &c.

The great embankment of

#### THE ROUNDWOOD RESERVOIR,

Which is the basis of the future work, was next reached.

This embankment, or water-tight dam will be half a mile long, extending across the valley in which the Vartry runs, and, from its foundations to its summit in the centre, will be about 80 feet in height, while the breadth at the base will be about 330 feet. The puddle work is in the centre of the embankment, and is about from ten to twelve feet in thickness, and the bank is built up at each side to a width varying from 180 feet at the base to nearly 20 feet at the summit. Stupendous as this carefully and scientifically constructed mass is it requires, for its efficiency and for its own protection, that the puddle wall or trench in its centre should be based upon a water-tight foundation, which water-tight capacity should be preserved to the summit. From the favourable nature of the strata on the site of the great storage reservoir at Roundwood, the reaching this water-tight foundation was not difficult. It was found at an average depth of from ten to twelve feet below the level of the bed of the river. The formation of the embankment across the bed of the river could not, of course, be undertaken until the water was turned from the river bed. This was the operation which was performed by the Lord Lieutenant. Everything being ready for the occasion, his Excellency turned the waters of the Vartry from their ancient course into the new cut or channel made for their reception. Its extent is about fourteen feet by ten. When the bank will be completed pipes will be laid on this new cut to convey the water into the reservoir, and the cut itself will be closed up. By means of valves on these pipes the water will be allowed to pass according as may be required.

From the hill over the Vartry valley his Excellency, after pausing for some time, proceeded, under the guidance of the Lord Mayor, Mr. McCormick, and Mr. Neville, along the lower edge of the embankment. He was accompanied by Sir Richard Griffith, the chairman of the Board of Works; Sir George Hodson, Dr. Gray, and other members of the corporation. On his Excellency's arrival at this spot, where there was a marquee erected, a signal was given by Mr. Greene, on which every man stopped work; barrows, pickaxes, and shovels were laid aside, horses were unyoked, and all the men rushed to the central point of attraction, lining the banks of the new cut, and every elevated point from from which its channel could be seen. Immediately after his Excellency and party arrived at this point, a circle was formed, and the Lord Mayor called on Dr. Gray, as chairman of the Waterworks committee, to read the address to his Excellency. The town clerk then handed Dr. Gray the address, which he read as follows:—

May it please your Excellency—We, the Waterworks Committee of the Municipal Council, in the name of the Lord Mayor, Aldermen, and Burgesses of Dublin, beg leave to tender to your Excellency our warmest thanks for the cordial interest you continue to take in the progress of this, the greatest public work undertaken by the municipality of Dublin since its first incorporation. Some months have elapsed since you kindly consented, at a period when doubts and misgivings as to the future still haunted the minds of many, to become sponsor for the Vartry waterworks, testifying your well-grounded faith in the project by laying the first stone of our service reservoir, and not hesitating to identify with our undertaking the name of the Prince who is heir to the throne of these realms, and whose virtues have already won for him the affections and the loyalty of this people.

It cannot fail to prove gratifying to your Excellency to learn that the doubts and misgivings have passed away, and that all controversy as to the suitability of the project is at an end. Mr. Bateman—a man whose name is imperishably connected with the great Loch Katrine works, and whose high repute gave scientific authority and engineering vitality to the doubts of the less skilful many—has recently re-investigated the whole project, under the sense of official responsibility, and, after a most rigid scrutiny of all its details, has confirmed the favourable opinions pronounced by your Excellency as to the essential soundness and certain success of the undertaking.

To your Excellency, and to the members of your government, whose co-operation you procured for

us, we are indebted for the financial facilities which enabled us to prosecute these works to the state of advancement you have to-day witnessed. To that co-operation we owe the success of our application for a loan of £250,000, and the reduction of the interest on that loan from five to four per cent. In the consequent diminution of their burdens to the extent of £2,500 a year, and in the abundant guarantee thereby afforded that we will be able to complete all our works without increasing either our borrowing powers or our present taxation, the citizens of Dublin will feel the benefit of the warm interest you have taken in their welfare, for which we now desire, in their name, to express our deep and lasting gratitude.

The waters of this river have passed for countless ages through the channel in which they flow to-day for the last time. A new channel, intended to conduct them to more useful ends, has been designed by the skill of our engineers, and constructed under the direction of the eminent contractor, Mr. McCormick, to whose experienced and practised judgment we confidently entrusted all our works. Nearly two thousand native workmen, doomed to eat bread in the sweat of their brow, have here found their laborious industry requited by good wages, bringing in their train contentment and abundance; and your Excellency will learn with satisfaction that their conduct has been throughout marked by good order and disciplined obedience.

It now only remains for the Waterworks Committee, in the name of the ancient and loyal Corporation of Dublin, respectfully to ask your Excellency to close this old channel now and for ever, and to command that "the beautiful waters of the Vartry" shall henceforth flow through their new conduit, dedicated throughout all time to come to the high and holy purposes of ministering to the domestic wants, the physical health, and the moral elevation of the three hundred thousand people, in whose name and for whose use we humbly implore the Author of all good to bless, to sanctify, and to perpetuate the work you are now about to accomplish.

JOHN GRAY,

Chairman of the Waterworks Committee.  
Tuesday, June 30th, 1863.

The reading of the address elicited loud applause. His Excellency then read the following reply:—

I have to thank the Waterworks Committee of the Municipal Council of the city of Dublin alike for a friendly address, a picturesque expedition, and a very interesting and imposing ceremony. I well remember the inaugural function of this great undertaking, and I cordially join with you in rejoicing that it should have advanced thus far smoothly and prosperously in its progress towards completion. I almost feel that you invest me with powers to which neither my imagination or my ambition ever soared, when you call upon me to divert the crystal waters from the course they have probably followed since these purple Wicklow hills emerged from the earth's crust, and to bid them flow in a new and virgin channel. I well know that this marvel has been achieved by high engineering genius, and by the scarcely less necessary co-operation of hardy and honest industry. I fervently echo your prayer, that the results of this spirited enterprise may fully accomplish all the purposes which have inspired its conception and progress. If in a neighbouring valley the eye of genius could see in the social pleasures which were gathered round the Meeting of the Waters a magic more exquisite than their own, so here we consecrate the parting of the waters to a still higher mission, to promote the health, comfort, and civilization of countless families.

At the close of the reply there was renewed and long-continued cheers.

The Lord Lieutenant, after a brief pause, addressing the assemblage, said—Ladies and gentlemen, I have a very few words to add on this occasion. I wish to give a practical proof of the value I attach to this undertaking, by making a special recognition in the only way open to me, of the indefatigable zeal and high ability evinced by the chairman of the waterworks committee through the whole progress of the undertaking.

His Excellency then commanded Dr. Gray to kneel down, and, receiving a sword from the aide-de-camp in waiting, laid it successively on each shoulder, using at the same time the words, "Rise, SIR JOHN GRAY."

The Lord Lieutenant then addressed Lady Gray, who was standing beside her husband, and said, "I wish to make my compliments to Lady Gray." His Excellency shook hands with her ladyship in the most gracious manner.

On Sir John Gray rising, he was received with loud and general applause, mingled with cries of "you have earned your spurs by hard work, and long may you live to wear them." The Lord Mayor, the Lady Mayoress, several members of the corporation present, and the other visitors pro-

ceeded to offer their warm congratulations to Sir John and Lady Gray on the dignity which they said had been so deservedly conferred.

A magnificent banquet, at which numerous toasts were proposed, and some excellent speeches made, terminated the gala proceedings.

The following humorous verses relative to this event, and the authorship of which we have reason to attribute to the well-known clever pen of Wm. Scribble, Esq., appeared in the last issue of the *Saturday Magazine*:—

In Dublin city once, I'm told,  
Fresh water was so bad  
That every one went out to sea,  
Where better might be had.

The water from the Grand Canal  
Whole kingdoms did contain  
Of living monsters, only found  
In some most dreadful reign.

'Twas analyzed by many men  
Of scientific wits—  
All found it quite unfit for use  
Excepting Master Fitz.\*

The Corporation called for plans  
This dreadful ill to cure—  
Each engineer was far astray  
Still-water to find pure.

Some thought the River Liffey good,  
And from all cavil free,  
Till it was found the watering-place  
For the Newbridge cavalry.

O'Connell's patriotic friends  
Might have devised some plan,  
Dan's statue joined with waterworks,  
The fountains from Lough Dan.

But now the source is all arranged;  
The Vartry river gay  
Will play upon our city pipes  
If we the piper pay.

They say 'twas thought of first by chance,  
That's quite true in the main;  
'Twas Haz(ss)ard brought to us the luck,  
May his luck be a gain.

They're going to turn the Vartry stream  
From the course which it has led,  
May no wet blanket damp the day  
They change that river's bed.

It looks right well to see the works  
Proceeding thus *amain*,  
Amidst the real pleasures of  
The popping of champagne.

The committee hope the works will be  
Complete, and all repay  
Before their chairman's looking old,  
Although he now is Gray.

I hope Lord Carlisle will be here  
As Ireland's Viceroy,  
To take the first cup from the stream,  
'Twould fill our cup of joy.

#### GURTEEN CASTLE.

GURTEEN CASTLE, of which we presented an illustration last month, is at present in course of erection at Gurteen, Co. Waterford, the seat of Edward Le Poer, Esq. It occupies a site immediately adjoining the owner's present residence, and is beautifully situated on the bank of the river Suir, within three miles of Clonmel, commanding some of the finest scenery of the county, and with which the style of the building perfectly harmonizes.

The principal entrance is from the north tower, as per view, the hall opening into a spacious picture gallery, lighted from the roof, from which the principal staircase is divided by Gothic arches, and off which opens the drawing-room, dining-room, library, boudoir, and billiard-room; the corridor to garden, porch, housekeeper's apartments, pantry, larder, stores, kitchen, and domestic offices in wing, opening off the staircase hall.

Bedrooms and dressing-rooms, &c., occupy the first floor, and access to the tower bedrooms is obtained by a circular staircase in the north turret, while suitable servants' rooms are provided in the attic, accessible from the south turret.

The material used is local limestone, in finely-hammered, broken ashlar work, in courses, with punched quoins and dressings.

The work is being executed under the superintendence, and from the designs of Mr. S. U. Roberts, of Galway, C.E. and Architect, whose designs we have often favourably mentioned; Mr. T. H. Carroll, of Dublin, being the contractor—a fact, in itself, a guarantee for good workmanship. The building will cost about £10,000, and is expected to be completed in two years.

\* The good Master in Chancery, who fought hard, but fairly, against the soft-water scheme.

## REPORT OF THE ECCLESIOLOGICAL SOCIETY.

WE take a few passages from the recently published report of this Society:—

The committee authorised the president to petition against the spoiling of the view of the west front of St. Paul's Cathedral by carrying a railway viaduct across Ludgate-hill. They fear that the scheme of destroying some of the city churches is not unlikely to be put into operation, in spite of all opposition; but it is satisfactory to have to record that, within the last few days, the parishioners have successfully resisted a scheme put forward under the auspices of the Bishop of London's Act for the demolition of the remarkable church of St. Mary Woolnorth (Hawkesmoor's *chef d'œuvre*), which it was proposed to destroy for the convenience of the General Post Office.

Our notices of Foreign Ecclesiology are this year unfortunately scanty. The completion of the west façade of Santa Croce, at Florence, must be recorded, as also the negative result of the competition for a west façade of the Duomo, for which Mr. Burges sent a design. The works at Notre Dame, Paris, by M. Viollet Le Duc, are not yet completed. We hear with regret that the scrapings and restorations of the churches at Caen have been most destructive; and the same complaint reaches us from Belgium as to the proceedings of the Royal Commission in that country. The works at Cologne Cathedral proceed steadily under the care of M. Voigtel, M. Zwirner's successor. M. Statz has designed a (Roman Catholic) church for Potsdam, and has restored the abbey church of München-Gladbach, in Rhenish Prussia.

The restoration of the Papal Palace at Avignon, by M. Viollet Le Duc, is immediately to be commenced. M. Abadie is busily engaged in the demolition and reconstruction of the domes of St. Front, Périgueux. At Nîmes a costly church dedicated to St. Perpetua, is almost ready for consecration.

Religious painting at home must be represented this year by the completion, by Mr. Preedy, of the mural paintings as designed by Mr. Le Strange for the east end of St. Alban's, Holborn; also by a triptych, executed by Mr. Westlake for Messrs. Lavers and Barraud, for St. Mary's, Aberdeen; and by a 'Majesty,' by Mr. Smallfield, placed at the back of the recessed tomb, already referred to in St. Andrew's, Well's-street. Abroad we hear in particular of the painted decorations of a church at Alby; and our honorary member, M. Guffens, of Antwerp, has painted a fine altar-piece for Notre Dame St. Nicholas, in Eastern Flanders.

## THE IRISH INSTITUTION OF ART.

FOR a considerable time it was a matter of surprise to many that Ireland contributed so much to giving what is called "British art" a character and a name, although the government of the country never made the slightest effort to cultivate or encourage amongst Irishmen a taste for painting and sculpture. But notwithstanding that culpable neglect to Irishmen, England is indebted to them for those works in art which alone make her school known and recognised with respect by our continental neighbours. West was a Yankee, so also was Copely, the father of Lord Lyndhurst, and he upon whom the fame of the English school depends in the higher walks of creative art, was a poor Irishman, born in Cork, of humble parents. James Barry was his name, a friendless adventurer, who went to seek employment in London, but who was destined to soar to a grand eminence in art, which no man of the English school has since attempted to approach. Forde, a townsman of Barry's, though early called, did not die until he made an enduring fame in a picture which he did not live to finish—the "Fall of the Angels"—which has been pronounced by the most distinguished art critics to be not inferior, in some particulars, to the greatest efforts of Michael Angelo; while all conversant with art who saw it declared it to be "a miracle of genius." Mulready, Danby, senior and junior, Elmore, Shee, Hayes, M'Dowell, Foley, and, though last not least, MacIise, have upheld the character of British art, without having been indebted to the government for instruction, or the means by which they could acquire success in the course in which they had embarked. Remonstrance after remonstrance was made without effect; but at length the injustice became so glaring that promises from persons in high places had to be made that the evil complained of should be redressed, but none of these promises were ever kept, and it was not till the close of the Exhibition of 1853 that a movement was set on foot by a number of noblemen and gentlemen resident in Ireland to found a permanent public exhibition of art in Dublin, with a view to make our artists conversant with the works of some of the great masters, and to educate the public taste. Several exhibitions of fine pictures were held, and day by day the agita-

tion for a National Art Gallery gained strength. The present Lord Chancellor, the Earl of Charlesmont, Lord Talbot de Malahide, and a number of other distinguished persons, took an active part in it; and the Earl of Eglinton, when a viceroy, ably seconded the efforts of the promoters of this most desirable object. The sum of £5,000, which had been subscribed to erect a memorial to William Dargan, was added to the funds already collected, and it was agreed that the great sculpture gallery should be called "The Dargan Hall," and that a portrait of him should be placed in a suitable position in the apartment. On the act of parliament having been obtained for the establishment of the National Gallery it was provided that a portion of the structure to be erected should be set aside for the reception of Marsh's Library for the use of the public. A grant of £6,000 was passed by the government in aid of the works, and with this grant, and the £5,000 subscribed to the "Dargan Fund," the committee determined on commencing the construction of the new building at the northern side of the Leinster lawn. By an arrangement entered into with the Royal Dublin Society the proposed structure had to be made resemble the society's museum on the southern side as much as possible, and for this reason no effort to produce external architectural effects could be made. A huge oblong building in cut stone had to be produced, of which nothing can be said more than to observe that the architect did the very best he could with it under the circumstances. On the 29th January, 1859, the first stone was laid by the Earl of Eglinton, the then Viceroy, and it is now all but ready for the reception of the fine collection of pictures which have been presented for the great object of fostering and promoting a taste for the fine arts amongst us. It may be as well here to state that only one-half of the new building has been set aside for the exhibition of pictures, and this is a circumstance which the public should look to at once, as not a moment is to be lost in preventing a threatened evil. The entire of the western half of the building was partitioned off for the reception of the books in Marsh's Library; and it appears that this provision is now unnecessary, as it has been determined not to remove the library from where it is at present, as Mr. Benjamin Lee Guinness has, with his usual princely liberality, determined on repairing it, and granting an annual sum for its support. This arrangement was made known to the commission that recently investigated the present state of the Royal Dublin Society, and the commissioners recommended that the half of the Irish Institution building which was to have been set aside for the reception of Marsh's Library should be appropriated for the purposes of a Geological Museum. Those who will take the trouble of inspecting the building will at once perceive that the entire structure would be barely sufficient for an Art Gallery, and that by the present arrangement there will be scarcely wall room for the pictures on hands, and that no provision has been made for hanging any pictures which may be presented or purchased hereafter. A great national institution is now about to commence its public career, and the people of Dublin, and indeed of Ireland generally, will have to blame themselves if they do not make an effort, and a prompt one, to prevent the suggestion of the commissioners being adopted. Ireland is rich in fine private collections of pictures, many of which will, in all probability, be presented to the nation for the promotion of art, and it will be too late to complain when eccentric paving stones and erratic petrifications have taken the places which should be occupied by deathless works of the glorious old masters that will, perchance, have to be stowed away in obscure places for want of space to hang them for the delight and instruction of mankind. The portion of the interior which at present is intended for art purposes is nearly completed, and, as far as it goes, it is well calculated to reflect credit on those to whom its construction and decoration were confided. The principal entrance is from Merrion-square. In front of this entrance will be placed a fine statue of William Dargan, executed in bronze, from the design by Mr. Farrell, to correspond with the bronze statue of Lord Eglinton, by M'Dowell, which will be placed at the eastern end of the Royal Dublin Society's Museum, at the southern side of the lawn. The entrance to the Art Institution leads to a small hall or court, in which two Assyrian winged lions (*fac similes* of those discovered at Nineveh), and some good casts of Egyptian antiquities are placed. From this court the visitor enters the Sculpture or Dargan Hall, which is a noble apartment in the Corinthian style of architecture. The ceiling, which is divided into richly-moulded panels, is supported by fine pillars with highly elaborated capitals. A number of *alto* and *basso* *relievos* are inserted in the walls, the former being fine casts of the *Metopes* of the Parthenon, and the latter of the frieze which adorned the colonnade of that building, some mag-

nificent antique castings, amongst which are those presented by Lord Cloncurry, occupy the centre of the hall, and a fine "Laocoon" group occupies the archway in the centre of the stairway leading to the picture galleries. The hall is lit from the northern sides, and is heated, as well as all the other apartments in the building, by hot water pipes, screened by perforated covering. The staircase is most effective, and consists of a double flight of stone steps furnished with ornamental bannisters and highly-polished balustrades. From the first landing we enter the large picture gallery, which is the finest apartment in the empire devoted to art purposes. The walls are covered with crimson painted cloth, surmounted with elaborate and richly decorated mouldings. The ceiling is semi-arched to its centre, which is of glass, several feet below the outer glass roof. Two flights of steps diverging at either side of a fine arch lead to four ante-rooms of rather limited dimensions. They are elegantly furnished and all are surrounded by rails to keep persons from approaching too near the pictures. The building, or the portion of it at the disposal of the committee, will be entirely finished in a month, when the hanging of the pictures will commence. The estimated cost of the structure will be altogether about £26,000. Before we close this brief notice of a great national undertaking, calculated to do good service for art amongst us, we must, in justice, mention the munificent liberality of the Lord Chancellor, who, out of his own private resources, contributed £1,250 for the purchase of pictures for the institution to be for ages pictorial instructors to his fellow-countrymen. This is a noble example, and, doubtless, will be followed by many. This act of private munificence in itself is quite sufficient to show the folly of allowing the space which will be required for the legitimate purposes of the institution be applied to a geological, or any other "logical" museum. The general arrangements, as far as they have gone, have been admirably carried out by Mr. G. F. Mulvany, R.H.A., the efficient secretary. It would be premature now to enter on anything like a notice of pictures belonging to the institution, but we shall do so when the proper time arrives.—*Freeman*.

## PATENT PORTABLE HOUSE.

OUR attention has been directed to an ingenious moveable contrivance for a dwelling-house invented by Mr. Gregory Kane, camp furniture outfitter, Dame-street, of which the following, from the columns of a daily contemporary, are the particulars:—

"The great value of this invention consists in the ease with which it can be conveyed from one place to another, and the small space required for storing away or packing up the entire structure. Two great objects have been admirably consulted—durability and lightness. On entering this structure, which is twenty-seven feet long, twelve wide, and thirteen high, the visitor is struck with its elegance and comfort. Sofas, loungers, sideboards, chairs, pier glasses, and every other requisite for a well finished drawingroom, are to be seen in one apartment, and in others comfortable beds, wardrobes, toilet necessities, &c., and in the culinary department a patent cooking range, capable of preparing dinner for a large family, is to be seen, as well as perfect model kitchen furniture. The interior accommodation is as follows:—The sitting room, 16 feet by 12, first bedroom, 12 feet by 11; second ditto (above), 12 feet by 11; kitchen, 7 feet by 5. All the furniture as well as the house can be made disappear in half an hour, and present nothing more than a few wooden boxes capable of being removed with all possible ease. This is all effected by the following simple and ingenious contrivance. The walls consist of thick plank, which, when taken down, form eight boxes, three or four of which will be sufficient to contain the requisites for a family of six persons. The roof, which is of zinc, can be rolled up and placed in any of the boxes. The windows are of stained glass, furnished with casements. The house is firmly connected by iron fastenings, all so numbered that their proper position can be at once discovered. The other portions of the house in this respect are also clearly pointed out so as to render the assistance of a carpenter or builder unnecessary, as one or two farm labourers could erect the house in a few hours. The portable dwelling, of which we give the above details, was constructed by order of Captain Richardson for his estate, Neilgerrey Hills, Madras, India."

A VALUABLE CHIMNEY.—The elevated chimney of the Ballycorus Lead Mines is being cleaned an present, for the third time, the result of which will, it is stated, be probably a gain of about £2,000 worth of arsenic and other matter precipitated in the passage of the smoke from the smelting-house of the mines. This chimney cost originally about £4,000, a sum that will evidently be realized in a short time by the produce referred to.

# PROPOSED EXHIBITION OF INVENTIONS AND IMPROVEMENTS IN BUILDING MATERIALS AT MANCHESTER.

WITH a view of feeling the way as to probability of success for this proposed enterprise, the following circular has been addressed and extensively forwarded by the undersigned, and we sincerely trust that their very commendable effort may prove successful:—

"The building trade has long felt the want of a collection or exhibition of the inventions and improvements in building materials, so that a builder or his client may see at a glance what article is most applicable to his purpose.

This want cannot be supplied by the tedious pages of an advertising sheet, and at present the inventor has nothing but the expensive and but partially effective process of advertising to make his invention known.

This want we propose to supply in Manchester by a suite of Exhibition Rooms, where specimens of inventions in connection with the Building business, will be classified and arranged on screens or tables. These rooms will be thrown open *free of admission* to architects, builders, and the public generally.

The following papers will be provided for the use of the rooms, viz:—The Engineer, The Builder, The Building News, the Manchester Daily Papers, and the Liverpool Mercury.

In a few days we shall ascertain from the replies received from the inventors and manufacturers throughout the country, whether their support will be sufficient to warrant the success of the undertaking, and you will then be informed of the result.

O. J. & J. SHOWELL,  
17, Princess-street, Manchester."

The charges to exhibitors will be as follows:—

For every single article occupying less than one superficial foot, 10s. 6d. the half year, payable in advance.

For frames or cases occupying not more than two superficial feet of wall or floor space, 15s. the half-year; and for every additional superficial foot or portion of a foot, 5s. per half year, payable in advance.

## PUBLIC WORKS, IRELAND.

By the thirty-sixth report of the Board of Works it appears that of the total advances to the 31st of March (£10,327,349) £1,246,159 were for public works; relief works (9th Vic., c. 1), £226,349; arterial drainage, £2,075,893; county relief works, £4,597,778; Labouchere drainage, £190,870; Shannon navigation, £294,090; and drainage, farm-buildings, labourers' dwellings, &c., £1,687,207. The "advances" in the year ending 31st of March, 1863, were £70,780, and the remissions £5,643,004. The total repayments to her Majesty's Exchequer to the 31st March last were £4,345,031, and in the year ending the same date £199,761. A statement of the amount of applications for loans, and the amounts issued up to the 31st of March, 1863, shows that the amount applied for in the northern district was £875,576, and the total amounts issued, £317,549; midland and eastern district, amount applied for, £1,294,631; amount issued, £490,202; western district, amount applied for, £1,250,515; amount issued £402,952; and the southern district, amount applied for, £1,451,355; amount issued £476,504. Total amount applied for, £4,872,079, and total amount issued, £1,687,207. Among the "works" completed by the Board, or in process of erection, are—the Model National School at Lurgan; the Cork Model School; the New Probate Court, Dublin; a District Registry Court at Armagh, and another at Cork. Tenders have been invited for a new Record Depository at the Four Courts, Dublin. Important additions have been made to the Hibernian Military School, and additions have been made to the Queen's College, Galway. A new wing has replaced that destroyed by fire at Cork, and several improvements have been made in Dundrum Asylum.

## ARCHITECTURAL ASSOCIATION.

THE last meeting of the present session of the Architectural Association was held on Friday evening last, at the house, 9, Conduit-street—Thos. Blashill, Esq., in the chair.

A special business meeting was held at eight o'clock, when the following resolution was carried unanimously:—"That the President of the Voluntary Architectural Examination Class be *ex-officio* a member of the committee of the Association."

The ordinary meeting then followed. Some new members were nominated for election at the first meeting of the next session.

The officers for the next year were then elected.

Mr. C. North read a paper on "Rochester Cathedral." In the course of his paper Mr. North said that the Norman cathedral consisted of nave, aisles, and transepts, occupying the position of the present

west transepts, with lantern at the intersection, short choir, and apsidal east end probably built on the old Saxon remains. All that at present remains of the west front is the beautiful doorway with the arched over, small portions of the arched under the turrets, and the south turret and spire of what might be called the façade proper. Half of the original south tower also remained. Mr. North condemned the restorations of Mr. Cottingham, which he denounced as modern Vandalism. He was glad to say, however, that in modern times the authorities of the cathedral not only understood but appreciated the beauties of the building. The Norman chapter-house attached to the cathedral was worthy of mention. The west end was divided into two stages—the lower one, with the entrance door, and a window on each side, and three large lights on the upper stage to correspond. The diapers and details were of the richest description, and the remains of the arcade and the cloisters bore evidence of considerable taste. The tympanum of one of them still retained traces of the zodiac round the edge, with texts of Scripture in the centre.

Mr. T. Roger Smith then offered a few suggestions to amateurs upon summer sketching. He spoke first of the objects. He advised them to visit all the buildings they could during the summer months; to draw portions of doorways or cornices, caps, &c., well, and recommended certain materials which would be found useful to them. A conversation followed, and a vote to the officers and committee for their services during the past year concluded the proceedings.

The Voluntary Examination Class will continue its meeting during the recess.

## Law Intelligence.

### ROLLS COURT—23RD VIT.

*Davis v. Dooling.*

A RIGHT TO QUARRY QUESTION.—Council made an application for an injunction to restrain respondent from quarrying limestone on the lands of Bonnetsrath, near the city of Kilkenny, otherwise than for the benefit of the tenants thereon. In 1744, the then Bishop of Ossory made a lease to one James Davis of the lands of Bonnetsrath, for 968 years, excepting mines minerals &c. By a deed of partition in 1829, the three tenants in common, in whom the interest of the original lessee vested, agreed, amongst other things that the quarry waste should be held in the common for their use, and that of their tenants and labourers. Two thirds of the land, including quarries, are now vested in petitioner, and the respondent is the tenant holding the remaining one third. It was charged that he had been for some months raising and selling large quantities of limestone without being authorized. The respondent's case was that the three tenants in common, assigned, in 1814, to one Luke Dooling sixty perches of the quarry land, and that this was the portion of the quarry he was using, as he had a right to do, deriving as he did under Dooling. It was alleged that in 1810 Messrs. Mullens, Henry, and M'Mahon, Government contractors, who were building Kilkenny Barracks, bought the interest in the quarry in question, and subsequently assigned them to the tenants in common. At the instance of his honour, Mr. Mullens, son of the late Mr. Mullens, attended, and stated that the signatures of Messrs. Mullens, Henry, and M'Mahon to the conveyances relied on were forgeries.

The Master granted the injunction in the terms prayed and ordered the document relied on to be impeached.

*John Kilmarten v. Charles Cheyne, and George French, Esqrs.*—Action for damages (heard at Parsons-town, before chairman of King's County Quarter Sessions, and a jury of six de circumstantibus) by defendants causing a house in which plaintiff resided with his family to fall. It appeared that the defendants are contractors for the construction of the railway between Clara and Banagher in the King's County, now on the eve of completion, that defendant, in making excavations necessary for construction of the railway, dug up to a considerable depth the land adjoining the plaintiff's to within about four feet of its next outer wall, and that the house in consequence fell. The case of the defendants was conducted by Mr. Montgomery, barrister, instructed by Mr. Smith, solicitor, who produced a deed from the plaintiff, by which he, for a valuable consideration, assigned his interest in the house and land adjoining, to the railway company for the purposes of the railway, which company is designated "The Midland Counties and Shannon Junction Railway Company." It was also proved that demands had been made on the part of the company, and of the defendants on the plaintiff to vacate the house and land so assigned, which he declined to comply with, and in the necessary progress of the works

the house fell down, it being, in fact, the property of the company though the plaintiff continued to occupy it.

The jury returned a verdict for the defendants.

*Rambant v. Barry and Norton.*—This is the case of dilapidations referred to in our last impression, and has occupied the court for several days. It is an action for injury to premises in Middle Abbey-street, alleged to have arisen in consequence of the manner in which certain building works in the erection of an adjoining house were executed. Several professional architects, including Messrs. M'Curdy, Carson, Geoghegan, and Barnes, C.E., were examined on both sides, and there was a good deal of interest attached to the proceedings. The case is still at hearing.

*C. P. Hargreave v. Lord Talbot De Malahide.*—Action by plaintiff, a builder, to recover £1,600 on foot of a building contract. The defence substantially was, that there was a series of bills drawn by the plaintiff on Mr. F. W. Cusack, the late agent of the defendant, on foot of these works, and which, it was alleged, were passed in payment of what was due to the plaintiff. The latter's statement as to the bills was, that they were all drawn for the accommodation of Mr. Cusack; that plaintiff never received any money out of the proceeds, and that the payments to him were made by cheques; that the amount of the bills was £800, which would pay him three times over for the work which he performed. It was contended for the defendant that Mr. Cusack had furnished an account, in which he took credit for the payment of the amount of this contract. The case has not concluded.

HOLYHEAD—A NEW PIER.—On Monday, a correspondent writes, a new stone pier, nearly 500 yards long, extending through the large area under Tan-y-ran from the railway station to the old pier, was commenced. The London and North-Western Railway have contracted with Messrs. J. and C. Rigby, of Royal Victoria Harbour, Holyhead, and we understand that the whole works will cost at least £250,000. There will be accommodation for four new steamers, which can come up to the railway station for the landing of goods, cattle, and passengers from Ireland. The mud is to be conveyed by night trains to Towyn-Trewan, nine miles off, a large track of sandy land over which the railway runs in Anglesea.

NAPOLEON III. AS A PATRON OF ART.—The Museums of the Louvre were raised by Napoleon I. to a high degree of splendour. Louis XVIII. further enriched them with 111 paintings at a cost of 668,265*fr.* It was also during his reign that the Venus of Milo was added to the Museum of Antiquities. Charles X. purchased 24 paintings for 62,790*fr.*, and completed the Museum of Antiquities, which bears his name. Louis Philippe purchased for the Louvre only thirty-three paintings, at a cost of 74,136*fr.* Since the accession of Napoleon III. the New Louvre has seen several new galleries formed. Thirty masterpieces of the highest order of merit have been bought, at an expense of nearly a million of francs, among them being the "Annunciation," by Murillo, for which 615,300*fr.* were paid to the heirs of Marshal Soult; also two pieces by Valasquez, two Hobbemas, and one a beautiful Denner. Several invaluable pieces of sculpture have also been obtained; and last of all, the Campana collection, which cost 4,000,000*fr.* The Apollo Gallery is now terminated, decorated, and furnished. The Emperor is organising the great museum which is to bear his own name, and that of the French school of painting, on the right and left of the Pavillon Denon, the first floor of the New Louvre. Napoleon III. has contributed more largely to the splendours of the Louvre than any other sovereign since Francis I.

KINGSTOWN HARBOUR.—During the past year the works of the harbour, piers, breakwaters, and jetties, and all buildings connected with it, have been maintained in an efficient state of repair. The harbour has also been cleared of numerous portions of wrecks, sunk in the storms of former years, and several large boulders, some of them within the limits of the berths of the new mail steam packets, have been removed. The old mooring buoys and ground chains and clumps (three in number) for vessels of deep draught of water have been replaced by Mitchell's screw moorings, which promise to afford great advantages. The storm wall on the Eastern Pier has been completed, and the finishing of the parapets and road surfaces of both the Eastern and Western Piers has been continued.

From Florence we hear of the death of M. Viessieux, the Roscoe of that city, which he endowed with the best scientific and literary *gabinetto* known in Italy, founded its *Antologia* in 1820, and *Archivio Storico*, 1830, giving a decided impulse to inquiry and intellectual pursuits.

## NEW PATENTS.

**LETTERS PATENT**, which have passed the Great Seal since the 29th day of May, 1863. Byrne and Lambert, Agents; Office for Patents, 4, Lower Ormond-quay, Dublin.

Alexander Dudgeon, for "Improvements in packing for various parts of steam and other engines and machinery."

Thomas Waller, for "Improvements in stoves."

John Lamb, for "Improvements in the manufacture of tissue paper for transferring patterns and designs."

George H. Birkbeck, for "Improvements in instruments for surveying and levelling."

William Joseph Smith, for "Improvements in the manufacture of collars, cuffs, and wristbands."

John Hillier, for "Improvements in ventilating and in the exclusion of dust or draught, insects or other animals, from apartments, carriages, and other confined spaces."

Augusto Albini, for "Improvements in breech-loading fire-arms."

Charles Corbet, of 69, Upper Gardiner-street, Dublin, for "Improvements in rails for railways, and in the mode of forming the joints of the same."

Wm. Clark, for "Improvements in the means and apparatus for copying and reproducing sculpture and other objects of art."

John Morgan, of Stephen's-green, Dublin, Esq., F.R.C.S.I., for "Improvements in embalming and preserving from decay human bodies, and bodies of other animals; also pickling, curing, and flavouring animal bodies."

Thomas George Grant, for "Improvements in ovens and apparatus for heating the same."

John Ramsbottom and another, for "Improvements in machinery or apparatus for measuring and registering the flow of water and other fluids."

Joseph Longland, for "Improvements in street lamps."

Frederick George Stuber, for "Improvements in the construction of air-tight boxes, cases, cupboards, and similar vessels."

Matthew Ker, for "An improvement in wardrobes or other pieces of furniture or fittings, with glass silvered doors or panels, used for 'toilet purposes.'"

Wm. E. Newton, for "Improvements in wrenches."

A copy of the specification of any patent, describing the nature of the invention, and the mode of carrying it into effect, can be had at the office for a sum not exceeding five shillings.

## Obituary.

THE LATE MR. D. W. MURPHY OF BANTRY, BUILDER.\*

OF the few whose names it has been our painful duty to include under this heading, there were none to whose demise we could refer with sentiments of more regret than the late respected gentleman who unhappily forms the subject of this notice. Connected for very many years past with the majority of the principal works executed within that wide area embraced by the county of Cork, Mr. D. W. Murphy, a native of Bantry, had by his ability, his intelligence, and by his "honest worth," gained for himself the unqualified respect of all who had even come in contact with him, whether in the capacity of employer or employed; while within the circle of his own private acquaintances and friends his amiability and companionable disposition rendered him a special favourite, whose society was highly prized, and genial spirit appreciated.

At the time of Mr. Murphy's decease, which took place recently, after a very short illness, and at the comparatively early age of 54 years, he was engaged on some important works both in the counties of Cork and Kerry, in the conducting of which to completion, and in his general building business, the deceased is worthily succeeded by his son, (lately a pupil of Mr. J. J. Lyons, architect,) a young gentleman gifted with rare intelligence, steadiness, and business aptitude.

## General Items.

A subscription is in progress for the purpose of erecting a bust and tablet in honour of the late lamented Sir George Cornewall Lewis in Westminster Abbey.

The Council of the Royal Scottish Academy have it in contemplation to open an exhibition of pictures by Scottish artists, during the ensuing congress in Edinburgh of the National Social Science Association.

The *Building News*, in describing the new office at present in course of erection in Sackville-street, for the Standard Life Assurance Company, says:—"The front is of the Grecian type of architecture, with columns and pediment; and the tympanum is to be filled with sculpture, as is the case on the company's building in George-street, Edinburgh. The subject in the one, as in the other, is the parable of the Ten Virgins—a subject originally selected by Mr. Steele for the Edinburgh office some twenty years ago, and with the device and execution of which the company were so well pleased, that they insisted on its reproduction for

Dublin, with as little modification as possible. The subject is subdivided into three groups, the central one being that of the five wise virgins, while on the right hand are three of the foolish virgins, the remaining two being disposed in the corresponding angle on the left. The contrasted character of the wise and foolish virgins is indicated by the compact central group of the former being all upright and in motion, while the foolish virgins are partially recumbent, as if only waking from their fatal sleep. Two or three of them, however, are suppliant to their more provident and watchful sisters, of whom two are reluctantly turning away from their importunities, while the others are more alertly preparing to depart. The figures are about life size, and are boldly relieved. The work is executed on four blocks of freestone from Binny Quarry.

[It is but just to add, that Messrs. Cockburn and Son are the contractors for the building, under the supervision of Mr. William G. Murray, architect; a Scotch architect having furnished the original drawings.—Ed.]

A new church is about being erected in Queenstown, and the Lord Bishop of Cork has promised the magnificent sum of £1,350 towards the endowment, and £1,500 to the building fund.

There are two hundred men employed at drainage works on Mr. McCarthy Downing's property at Baurica-villa, and Coolanuller. They work by contract, and are making good wages.—*Skibbereen Eagle*.

A company is now organized for the purpose of converting the unsightly quarry at Glashule into a fashionable plunge bath. The improvement will materially benefit the neighbourhood, and will be appreciated by the numerous visitors who have taken up their residences in this locality.

The King of Prussia has purchased Lessing's picture, "Huss on the Funeral Pile," which was exhibited in London last summer, for the sum of 15,000 thalers. Kaulbach's cartoon, "The Reformation," destined for the hall of the new museum at Berlin, has arrived there. Kaulbach will soon follow, and execute his work with the help of Berlin artists.

## Miscellaneous.

**IMPROVEMENTS IN KINGSTOWN.**—The surveyor of the commissioners has been very active in removing the decomposing seaweed along the coast, which is now clear of all nuisance. Owing to the exertion of the board and the activity of their officer, Kingstown is now one of the most healthy bathing-places in the empire. Mr. Bryan has commenced the erection of several buildings in Clarinda Park and Clarinda-avenue. The project, will, no doubt, prove remunerative, owing to the fact that the town is rapidly increasing in wealth and importance. Several of the most influential inhabitants are about to build on sites which, in their present condition, have hitherto been regarded as marring the scenery in and about the town.

**RESTORATION OF THE MARBLE ARCH, HYDE PARK, LONDON.**—This national structure, which has long presented such a stained and dirty appearance as to render the term "marble" a misnomer, is being thoroughly cleaned and renovated by Mr. Field, of Parliament-street, under the immediate superintendence of Mr. Metherell, foreman of the works. The necessity for this operation is made apparent by the marked contrast exhibited between the cleansed and dirty portions; and this is especially the case with the wreaths on the sides, the cantilevers, and other ornamental parts. The marble arch has never yet had full justice done to it, and this is strengthened by the fact that, in the process of cleaning now going on, some of the blocks show the marks of the saw, and nearly all are in a more or less rough and unfinished state.

**ROYAL INSTITUTE OF BRITISH ARCHITECTS.**—A special general meeting of the Institute of British Architects was convened by requisition on Monday evening last, to petition the House of Commons against the proposed purchase of the International Exhibition building; but the result did not entirely meet the objects of the conveners, whilst it betrayed a want of unity of opinion and direct purpose amongst the members of the Institute upon a most important question, affecting equally the public interests and the interests of the profession. Mr. A. J. B. Beresford Hope having moved, and Mr. James Fergusson seconded, the adoption of a petition in accordance with the announced objects of the meeting. Mr. Tite said, he thought it desirable to obtain further information on the subject, and moved as an amendment that a committee be appointed to visit and inspect the building, and report upon the subject at an adjourned meeting, to be held on Monday next. The amendment was carried.

**LUDGATE-HILL RAILWAY VIADUCT.**—Notwithstanding numerous signed petitions and a strong force of objection which has been brought to bear against this undertaking, it has triumphed, and active measures are in progress for its construction. Several old-established shopkeepers in Ludgate-hill have received notice to quit, and some of them have already vacated their premises. In one or two instances the amount of compensation has not been settled, but it is believed that this will be done in a few days. The outline of the scheme at present is, for No. 1, London, Chatham, and Dover Railway Bill to go to Fleet-lane, and No. 2 Bill, from Fleet-lane to the junction of the Metropolitan Railway. It is contemplated that the works will be completed in twelve months.

**THE STONE OF THE HOUSES OF PARLIAMENT.**—In the House of Commons, on Monday week, Sir M. Peto asked the First Commissioner of Works whether any contract had been entered into with Mr. Szerelmei to arrest the decay of the stone of the New Palace of Westminster; and, if so, under what advice the First Commissioner acted in entering into such further contract with Mr. Szerelmei, pending the report of the Commission, which recommended that nothing further should be done in the use of the process of Mr. Szerelmei.—Mr. Cowper said there was no contract now pending. There was a contract entered into in 1860, but no works were executed under it since 1860.—Sir M. Peto: Is it now in force? Mr. Cowper: No, it is not. Sir J. Shelley asked whether there had been any examination made of that portion of the stone to which the solution was applied, and whether the effect was good. Mr. Cowper said the time that had elapsed since the application of the process referred to was not sufficient to enable them to come to any decision upon the point. He was, however, inclined to think that the report would be favourable.

**A RAILWAY STATION INDICATOR.**—Some trials were made yesterday, on the London, Chatham, and Dover Railway, of a very simple and ingenious apparatus, for indicating to travellers on railways the name of each station as it is approached by the train. A small dial plate is fixed in each compartment, or between two compartments, of a carriage, on which the names of the stations are displayed. A band connected with this is made to rotate by the action of an arm or rod attached to it, and brought down so as to come in contact with certain portions of the rail. At certain distances from the station there is a small projection on the inner side of the rail; with this the rod comes in contact as the train is in motion, and this, setting free a small spring, causes a portion of an endless band, bearing the name of the station upon it, to appear and remain in sight, until the next station is approached, when the contact with the rod produces another revolution, and the name of the last station is superseded by the next in order. The apparatus can be easily reversed, so that the stations in the up or down order may be indicated without difficulty. It is scarcely necessary to say that such an apparatus would be a great convenience to travellers, and enable them to know their whereabouts at any time of their journey, without attempting to find out from the unintelligible announcements which are usually made by the porters at the stations.

**MERCER'S HOSPITAL.**—The governors are anxious to build a waiting-room, and a surgical theatre behind same, on some of their ground in Mercer-street, according to an approved plan of Messrs. Lanyon and Lynn. The waiting-room the governors hoped to build for about £130, and they intended to commence it on having £100 subscribed for the purpose. Finding that it could not be properly done for less than £180, they felt it right to postpone the work till they could feel assured of that sum, the contributions of which, they now thankfully acknowledge. Donations for the building purposes are received at the bank of Messrs. LaTouche, Messrs. Ball and Co., and Boyle, Low, Pim, and Co., by the members of the Managing Committee, and by their authorised collector.

**ORDNANCE SURVEY.**—The vote of £67,000 in this year's estimates for the Ordnance Survey is to be distributed as follows:—England, £26,000; Scotland, £26,000; Ireland, £9,000; military surveys, £6,000.

**FIRE BRIGADES.**—We (*Freeman*) are gratified to observe the Corporation of Cork city has resolved to follow the example of Dublin, and to enroll and drill an effective fire brigade. At present they have resolved on organising a corps of twelve men; but we agree with the *Cork Examiner* that twelve men will not be sufficient unless supplemented by a good staff of supernumeraries.

NOTICE TO PUBLISHERS AND AUTHORS. —Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MARBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

\* Accidentally omitted from our last number.

† We are at a loss to divine the allegorical connexion between the sculptural subject and the purposes for which the building is intended.—Ed. D. B.

# The Dublin Builder.

Vol. V.—No. 86.

## IRON BRIDGES.

THE employment of iron as a material of construction may be said to have effected a revolution in the science of bridge-building, enabling the engineer to execute with facility designs the contemplation of which 20 years since would have startled the boldest. We read of clear spans of 600 feet and upwards, skew bridges at angles of unheard-of obliquity, carriage-ways over and under railways, whole bazaars suspended in mid air. That iron should have superseded masonry and timber is not a matter of wonder if we consider the unparalleled advantages which it offers, not only from its affording strength combined with lightness, and from the facility with which it may be adapted to almost every purpose, but more especially with regard to economy of both time and money; inasmuch that the swarthy native of India beholds with amazement the produce of far distant England spanning his own sultry plains and rivers, while the stone and timber of his country remains unquarried and unfelled. Nor is that most useful of metals limited in its adaptation to the construction of bridges alone, it is fast becoming a universal substitute in almost every branch of manufacture. Our wooden joists and bressumers are in many places fast disappearing; we sleep on iron in preference to the most highly-finished mahogany; the emigrant to Australia brings his iron house along with him, neatly packed up, in an iron ship; the construction of our stone fortifications has been brought to a stand still, and in a few years even our "wooden walls", the pride of Old England, will be only known in the history of the past.

Perhaps the great resources which have been recently developed by the introduction of iron are most strikingly shown in the facilities which it presents for the construction of subaqueous foundations, and should modern experiments continue to be attended with the success that they have recently met with, we may safely predict that in a short time the existence of cofferdams, or perhaps even of timber piling, will be almost unknown; indeed where these are now employed, the use of iron in large proportion in connection with them has already become almost universal. It is interesting and instructive to contrast some of the great engineering works of some years since with those which have been recently constructed or are now in process of execution. Let us for example compare the foundations of the piers of new London bridge with those of Charing Cross bridge, now just completed. From the specifications for the former, a detail of which is given in Cressy's Encyclopædia, we find that the piers were 24 feet thick by 56 feet wide, of ponderous masonry, carried about 13 feet beneath the bed of the river, and supported on a platform by bearing piles 20 feet in length. The water was excluded from the works of each pier by a cofferdam of elliptical form, upwards of 84 feet by 52, external dimensions, composed of three rows of whole timbers 12½ inches square, and driven from 20 to 30 feet into the river bed, and there were four of these dams. The expense, tediousness and difficulty of executing such a work needs no comment, and yet in the recent construction of Charing Cross bridge, of wider dimensions and crossing the same river, we find the same purpose effected through the medium of iron in a most ingenious and simple manner, and at a tithe of the expense. The superstructure was here carried by cylinders sunk into the bed of the river. The cylinders were 14 feet diameter beneath the surface of the ground, and 10 feet diameter above the surface, of cast iron 1½ inch in thickness. Each pier was formed of two of these cylinders, 49 feet 4 inches from centre to centre. The cylinders were sunk through mud and gravel and into the London clay, to depth of 26 feet, 36 feet, and in one case, 46 feet beneath the bed of the river.

This was done by excavating the material from the inside, at first by divers, but when the London clay was reached the water was pumped out, and thus the cylinder became at the same time a pier and a cofferdam. They were then filled with Portland cement, afterwards with brickwork, &c., and so the whole pier was completed with infinitely less labour than the construction of a dam alone would have involved. Had this method been adopted for London bridge not only the expense of adam would have been avoided, but from the much greater lightness of the pier itself it is probable that the use of bearing piles would have been unnecessary. In the construction of Chelsea suspension bridge the piers were founded upon bearing piles precisely as those of London bridge and yet "all the advantages of foundations on bearing piles made by means of cofferdams were obtained without the expense and obstruction to the waterway which the latter involve." This was effected by a method somewhat analogous to that which was employed for Charing Cross bridge, except that instead of cylinders a casing composed of cast iron piles and plates was formed, within which the bearing piles were driven, and the landings forming the foundation of the masonry were laid upon a bed of concrete with which the external iron casing was filled to a level with the heads of the bearing piles. The piers of Charing Cross bridge as an instance of more recent execution show a marked advance in the new system of construction with regard to simplicity, those of the suspension bridge possess greater stability on account of the employment of bearing piles, but then these might with equal facility have been introduced within the space beneath the cylinders should it have appeared necessary.

An aqueduct bridge, which was constructed at Washington, in America, by Captain Meigs, the same year that Chelsea bridge was opened, presents an instance of great ingenuity, while it shows the subsidiary advantages to be derived from the employment of iron girders. The span of the bridge was 200 feet, the rise being 20 feet, and the two arched ribs or principal girders were formed of water pipes, circular in section, 4 feet internal diameter, and 1½ inch thick, through which the water for the town flowed.

Another iron bridge is also destined to cross the Thames at Blackfriars, for the London, Chatham and Dover Railway. It will be on the lattice girder principle, but the abutments and lower portion of the piers will be of brickwork, cased in Portland stone. The abutments will be made in cofferdams of the ordinary construction, the largest ever executed in the country, but the expense and inconvenience which they entail will be avoided in laying the foundations of the piers, by means of wrought iron caissons, 18 feet in diameter, lowered into the bed of the river, within which the brickwork will be laid.

But it has now been rendered evident that not only abutments, but even dock and deep sea walls may be constructed without the aid of cofferdams or diving apparatus, by a work which has been recently executed by Messrs. Miller and Bell, engineers in chief for the new harbour works at Greenock, perhaps the greatest innovation of the present day. In order to construct the foundations of the sea pier and tidal dock it was suggested that the walls under low water should consist of a combination of cast-iron guide piles in the front, with a continuous stone facing slid down over and inclosing these piles, timber bearing-piles being used in the body of the wall where necessary, and concrete backing being deposited in a loft state; the upper part of the wall to be then constructed of masonry in the usual manner. The first step was to dredge two parallel trenches, to the necessary depth, for the foundations. Cast-iron guide piles were then driven, with great precision, 7 feet apart in the line of the face of each wall. A bed of hydraulic concrete, 3 feet thick and 20 feet wide, was next deposited in the trenches, to form a base for the wall, and to give a large bearing surface. The sides of the guide piles were furnished with double flanges, forming deep grooves, and into these were slipped large granite slabs, from 18 inches to 2 feet thick, the bottom one resting on the concrete base. This constituted the face of the wall. Behind this face the body of the foundation was com-

posed of hydraulic concrete, lowered in large boxes with moveable bottoms, at the back of which again loose rubble was deposited to confine the concrete until it had set, and the hearting of the pier consisted of hard stones and granite up to the level of low water. It is stated that this mode of constructing walls in deep water, without cofferdams, has been most successful, a sea pier of great solidity and durability having been thus constructed at a very moderate cost.

It would not be within the limits of our space to discuss the relative merits of iron and stone bridges with regard to economy and durability combined, it being contested by some that the saving effected in the first cost of the former is more than counterbalanced by the expense entailed subsequently by the necessity of keeping them in repair. That is a question that must depend upon the physical features of the locality, the price of different kinds of labour, and many individual circumstances connected with each particular case; but it is evident that at least in England, possessed as she is of so many mineral resources, the produce of the foundry is fast superseding the handiwork of the mason, and we are rapidly advancing into an iron age.

## RESEARCHES ON RADIANT HEAT.\*

IN his former researches on the radiation and absorption of heat by gaseous matter, the speaker compared different gases and vapours, at a common thickness with each other; one part of his present object was to compare different thicknesses of the same gaseous body with each other as to their action upon radiant heat. A few years ago he would be deemed a bold man who would attempt to measure the action of an inch, or indeed of many feet of a gas, on radiant heat; but the present experiments commence with plates of gas only 0.01 of an inch in thickness, and extend to thicknesses of 49.4 inches. Thus, the greatest thickness is to the least nearly in the ratio of 1 to 5,000. The apparatus employed for the smaller thicknesses was a hollow cylinder, one end of which was closed by a plate of rock-salt. Into this fitted a second cylinder, with its end also closed by a plate of the salt. One cylinder is moved within the other like a piston, and by this means the two plates of salt could be brought into flat contact with each other, or could be separated to any required distance. The distance between the plates was measured by a vernier. The cylinder was placed horizontal, being suitably connected with a source of heat. This latter consisted of a plate of copper, against which a steady sheet of flame was caused to play.

The absorption of radiant heat by carbonic oxide, carbonic acid, nitrous oxide, and olefiant gas was determined with this apparatus, and such differences as might be anticipated from former researches were found. Olefiant gas maintained its great superiority over the other gases at all thicknesses. A layer of this gas, not more than 0.01 of an inch in thickness, intercepted about 1 per cent. of the total radiation; and the delicacy of the apparatus may be inferred from the fact that this absorption—great, relative to the thickness of the layer of gas, but small absolutely—corresponded to a deflection of 11 degs. of the galvanometer. (It would be certainly possible to measure the action of a layer of this gas of less thickness than the paper on which these words are printed.) A layer of olefiant gas, 2 in. in thickness, intercepts nearly 80 per cent. of the entire radiation. The influence of a diathermic envelope surrounding a planet may be strikingly illustrated by reference to this gas. A shell of olefiant gas 2 in. thick, surrounding the earth, would offer no appreciable hindrance to the solar rays in their earthward course; but it would intercept, and in great part return, 30 per cent. of the terrestrial radiation: under such a canopy the surface of the earth would probably be raised to a stifling temperature. A layer of the gas 3.10ths of an inch thick, intercepts 11.5 per cent. of the whole radiation. Such a layer if diffused through a stratum of air 10 ft. thick, would be far more attenuated than the aqueous vapour actually diffused through the air; still it would produce an absorption greater than that which the speaker had assigned to the atmospheric vapour within ten feet of the earth's surface. In the presence of such facts, the arguments which we might be disposed to base on the smallness of the quantity of atmospheric vapour are entirely devoid of weight.

In measuring the action of larger thicknesses of gas, the following method was pursued:—A brass cylinder, 49.4 in. in length, had its two ends stopped with plates of rock salt, and a suitable source

\* Abstract of Paper read before the Royal Institution, by John Tyndal, Esq., F.R.S.

of heat placed at one end; the rays from this source passed through the tube, and were received by a thermo-electric pile, placed at its opposite end; this radiation was exactly neutralized by the heat emitted from a cube of boiling water, and incident on the opposite face of the pile. The interception of any portion of the heat emanating from the source by a gas or vapour introduced into the tube destroyed the equilibrium previously existing, and the amount intercepted was declared by the galvanometer. The thickness traversed by the calorific rays was varied in the following way:—The tube was divided into two distinct compartments by the introduction of a third plate of rock salt. Let us agree to call the compartment most distant from the pile the first chamber, and that adjacent to the pile the second chamber. The experiments began with the first chamber short and the second chamber long, and ended with the first chamber long and the second chamber short. The alteration consisted solely in the shifting of the intermediate plate of salt, which lengthened the first chamber and diminished the second one by the same quantity; the sum of the length of both chambers being the constant quantity, 49·4 inches.

The absorption effected in the first chamber acting alone was first determined; then the absorption effected in the second chamber acting alone; and finally, the absorption effected when both the chambers were occupied by the gas or vapour. This arrangement enabled the speaker to check his experiments, and also to examine the effects of the shifting which occurred in the first chamber on the absorption of the second one. The thermal coloration of the various gases was rendered strikingly manifest by those experiments; for the vast majority of the rays—for example, carbonic oxide and carbonic acid—are transparent. Placing a stratum of carbonic oxide, 8 inches in length, in front of a column of the same gas, 41·4 inches long, these 8 inches intercepted 6 per cent. of the whole radiation; placed behind a column, 41·4 inches long, the absorption of the same 8 inches was sensibly nil. So also with carbonic acid; 8 inches in front absorbed 6½ per cent., while placed behind the effect was almost zero. Similar remarks apply to the other gases, the reason manifestly being that when the 8-inch stratum is in front, it stops the main portion of the rays which give it its thermal colour, while, when it is placed behind, these same rays have been almost wholly withdrawn, and to the remaining 94 per cent., or thereabouts, of the radiation the gases are sensibly transparent.

An extension of this reasoning enables us at once to conclude, that the sum of the absorptions of the two chambers taken separately must always be greater than the absorption effected by a single column of the gas of a length equal to the sum of the two chambers. This conclusion is illustrated in a striking manner by the experiments; and it is further found that when the mean of the sums of the absorptions is divided by the absorption of the sum, the quotient is sensibly the same for all gases. It may also be inferred from considerations similar to the foregoing, that the sum of the absorptions must diminish, and approximate to the absorption of the sum, as the two chambers become more unequal in length, and that the sum of the absorptions of the two chambers is a maximum when the medical rock-salt plate divides the long tube into two equal compartments.

In these days a special interest attaches itself to the radiation of any gas through itself or through any other gas having the same period of vibration. The speaker referred to the results of an elaborate series of experiments on this interesting question. The experimental tube, 49·4 inches long, was divided into two compartments by a partition of rock-salt. All external resources of heat were abolished, and the pile, furnished with its conical reflector, stood at the end of the tube. The compartment nearest the pile contained the gas which was to act as absorber, while that most distant from the pile held the gas which was to act as radiator. It is known that the destruction of the motion of a sensible mass of matter is always accompanied by the evolution of heat. A weight falling to the earth, and a ball striking a target, are heated on collision. The same is true for atoms, and in the present experiments the gas in the radiating chamber was heated by the collision of its own particles against the inner surface of the tube when they rushed in to fill the vacuum. The radiation was, in fact, what the speaker had named "dynamic radiation." The lengths of the two chambers were varied, the radiating column being lengthened, and the absorbing one shortened at one and the same time; the sum of both was always the constant length 49·4 inches.

The experiments with the vapours were thus executed. Both the chambers into which the tube was divided were, in the first place, occupied by the vapour to be examined; the usual pressure being

1-60th of an atmosphere. The entrance of the vapour was so slow, and its quantity so small, that the radiation due to the warming of the vapour by its own collision was insensible. The needle being at zero, dry air was allowed to enter the chamber most distant from the pile. This air became heated dynamically, communicated its heat to the vapour, and the latter immediately discharged the heat thus communicated to it against the pile. It is quite evident that, not only does this case resemble, but that it is actually of the same mechanical character as that in which a vibrating tuning-fork is brought into contact with a surface of some extent. The fork, which before was inaudible, becomes at once a copious source of sound. What the sounding-board is to the fork, the compound molecule is to the elementary atom. The tuning-fork vibrating alone is in the condition of the atom radiating alone, the sound of the one and the heat of the other being alike insensible. But in association with sulphuric or acetic ether-vapour, the elementary atom is in the condition of the tuning-fork applied to its sound-board, communicating through the molecule motion to the luminiferous ether, as the fork through the board communicates its motion to the air.

The experiments demonstrate the great opacity of a gas to radiations from the same gas. They also show in a very striking manner the influence of attenuation in the case of vapour. The individual molecules of a vapour may be powerful absorbers and radiators, but in thin strata they constitute an open sieve through which a large quantity of radiant heat may pass. In such thin strata, therefore, the vapours, as used in our experiments, were generally found far less energetic than the gases, while in thick strata the same vapours showed an energy greatly superior to the same gases. The gases, it will be remembered, were always employed at a pressure of one atmosphere.

A few striking experiments were referred to in illustration of the influence of a paper lining, or a coat of varnish or lampblack, within the experimental tube. In dynamic radiation it is not possible to do entirely away with the action of the interior surface of the tube itself. When the tube is of brass and well polished within, the entrance of the air produces a deflection of 7·5 degrees, this being due to the emission from the warmed surface of the tube. A lining of paper, 2 feet long, raises the radiation sufficiently to drive the needle through an arc of 80 degrees, while a ring of paper, 1½ inches long, placed within the tube radiates sufficient to urge the needle through an arc of 56 degrees.

The speaker finally examined the diathermancy of the liquids from which his vapours were derived, and the result leaves no shadow of a doubt upon the mind, that both absorption and radiation are molecular phenomena, irrespective of the state of aggregation. If any vapour is a strong absorber and radiator, the liquid whence it comes is also a strong absorber and radiator. The molecule carries its power, or want of power, through all its stages of aggregation. The order of absorption in liquids and vapour is precisely the same; and the speaker looked forward with hope to the application of these results to other portions of the domain of thermotics.

## TOWNS' SURVEY.

### DROGHEDA.

WITH the supposition that after an absence of two years there might have been many features of improvement to record in so important a town as the above, we visited it a few days since, but were disappointed to find it pretty much in *statu quo*, comparatively little of a progressive character having been effected in the interim. This is most unaccountable, as the town is one of great commercial position, with uncommon natural facilities for trade and manufacture, and peopled with inhabitants that in business aptitude yield to none in any other county town of Ireland. The long talked of bridge of "St. Dominick," over the Boyne—and about the opening of which there was such a flourish of trumpets some time since—is one of the flimsiest structures of its class that we have ever seen. It is of timber construction, in five-bays, with roughly-executed abutments, four framed trusses supporting a roadway of diagonal planking, Macadamized over, and with parapet rails of "telegraph wire" passed through shaky iron standards, the whole of most perishable construction. The traffic doubtless is light at this point, but for the credit of the townspeople we should have been better pleased to see a more fitting bridge over the "far-famed Boyne." Our readers will nevertheless understand that we do not mean to cast the slightest reflection on the skill of the professional gentleman engaged in its construction, who doubtless expended the means at his command to the best advantage.

With exception of a couple of newly fronted old

houses, and a shop, *one storey high*, in the main street, there has literally been no improvement in the commercial architecture of the town since the completion of Parsons' mart (for which Mr. J. J. Lyons, of this journal, was the architect), nor do we hear of anything of that character projected, except that notice has been served on a retired millionaire pawnbroker and brazier to pull down his premises, which for many years past have been "nodding obeisance," to the consternation of the townspeople, and in lieu of which we presume that something more *suitable*, though not architectural, will be raised. The Augustinian church (noticed in the DUBLIN BUILDER when in progress) has been completed, except as regards the spire, and its execution reflects credit on the builders. The design, however, is "most peculiar" and flat, showing narrow lancet windows with heavy mullions, and unrelieved spandrels—even still capable of some improvement—massive buttresses, &c. We may repeat a fact already stated, viz., that the Roman Catholic church in West-street is to have a new front and spire, from designs by Mr. McCarthy, architect. The corporation ought to devote more attention to the cleanliness of the town, and let the scavenger ply his vocation more usefully; the pavement in a couple of the principal streets needs looking after too. Hereafter we shall feel pleasure in noticing any improvements that may take place, but in the building line at least things are essentially dull in Drogheda at present.

### HOWTH.

The inducements afforded by the liberal management of the Dublin and Drogheda Railway, to parties investing capital in building at the several villages and towns along that line, have recently contributed somewhat to the improvement of the picturesque and historic town of Howth especially. Not, indeed, to the town itself, which has shown no sign of progress at all of late years, and is chiefly remarkable for the preponderance of dilapidated dwellings, inhabited by fishermen and the labouring classes, but to what may more properly be termed the suburbs of this favourite metropolitan outlet. The "Hill of Howth,"—a bold and rocky headland, the dread of mariners—which, at its summit, attains an altitude of 563 feet above the level of the sea, is a most imposing feature, stretching out peninsula-like into the north side of Dublin Bay, and from its several sides magnificent and varied panoramic views are obtained. Its attractions, however, during summer are counterbalanced by its exposed position to the fury of the elements of wind and water in the less propitious seasons; and, as a consequence, we can hardly ever expect to see it studded on all sides with villas for permanent residence. There are, however, on the south, or Sutton side, some beautiful sheltered spots still available, and in this direction some of the principal improvements have taken place.

In the early part of 1861 two neat and commodious dwellings, with out-offices, were erected on the new road up the hill by Mr. F. V. Clarendon, an architect (of the Board of Public Works Office), and the Rev. Mr. Steward respectively; and in September of same year Mr. J. S. Butler, architect, completed, on the murrugh, after his own designs, and for his own residence, a mediæval villa of considerable architectural pretensions; another, by Counsellor Hamill, being finished shortly after on a site close by the mansion of Mr. R. D. Kane, which is one of the most notable of the recent erections. Last year there was a second-rate dwelling provided in the chapel-yard for the Roman Catholic clergyman; and Miss Rickard and Dr. Brady both completed commodious, but plain structures likewise. About a month since Mr. Bryan, a resident, also finished a plain dwelling-house; but Sir Edward Borough has contributed a great acquisition to the locality in a very handsome and costly mansion, with out-offices. It must be obvious, however, that, considering the great scenic beauties of Howth, the above return of improvements is disproportionate to what might reasonably have been expected within the period referred to, but we trust that, as we have specially directed attention to the locality, we may be afforded the opportunity of recording numerous other improvements from time to time. The proposed outlay on the long-neglected and almost condemned harbour—a costly government undertaking—will be a great boon to the local artisans, of whom many are in an impoverished condition, dragging out a bare existence in wretched hovels, a disgrace to any lordly estate. Hereafter we doubt not that somewhat better station accommodation will be provided, when justified by a steadily increased population. We were much struck with the cleanliness and suitability of the baths, bathing boxes and sheds respectively, provided for both sexes in this suburb—truly an exception to the general rule about Dublin, and so pointedly referred to in our pages lately.

## PICTURESQUENESS IN ARCHITECTURE.

BY THE REV. J. L. PETIT, M.A., F.S.A.\*

(Continued from page 111.)

MANY of the finest cathedrals owe their grandeur rather to the horizontal than the vertical line, as Lincoln, Ely, Winchester, and York. The nave of St. Alban's, with which the rest of the structure harmonizes beautifully, is a remarkable example. I hope no attempt will ever be made to raise the roof, or any of the fronts with gables, a proceeding which would utterly spoil it.

The contrast of masses, and the harmonious arrangement, is of more consequence perhaps than that of lines. In this matter the architect must take hints from the artist. The general principles of composition in a picture, say a landscape, or buildings (though I believe they will apply in all other subjects), are really very few and simple. That of a balance between different groups is the most essential and universal. Their number should not exceed three, or, if it does, they should be so arranged that some of them should appear to be subdivisions of one comprehensive group; or else the smaller ones should be so subordinate in size of importance, as not to interfere with the principal one. A picture may be well composed, when it has one principal object, nearly in the centre (not quite, as formality should be avoided), occupying a large space both in height and width, and flanked or surrounded by objects of much smaller size, interest, or importance.

The view of St. Martin's, at Tours, from the market-place, on the north side of the largest tower, has always struck me as extremely picturesque. It may be treated in different ways by making a very slight change of position. The last sketch I took of it will serve to illustrate the kind of composition of which I have just spoken. The tower is the principal object, nearly central in position, and attains a greater height in the picture than any other object. Another tower at a distance combines with it, and becomes part of the same group. It is not necessary to the composition, beyond giving an additional variety and interest. The old houses below are wholly subordinate, but sufficient to fill up the space agreeably.

By taking my stand at a short distance to the westward, I should have separated the towers by an interval, and combined the more distant one with the group of houses nearest to it; and by placing the larger tower near the edge of the picture, I should have obtained a composition of two groups, which would have been balanced by giving space and variety of effect to the houses in combination with the distant tower. I need not say that the balance of two such groups will by no means require a perfect accuracy. By giving the distinctive character of each as decidedly as possible, we do all that is necessary; the eye and imagination of the spectator supply the rest. For instance, a group of objects in the foreground, filling up a large portion on one side of the picture, is well balanced by some larger object or group on the other side, which, owing to its distance occupies a smaller part of the picture. It is the variety of these groups which gives interest, besides preserving the balance; and their contrast, as we have observed, is a great element of picturesqueness.

I am not clear whether every picture ought not to have some central point of interest, however small, which may, as it were, form a sort of fulcrum, considering the lateral groups as the arms of a lever with their respective weights. The artist when he completes his picture will often introduce such a point in exactly the right place, probably by instinct, without thinking of the principle; either a spot of brilliant colour, or of intense light or shade, which not only gives life and spirit, but also unity, to the whole. Where the composition consists of three groups, I think the central one, however comparatively small a space it may occupy in the picture, should be the point of dignity and interest; or, at least, should have a peculiar dignity and interest of its own which are not shared in, to the same extent by the others. For instance, say that the landscape consists of a precipitous rock on one side, a clump or grove of trees on the other, and a church in the middle between them, though both the rock and trees may exceed the building in actual grandeur or beauty, still the latter, as being a work of art, and as calling certain ideas into the mind, has an interest of a distinct nature from that possessed by the other features, and is not considered unworthy of occupying the place of honour.

I have just remarked that the artist instinctively and without thought often appears to fall into the best mode of treating a picture. I suspect this is the case with the best artists; their taste either comes naturally, or is so formed by study as to take its place when they are actually at work, and the

great charm of their pictures is, that there does not seem to be a constant weighing and adjusting of every bit of light, shade, and colour, according to a standard which is always present. And the architect who thus forms his taste and then follows it without too apparent reference to rule, produces works of far higher merit, than one whose evident aim is either mere fantastic grouping on the one hand, or conventional correctness on the other. This is the charm of real Mediæval work; and I believe it also to be the reason why our own imitations of it, careful and clever as they often are, are seldom quite satisfactory. We cannot really Mediævalise our tastes, feelings, and ideas. The spirit of the 19th century forbids it; and, therefore, when we adopt Mediæval styles we must have our copy, bodily or ideally, before our eyes. The great masters of the Revival Classical styles, in whatever country, had not the same difficulty in imbuing their minds with the spirit of the age, as far as taste and art are concerned, to which their models belong. Of course there were many servile imitators, as well as many wild enthusiasts, and their work has cast a discredit upon Classical architecture which makes its defence more difficult than it ought to be; but the creations of such men as Alberti, Michael Angelo, and the other great revivalists of the Italian Schools, and of Wren, Vanburgh, Hawksmoor, and others, of our own country, though not free from faults, yet display a genius far beyond that of the mere imitator, and are full of beauty, grandeur, and picturesqueness.

The principles of composition which form the basis of a good picture, are applicable, I think, with but little modification, to architectural design. I will confine my remarks to churches, because we can best compare together buildings which have something in common with each other in their system of arrangement. The usual form of English parish churches, however convenient, is almost the least favourable of any to picturesqueness of outline. I mean that which presents a western tower or steeple, a nave of some length, with or without aisles, and a chancel inferior to the nave both in length and height. I do not say that all such churches are necessarily unpicturesque; many of them are far otherwise. Sometimes the introduction of one or more turrets; sometimes a peculiar proportion, as the combination of a lofty steeple with a low and short nave and chancel, or of a low tower with a long nave, which generally has a striking effect; sometimes the actual form of the tower or some other part of the structure; and sometimes a happy disposition of scenery or adjacent objects, redeems the composition from unpicturesqueness. But as in a picture it would be difficult to preserve a proper balance between groups or masses arranged in such gradation—the highest on one side, the lowest on the opposite side, and the intermediate one in the centre—so it is difficult to give a proper balance to architectural masses so disposed. The outline is really better when there is no architectural chancel, or the same roof without break covers both nave and chancel, as is the case with many churches in Wales; also in the Isle of Wight, and most of the parish churches in York. A still better outline is given by a chancel higher than the nave, which is not unfrequent in Continental churches. Here we have all the elements of good composition; the tower predominates in height, the nave in length, the chancel in mass, and the tower and chancel balance each other, each having its own distinctive quality. Such an arrangement is not uncommon in Continental churches—we often find it in Holland, where the western tower is prevalent. In England, its occurrence is mostly the result of accident, from the nave roof being lowered, and of course it is never allowed to remain if a restoration can be effected.

A tower on the side often contributes to picturesqueness; but it has this disadvantage, that all the good views are confined to one side of the church, unless the steeple is a very high one, like that of St. Mary's, in Oxford.

Insulated towers might often be employed to advantage, especially where there is a heavy peal of bells. They do not interfere with the fronts, or any part of the composition of the church, and in many points form with it a very striking group.

For architectural beauty, as well as picturesqueness, nothing can exceed the central tower. It renders the composition analogous to that of a picture whose chief point of interest is in or near the centre. It both demands and exhibits good mechanical construction, while it does not make a parade of any constructive tricks. It can be supported by arches the full width of each member of the building, to which the actual walls, without any introduction of accessory buttresses, from a sufficient abutment. It may have its inconveniences, if used as a belfry; but where, as in many cases, it forms a lantern open to the interior, it really becomes an important part of the building, and not a mere addition for external effect; and it may be expanded into that magnificent feature, the dome.

I am not clear whether a low massive central tower is not more conducive to dignity than a lofty one; for its position and its breadth give it importance, while it does not dwarf the rest of the building; and it does not lose its predominance, even when combined with higher steeples, provided it has sufficient breadth, and it preserves the character of a lantern, which it ought generally to be.

In proportion, we shall not learn much from Gothic, which we might not learn as well, or better, from works of the 11th or 12th century. The architects of the Romanesque period were, I think, the great masters of this branch of art. I fully admit the exquisite beauty of Salisbury; but, practically, this is no model for imitation. We do not want to build such structures; but we might build useful churches of the general proportions of Romey and many others of similar character. I never make a tour in France without finding some church that might be taken as a pattern in general outline and proportion without reference to style. I have not been less fortunate than usual during my last short excursion. One of the finest examples I have met with is the abbey-church of Lessay, in Normandy, on the road between Cherbourg and Coutances. It is the purest specimen of Norman Romanesque I ever met with on so large a scale, having scarcely an insertion of a later period—none, indeed, that I remember, except one or two niches, and a few windows placed where they would escape the notice of any but a rigorous examiner. Though it has evidently been lately scraped and otherwise put in order, I did not observe any actually new work. It has a long nave with aisles, triforium and clerestory, transepts, and a short chancel terminating in an apse. I wish I could have taken a view giving a better idea of its proportions, but it is so hemmed in by trees that I could hardly take any sketch at all. The tower, a fine central one, of moderate height, has a remarkably bold and simple arrangement of windows. It is crowned with a wooden dome, which, though not a thing to be copied, did not strike me as offensive to the eye.

The railway affords us means of studying, with a short interval of time, the character of districts at a considerable distance from each other, and thus bringing their peculiarities into more striking contrast. So, a very short time after I had left Normandy, I was engaged with the churches of that part of the country which lies to the south-east of Poitiers; and a nobler type I do not remember to have met with anywhere. I do not speak of details or sculpture, though these are interesting enough, but of the form. The church of St. Pexent is the one with which I was most pleased. It has not yet been touched by the restorer, indeed it would not be the worse for a new floor, as it has none but the bare ground, and you can see daylight through the roof; consequently, it is in the most picturesque condition. It has a low, central tower, transepts well developed (in one or two fine churches I had seen more to the northward, the transepts are very short), a chancel and apse, apsidal chapels east of the transepts, and a very wide nave without aisles; so wide that, although the tower is a very massive one, its piers are pierced with arches forming a kind of hagiocope. The nave is not vaulted; the rest of the church has the barrel roof, round, as far as I could make out, those of the apses being semi-domical; the tower compartment also has a dome, which has small openings to the eastward. What strikes one is the breadth and largeness which pervades the whole. It was late in the evening when I saw it, and this may have heightened the impression; still, I am sure it is a valuable study, and might be reproduced in a style of higher refinement in detail than the Romanesque. Some of the churches of this kind have very narrow aisles, as it were, within the nave, and others show that there have been aisles, or the intention of them; but some I believe to have been designed without the n.

I may here notice that when the part eastward of a central tower is short, it may, if it terminates in a gable and flat wall, appear out of proportion; but if it be apsidal, the eye is satisfied, and this, even if the tower be a lofty one with a spire. Another example, Bussière, has a longer chancel with a flat east end, flanked by the transept apses. At St. Maurice, near Gensay, the transepts terminate in apses, having also eastern apsidal chapels—the chancel also is apsidal. This is a most interesting church; it has been noticed by Mr. Parker in a letter addressed to the Antiquarian Society.

In English churches and cathedrals, which have a central and two western towers, the former is generally predominant in height as well as mass. In France, chiefly in Normandy, the western towers often rise to a greater height than the central, which, yet, from its massiveness, retains its dignity as the principal one; Lisieux and Coutances are fine examples. At Bayeux the modern cupola with which the central steeple was finished has been removed. It ought to have been left, unless by its weight it was prejudicial to the safety of the sub-

\* Read at the Architectural Exhibition.

structure, which may have been the case. Yet I cannot but admit that the outline has not suffered. The two beautiful western spires have now that importance to which they are entitled, and yet the central tower, like that of Coutances, still holds its ground. St. Nicholas, at Caen, with its low massive central tower, and tall slender steeple on the south side of the western front, is a composition of much grandeur and picturesqueness. St. Savin, near Poitiers, has a good central tower, and a less massive and taller western tower, both of Romanesque date; the latter is finished with a lofty spire of late work. At Le Dorat the arrangement is reversed; the western tower is low and massive; and at the intersection of the transept is an octagonal tower of several stages, finished with a spire. That the architect intended as a contrast to make this steeple as slender as possible, is shown by his setting the octagon diagonally, making the angles correspond with the sides and angles of the square of intersection, which makes its area smaller than that of an octagon obtained in the usual way, namely, by cutting off the angles of the square. Internally this octagon forms a beautiful lantern, lighted by several windows. This church is a very remarkable one, and deserves much attention. It is given by M. de Caumont in the *Bulletin Monumental*.

I will say nothing of the German compositions, as, although they are extremely picturesque, they are practically of little use to us. But the Lombard combination of the central lantern, with the tower attached to the transept or to some other part, is picturesque and suggestive.

There is a class of buildings that has sprung up within the last twenty years, and seems to be taking an established typical and conventional form, in which it is evident that a great effort is made to obtain picturesqueness, and which almost uniformly fails, probably because it is so apparently an effort—I mean our cemetery chapels, which we now see in the neighbourhood of all our large towns. Without entering into a full description of any of them, I think it may fairly be said that they seldom exhibit that character of solemnity, repose, and durability which ought to belong to such structures. Whether there is anything in the style usually adopted, as applied to them, or in our treatment of it, fatal to such impression, I cannot tell; but I have often wondered how we can be content with the kind of composition which has now become so general, when we can find in almost every style buildings of great beauty and dignity, which, with but little modification, would be admirably adapted for the purpose; I allude especially to the circular churches and others that may be considered as allied to them which are found in many parts of the Continent. But we will first deal with the difficulty, or rather with the question, for it seems to involve no difficulty, of the double chapel.

Supposing the distinct chapels to be necessary for the requirements of different kinds of service, there appear to me to be two opposite modes of treating them, either of which would be more suitable, both as regards beauty and dignity, than that now adopted—the one is, to combine them in one massive, simple, and solid edifice, which might be done by giving the whole the appearance of an oblong church divided as into a nave and chancel by a good substantial belfry, though this is only one of many arrangements that will readily occur to you; the other would be to keep the two buildings totally distinct and separate, and at such a distance that one would not interfere with the other; and it is in this case that the models to which I allude would be most available. As some of these are even smaller than the cemetery chapels we require, and yet have as much dignity and impressiveness as many larger structures, we may be sure that in taking them as examples we shall not render our work deficient in the qualities we desire.

(To be concluded in our next.)

#### IRISH PUBLIC SCHOOLS.

THERE are 143 Poor Law Union, and 129 Convent National Schools, each of which is usually divided into two or more departments, under separate teachers, but is reckoned by the Commissioners as only one school.

The Commissioners have recently resolved on giving greatly increased facilities for building school-houses, vested in trustees, giving a sum not exceeding £66 13s. 4d., that is, two-thirds of an estimated value not exceeding £100, towards the cost of such houses as could usually, under careful local superintendence, be erected for from £80 to £90, including payment for all labour and materials, leaving only about £15 to be raised by local contribution. It is to be hoped, therefore, that the number of unsuitable houses will soon be greatly diminished, and that populous remote localities, such as many parts of Conhemara and the islands along its coasts, now without schools, will shortly be supplied.

By a statistical return obtained from reliable sources by Mr. Vere Foster, and corrected up to the 1st June, 1863, showing the number of national schoolhouses in every county in Ireland, with particulars as to their roofs and floors, it appears that nearly 1,400 boarded floors have been laid down within the last four years.

#### THE ROYAL MARINE HOTEL, KINGSTOWN.

THE directors of this undertaking met on the 10th inst. at their offices, No. 113, Grafton-street, Mr. William Dargan occupying the chair. It was arranged to complete the registration deed at once, and also to prepare an amended prospectus for circulation. The consideration of the appointment of architect to the intended building was afterwards entered upon, and resulted in the selection of Mr. John McCurdy as *chief* architect, and Mr. Thos. A. Kelly as *superintending* architect. We believe that the expenditure will be in or about £50,000. When the plans are sufficiently advanced for description, full particulars shall appear in this journal. We are glad to find that the preliminaries of the undertaking have been so far most encouraging, and we doubt not that when it becomes an accomplished fact, the building will be a great acquisition to this fashionable and populous locality, which is still capable of very considerable improvement.

#### THE WEXFORD LUNATIC ASYLUM.

WE extract the following from a correspondence that has taken place in the *Wexford Independent*, relative to the contractorships for this building:—

A *Cesspayer* says—“Some months ago the Board of Control for Lunatic Asylums, advertised for tenders for the erection of a lunatic asylum at Enniscorthy. A large number of tenders were sent in, all of them differing in amount, the two lowest being lodged by builders resident in the county. It would naturally have been expected, that if any preference was to be given, it would have been given to contractors resident in the county. At all events the preference should be given to the *lowest* party tendering, if he be a man who knows his business, and can give undoubted security for the performance of the work. I know nothing against either of the two lowest parties so tendering that could militate against them. (He whose tender was the second lowest I know to be a man capable of undertaking any work, no matter what magnitude, as the ability and alacrity with which he has erected several of the most important buildings in Wexford abundantly prove.) Notwithstanding these qualifications, I understand that it is the intention of the Board of Control to give the contract to the third lowest (Mr. Kerr), although his tender is £4,000 higher than that of one of the county Wexford builders, and about £5,000 higher than that of the other. Now, there is here evinced evident partiality; and as it is the cesspayers, and not the Board of Control, who will have to pay the cost of erecting the asylum, they should see that they are not taxed for the building to the extent of £4,000 or £5,000 more than is necessary, and simply because the Board of Control wish to put money into the purse of one whom they desire to favour, at the expense of the already over-taxed cesspayers of the county of Wexford.”

Another *Cesspayer*, referring to the above communication, and in drawing attention to “the partiality of the Board of Control” in giving the contract to Mr. Kerr, whereas there were (as the writer states) two other tenders for the contract—one at £4,000 and the other at £5,000 less than Mr. Kerr’s, says:—“The writer’s evident partiality for the middle tender shows that he himself would not be guided by the lowest tender. Then, why not allow the Board of Control, with their superior means of information, to use a wise discretion for the interests of the county in choosing a contractor of such character and experience as a builder that will ensure the perfection of a work of such magnitude as our county lunatic asylum will be. Mr. Kerr, and many other contractors for public buildings, have been known, and under the notice of the public in this locality. The difference in the tenders that a ‘Cesspayer’ alludes to was also well known; yet the public were so interested in Mr. Kerr being declared the contractor, that on the evening of his unexpected arrival in Enniscorthy, tar-barrels blazed, the amateur band turned out, and cheers from thousands welcomed his return to Enniscorthy as a contractor. A large cesspayer myself, and in frequent intercourse with some of the largest cesspayers of our county, I have not heard any opinion from cesspayers but of approval of the Board of Control for exercising a wise discretion by placing the building of our county asylum in the hands of so honourable and competent a builder as Mr. Kerr; nor does any one dream that by his con-

tract he will pocket the difference of the tenders, but that the public will reap the advantage in the superiority of the work.”

Mr. Charles A. Walker, a local gentleman of influence, writes as follows on same subject:—“The letter signed ‘A Cesspayer,’ contains very undeserved charges against the Board of Control of Lunatic Asylums in Ireland. ‘Cesspayer’ accuses the Board of a disregard of economy, and of the interests of this county, in not accepting the lowest tender for the building of the lunatic asylum near Enniscorthy; and he further accuses the Board of having given the contract to Mr. Kerr from corrupt motives. Now, as regards the first charge, I, as one of the local committee appointed by the grand jury, can say from personal knowledge, and from constant communication with the Board, that every member of it, from the commencement up to the present time, has anxiously exerted himself to keep down the expenses of this most necessary and important undertaking, and the Board wisely and properly, in the original advertisement for tenders, announced that they would not bind themselves to accept the lowest tender; for it should be recollected there are many other important considerations in the choice of a tender besides the mere question of amount; and it would frequently be the reverse of a true economy to select the lowest without regard to other matters. It so happened that in the present case there was a very great competition. I believe sixteen architects competed. As ‘Cesspayer’ states, Mr. Kerr’s tender was one of the three lowest tenders. No doubt if I was to consult solely my own personal feelings, apart from every other consideration, I would have been glad that a county of Wexford candidate should succeed in the object of his wishes. But this is a very narrow view to take. It too frequently occurs that the lowest tender is the worst economy, and is often injurious in its results, both to the employer and employed. Lastly, as to the charge of the Board of Control being influenced by favouritism, or other corrupt motives, in giving the contract to Mr. Kerr, I know they acted in the proper way, and upon the purest principles, and I am confident in a way that will prove to be the most advantageous to the county. We also acted with the full approbation of a meeting of the committee, which was held to consider the matter, and we went very fully into the several calculations. With regard to Mr. Kerr, the present contractor, he is not altogether a stranger here—he is favourably known in Enniscorthy as a clever and satisfactory contractor, and a good employer to the people.”

#### THE ARCHITECTURAL ALLIANCE.

ON the 1st inst. the annual meeting of delegates from the allied architectural societies was held in the rooms, 9, Conduit-street. C. Underwood, Esq., of the Bristol Society, was voted to the chair. The following gentlemen were appointed to act as delegates. Those marked with an asterisk were present at the meeting:—

Bristol Society of Architects—Messrs. S. B. Gabriel, C. Underwood,\* Edward W. Godwin.\*  
Manchester Architectural Association—Messrs. L. Booth,\* Darbyshire,\* R. W. Aitken.  
Northern Architectural Association—Messrs. T. Austin,\* T. Olliver, J. P. Pritchett.\*  
Architectural Association (London) delegates—Messrs. T. Roger Smith,\* T. M. Rickman,\* Arthur Allom,\* J. A. Bunker.\*  
Institute of Scottish Architects—Messrs. John Lessels,\* Robert Matheson, John Dick Peddie.  
Birmingham Architectural Society—Messrs. Botham,\* Chamberlain, A. B. Phipson.\*  
Liverpool Architectural and Archaeological Society—Messrs. R. Weightman, J. M. Hay, J. Bolt.

Glasgow Architectural Society—Messrs. Alex. Thompson, Angus Kennedy, Campbell Douglas.

It was proposed by Mr. Godwin, and seconded by Mr. Austin, that the following societies be admitted into the Alliance—all of them having been represented at the Conference, on the 2nd of July, last year:—Architectural Association, London; Institute of Scottish Architects; Birmingham Architectural Society; Liverpool Architectural and Archaeological Society; and the Glasgow Architectural Society.

Mr. J. B. Pritchett, honorary secretary, then read the Annual Report, which stated that, according to Rule 5, all societies sending in their adhesion to the matured scheme before August 15th last, were to form the nucleus of the Alliance, and the admission of any coming subsequently was provided for by the other rules. The papers had been sent out as soon as printed; but at present only three societies had sent in their adhesion to the Alliance, viz., the British Society of Architects, the Manchester Architectural Association, and the Northern Architectural Association. Since that

day the other societies have sent in their adhesion, viz., the London Architectural Association, Architectural Institute of Scotland, Birmingham Architectural Society, Glasgow Architectural Society, and the Liverpool Architectural and Archaeological Society. According to the strict letter of the rule, these societies should be balloted for, and are not entitled to send delegates until admitted. As, however, all took part in the Conference last July, the secretary only thought it fair to request them to send delegates, so that they could give any information relative to their respective societies, and such as were admitted could at once take part in the proceedings of the meeting. A letter had been sent to the Institute of British Architects, to the Institute of Architects of Ireland, and to the Edinburgh Architectural Association, asking them to allow themselves to be proposed as members of the Alliance. The Edinburgh Association had replied that it was not considered expedient to join, as the Association had entered into close connection with the Institute of Scotland, so that, in fact, it was already in the Alliance. The final decision of the other two was under their consideration, and there was reason to hope that both bodies would shortly join.\* It was much to be regretted that the Institute held aloof, as, by joining, it would strengthen, not only the Alliance, but itself. It was to be hoped that, as the Alliance progressed, the objections of the Institute would cease. It had so far recognized the Alliance as to send to the secretary a copy of their proceedings as they were published. The competition system was, doubtless, a subject which would constantly occupy the attention of the Alliance. There had been several competitions during the year, in which the advice of the Alliance—had it been full organized—could have been usefully given. One competition, however, was advertised, respecting which, from the very unfair conditions imposed, the secretary had remonstrated with the promoters, and requested the members of the Alliance not to compete. Owing to the importance of the competition for the Liverpool Exchange, the secretary thought there could be no objection to his making suggestions to the directors as to the preparation of instructions and mode of decision. The chairman instructed their secretary to reply that "the suggestions should have their careful consideration," and although not aware as to what influence such communication may have had, judging from the absence of all complaints, the competition appears to have been conducted in a manner satisfactory to the competitors. In conclusion, the secretary believed that the Alliance had already accomplished something in promoting brotherly feeling among the widely-scattered members of the profession, if even nothing else had been done, and believed that, if properly worked, it had a useful future before it in reforming "the evils of our present practice."

The adoption of the report was moved by Mr. T. M. Rickman, and seconded by Mr. Botham (of the Birmingham Society).

#### THE PROFESSIONAL PRACTICE OF ARCHITECTS.

Mr. T. Austin, of the Northern Architectural Association, proposed—"That this meeting do now proceed with the preparation of a scale of charges, which, when completed, to be recommended to the various allied societies, for the use of their members." Mr. J. P. Pritchett seconded the resolution, which was carried. After some discussion it was resolved that a copy of the rules, as agreed to at the present meeting, be sent to the allied societies for their consideration, and to report upon them to the Architectural Alliance.

Mr. Booth proposed that the "Professional Practice and Charges of Architects," as issued by the Institute of British Architects, be the basis for the preparation of the proposed scale of charges. Mr. T. M. Rickman said it was a question whether they could make a single scale of charges to be adopted by the whole country. There was a considerable difference between the two scales, viz., that of the Northern Architectural Society and the Institute of British Architects; and the salient difference seemed to him to be that the Institute had determined that no architect could take out any quantities but for himself. In the north of England—in Manchester especially—and in many other places, the quantities are provided by architects. In the midland counties this was the constant practice, and an architect was reckoned as a surveyor. The Institute went on the basis that an architect was an architect, and could not be a surveyor. He could not measure works that were not carried out by himself. In Scotland there were public measurers, and they were recognized by the State. One

peculiarity in Scotland was, that charges were generally much more moderate than those made in London. The question was—Were they to take the architect as a measurer, or as an architect only, in their proposed scale of charges for professional practice? Could there not, therefore, be two separate scales of charges? There was little doubt that the charges for measuring should be from  $1\frac{1}{4}$  to  $2\frac{1}{2}$  per cent., which was laid down by the Northern Architectural Society. It ought properly to be clearly understood by the client whether the architect was a surveyor as well. He asked, was the scale intended for professional practice? The Institute did not allow architects to be surveyors; but although they allowed them to be associates, they did not admit them as fellows. But he hoped that some day the position of the measuring surveyors should be such that the Institute would allow them to take their part in conducting the business of the Institute. The chairman remarked that he had never found any difficulty whatever in the matter of quantities, as his clerks had got them up easily. Mr. Allom said that a surveyor did not mean a surveyor of quantities, but of dilapidations. He disagreed with Mr. Rickman as to the position of the measuring surveyor.

At this juncture the proposition of Mr. Booth was altered, and the meeting proceeded to arrange their proposed rules upon the basis of the various published scales.

A discussion occupying several hours followed, in the course of which the scale of professional charges which have already appeared in the DUBLIN BUILDER was adopted.

After the reading of that document,

It was proposed by Mr. Austin, and seconded by Mr. R. T. Smith, "That the subject of competitions be brought before the allied societies by their delegates." Passed unanimously.

Proposed by Mr. Brunner, and seconded by Mr. Rickman, "That the delegates do bring before their respective societies the question of the desirability of establishing an uniform system of measuring artificers' work, and do bring to the next meeting such information as may be accessible." Passed unanimously.

The ballot for the officers of the ensuing year then took place, when the following gentlemen were elected:—President, Mr. T. Roger Smith (London); Vice-President, Mr. Chamberlain (Birmingham); Treasurer and Secretary, Mr. T. P. Pritchett (Darlington).

The President then took the chair, when a vote of thanks to Mr. Underwood for his conduct in the chair was passed. The annual dinner was then held, after which the usual loyal and professional toasts were given.

#### PROPOSED EXHIBITION OF IRISH MANUFACTURES, 1864.

A SPECIAL general meeting of the guarantors of the Exhibition Fund, was held on Monday, in the Board Room of the Royal Dublin Society's House, Kildare-street. The object of the meeting was to elect a finance committee. Alexander Parker, Esq., J.P., occupied the chair.

Mr. Walker, hon. sec., having read the notice convening the meeting, the chairman said, every person who attended manifested an interest in the object which the forthcoming exhibition had in view, namely to give a stimulus and encouragement to the manufactures of the country; but some had shown even more interest than was manifested by their attendance, for they had united together in forming a guarantee fund, which now amounted to no less than £9,000, to protect the Dublin Society against the possibility of any loss arising to the Society from the prosecution of this little enterprise. He was quite sure that 9,000 pence would not be lost by the exhibition; he trusted indeed that there would be a small surplus. But every gentleman who joined this creditable list reduced the average probability of loss to each of his co-guarantors, and it was extremely desirable that this liability should be spread over as broad a surface as possible, both because it diminished the risk of individual loss, and secured an additional adherent to the scheme. The character of the forthcoming exhibition and what it proposed to accomplish were so fully set out in the excellent circular of Dr. Steele, which had been printed and circulated amongst the members of the Society (already published in the DUBLIN BUILDER) that he did not feel it necessary to go into any details on these subjects; all he would say was, that since England and Scotland had got so completely before Ireland in the manufacturing race, it really did become necessary to give a little more than common encouragement to the few manufactures they already possessed; and if by possibility they could create a few more manufactures, they would be doing a great service to the country. There was a great deal of power in Ireland going to waste, both water power and human power; and they all

remembered the couplet taught them in childhood by their mothers—that

"Satan finds some mischief still  
For idle hands to do."

There was many an idle hand in Ireland at this moment, which, if it was only taught and employed, would turn its power and skill to useful manufactures. A glance at the history of Irish manufactures for the last fifty years showed a good deal to discourage. Their "Galway flannels" were all made in Lancashire now, but, notwithstanding, the reputation of the article remained. The article was made in Bury, but it was called "Galway." Now, it would be very pleasant to bring back the manufacture of that flannel to Galway again, where there were about as many idle hands as in any part of her Majesty's dominions, and thus be able to effect the important object of employing the people. Galway flannel got its excellent name, not for its sightliness, but for its honesty. That flannel had no trash in its composition—it was all wool and worsted. He was sorry he could not say the same of the Lancashire article, which, if more sightly, was not as honest an article, having been very much corrupted by the introduction of what was called "shoddy" and other foreign substances which had no business in a yard of flannel. Then there was the calico-printing trade. He was sure there were gentlemen present who remembered three or four large establishments for calico-printing in the neighbourhood of Dublin—establishments creditable to the country and profitable for their proprietors. There were also some establishments in Belfast; but now there was not one calico-printing establishment in Ireland. In one manufacture Ireland had certainly bid defiance to competition—the linen manufacture—and that manufacture supplied a reason for holding exhibitions of Irish manufactures, because it would encourage other branches of trade, and show what Ireland could do. The linen manufacture had come to its real strength, and taken up that position which it had ever since maintained, and it certainly was a proud line in the entries of the day, so many yards of linen passing free. The manufacture required no protection—the linen trade of Ireland was able to take care of itself. He trusted that a great many branches of Irish manufacture would be able to maintain themselves before he died. He knew it was not necessary to make any effort to enlist their hearty interest in the forthcoming exhibition. Its pretensions were modest; it did not invite the world to compete with Ireland. They had had enough of that recently, and they could not expect so soon after the International Exhibition to find people taking an interest and supplying the materials for another great display. The proposed exhibition was merely intended to afford a field for Irishmen to compete with each other. It was time the English and Scotch had been invited to send their machinery, and show Ireland what improvements had been effected in that department. It was expected that this would prove very useful in giving an incentive to Irish manufacturers. The object of the meeting was to elect a finance committee. He had the honour of being a member of the committee of management of the exhibition held two years ago. That exhibition was very successful, and certainly a large portion of its success was due to the prudent management of the finance committee.

Mr. Phineas Riall, High Sheriff of the County of Dublin, proposed and Mr. John Fry seconded the first resolution, as follows—"Resolved—"That this meeting desires to express satisfaction at the statement which they have just heard, and of the progress hitherto made by the committee, and will gladly co-operate to the utmost of their power in promoting the success of the exhibition, which they trust will be a suitable exponent of the industry of the country."

Mr. Bagot said it might not be out of place to lay before the meeting some circumstances connected with the very satisfactory visit paid by himself and some other members of the committee to Belfast last week. It was well known that the linen manufacturers of the north had arrived at that happy condition in which they were able to take care of themselves; and, although they did not, consequently, require any pushing, they entered into the project very heartily. The mayor of the town summoned a meeting, which was attended by some sixty or seventy of the leading manufacturers. They formed a committee to co-operate with the managing committee of Dublin, and it was intended to appoint secretaries and go to work with spirit. The deputation had also interviews with the leading manufacturers, who expressed their readiness to exhibit on a large scale if adequate space were placed at their disposal. There were other branches of trade in the North of Ireland in addition to the linen manufacture which would also be well represented in the forthcoming exhibition. He (Mr. Bagot) might also mention that the general appearance of property in the district of country through which they passed was most gratifying. They did not hear a single complaint in any one's mouth—a fact to be attributed no doubt in a great measure to the hopeful character of the present season. One fact

\* There seems to be some mistake in this statement, inasmuch as a letter had been forwarded to the hon. secretary of the Alliance, from the hon. secretary of the Royal Institute of Architects of Ireland, to the effect that the latter body declined to join for the present.



## INFLUENCE OF FROST ON IRON.\*

Frost being considered to act injuriously on the strength of iron, some experiments were made during the severe weather in December, 1860, to ascertain its effects. A bar of Glasgow B best,  $\frac{3}{4}$  in. diameter, was converted into ten bolts, in the ordinary way, six were exposed all night to intense frost, and tested in the morning with the thermometer at 23 deg. Fahr. The other four were kept in a warm place, and carefully protected during testing. Three were tested with gradual, and seven with sudden strains; it was found that when the strain was gradually applied there was very little difference between the specimen tested in the ordinary condition and the two that were frozen; the former bore 55,717, the latter 54,385; difference, 1,332 lb., or 2.3 per cent. less. The difference under sudden strains is somewhat greater, viz., 3.6 per cent. less when frozen. The load just sufficient to cause rupture was in one case somewhere between 50,535 and 49,948; in the other, between 49,060 and 48,109; the mean in the one instance being 50,391, in the other 48,584; difference 1,807 lb., or 3.6 per cent. The writer regrets that other duties prevented him from carrying out his intention of repeating these experiments with bars of various qualities. It will be noticed that the bar tested happened to be of superior quality: had it been of a coarser description, the difference when frozen might have been much greater. The frozen bolts were coated with a thin layer of ice, for the purpose of better observing the effects produced. In specimen, with strain slowly applied, the ice gradually became opaque and white, and just before breaking it resembled hoar frost. In another specimen, under sudden strain the ice remained transparent, and the instantaneous stretching of the specimen, was most beautifully exhibited by the ice cracking and forming a series of complete rings. In yet another, the strain was greater than in the last, and caused the rupture of the specimen; the heat thereby generated was apparent by the ice melting, and in the formation of vapour.

## THE PROPOSED CONVERSAZIONE OF THE ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.

SEVERAL letters of inquiry as to *when* and *where* this event is to take place, having been addressed to us, we answer all by stating, first, that we apprehend a likelihood of a postponement until the commencement of the next session in November, and this course we would deem most prudent for ensuring its success, as the season for absence from a crowded metropolis is at hand, and comparatively few would now attend an occasion of the kind; next that there may be some difficulty in arranging for holding it in a suitable suite of apartments.

## Law Intelligence.

*Rambaut v. Barry and Norton.*—This case of action for dilapidations, referred to in our last issue, was brought to a close after a protracted hearing before the Chief Baron and a special jury and resulted in "no verdict," eleven of the jury (we believe) being for finding for the defendant. It may be a question as to a new trial.

## Public and Private Works.

**MONUMENT TO THE LATE SHARMAN CRAWFORD, Esq.**—A large quantity of beautifully ornamented cut stones, from the extensive works of Arthur Hammond, Esq., at Sheep-house, county Meath, were deposited on the quays of Drogheda during the last ten days, and from their immense size, and being highly finished, they attracted general attention. They are now in course of shipment for Belfast, on board the schooner *Maid of Erin*, intended for the erection of a grand monument in memory of the late William Sharmar Crawford. We understand that this monument will be erected in the vicinity of Crawfordsburn, in the county of Down, and the entire expense defrayed by the joint subscriptions of his tenantry and other admirers in the North of Ireland. The monument will be nearly similar to the Wellington Testimonial in the Phoenix Park.—*Drogheda Conservative.*

An Alexandria letter mentions that the works of the Isthmus of Suez Canal are being urged forward with great activity. About 20,000 men are employed there, and the arrival of fresh workmen to replace those whose term of labour has expired takes place with the greatest regularity.

\* From Kirkaldy's work on Iron and steel.

## General Items.

The Exhibition of the Royal Hibernian Academy still remains open; the admission in the day time being *one shilling*, and in the evenings, by gas-light, *one penny*. At the latter period it is greatly thronged by the working classes principally, and cannot fail to be most remunerative.

W. R. Le Fanu, Esq. C.E., engineer-in-chief of the Dublin, Wicklow, and Wexford Railway, and well known in connection with the Great Southern and Western and many other railway projects in Ireland, has been appointed to the office of Commissioner of the Board of Works, Dublin, vacated by G. J. Radcliffe, Esq.

## Miscellaneous.

**KINGSTOWN HARBOUR—RECEIPTS AND EXPENDITURE.**—The following is a correct return during the past year:—Receipt—Issued from H. M. Exchequer on account of vote, £2,869; harbour dues, £1,149 7s. 1d.; rents, £153 0s. 5d.; sale of old materials, &c., £17 14s. 11d. Total, £4,889 2s. 5d.

Expenditure—Ballast supplied, contract, £348 10s.; maintenance, repairs, &c., &c., £2,927 13s.; patent screw moorings, £360; salaries of harbour-master, superintendent, &c., £461 18s. 7d.; boatmen, watchmen, &c., £630 13s. 3d.; incidents and contingencies, including gas-light, £176 18s.; rents and taxes, £41 6s. Total, 4,946 5s. 4d.

**SLIGO RAILWAY TERMINUS.**—This station, says the *Sligo Independent* is fast approaching completion, and now that its proportions can be fairly judged of, will be a handsome structure. In a few days the trains will run into it. The different offices and waiting-rooms are nearly finished. They are all neat and conveniently situated. The gas-fittings are also nearly completed. The principal offices were lighted last night, and had a fine effect. They have all been put up in the best style, and reflect great credit on the contractors, Messrs. Edmundson and Co., of Dublin.

**METROPOLITAN (LONDON) IMPROVEMENTS.**—A prospectus has been issued of a company to be called the Credit Metropolitan, with a capital of 3,000,000 (of which one-third is to be first issued), in shares of £50. The object is to undertake or assist the construction of public works and improvements in the metropolis, such as the occupation of new sites, the erection of banking-houses and public offices, markets, and arcades, and the purchasing and completing unfinished dwellings.

**FRAGMENTS OF RENAISSANCE ARCHITECTURE IN FRANCE.**—M. César Daly, the accomplished founder and editor of the *Revue de L'Architecture*, now entering on the 21st year of its existence, has recently announced a companion work to the "L'Architecture Privée du XIXe Siècle." It lays before us every phase of modern domestic French architecture to a comprehensible scale, and with that scrupulous exactitude in every detail for which M. Daly has distinguished himself in all his works. As the same patient industry, cultivated taste, and mature knowledge will preside over the new work, we can fairly anticipate the service it will render to students of all countries. It will consist of a series of the most interesting fragments of architecture executed during the time we have above specified. Its object will be to illustrate an important period of French architecture, and at the same time to furnish hints in composition to architects and to the ornamental sculptors that their philosophical intelligence and practical good sense have collected round the flag of "liberté de l'art." It will give to a large scale valuable details, from which may be studied the transformations of style which have taken place on the French soil since the decline of Gothic architecture. M. Daly has not included the architecture of the Middle Ages in the collection, because he considers that M. Violett le Duc's "Dictionnaire Raisonné de l'Architecture Française du XIe au XVIe Siècle" satisfies all present requirements. Archaeologists, architects, and sculptors will find, we have no doubt, ample materials for profitable study in this new work. It is a work which ought not to benefit Frenchmen exclusively, and hence our desire to introduce it to students on this side of the Channel. M. Daly's name and former labours are guarantees of the manner in which it will be produced. It will be published in fifty parts, each containing four plates, and will form two large folio volumes, similar to the companion work already published. The issue of parts takes place fortnightly, and the price of each is six francs.

**CLEANSING LONDON STATUES.**—A correspondent of the *Times* writes as follows:—"During the prevailing fermentation in the public mind concerning science and art, it may be desirable to direct atten-

tion to a subject which concerns both; I refer to the condition of the statues of London. They are nearly all, I believe, composed, as they certainly should be, of the alloy of copper and tin termed bronze. The same alloy was used by the ancients for their statues, and nothing better suited for the purpose has been discovered to this day. It is extremely durable, and in fitting localities either preserves its original colour in a certain degree, or acquires the well-known green patina. But in the atmosphere of London it speedily loses all traces of its natural tint, becoming hideously soot-begrimed or otherwise darkly discolored. Possibly some connoisseurs in taste may regard this external incrustation of black filth with satisfaction, but to the majority of the public, I think I may venture to assert, it is far from agreeable. Statues of cast iron might be erected at a much less cost than statues of bronze, and they would look equally well, if not better. Those who wish to see how much may be done in changing the external appearance of a London building by the agency of soap and water should inspect the process now in operation upon the marble arch. The transformation is positively marvellous. Mr. Cowper may, in this instance, boast with good reason of a signal conquest over London soot. The great problem of washing the blackamoor white has at length been solved by the right hon. gentleman. Let him try his hand at our statues, with a view to transform them, either by the aid of the scrubbing-brush or other appliances, into respectable objects less resembling gigantic chimney-sweeps."

**CLONSKEAGH IRONWORKS.**—We have recently visited Mr. H. H. Rochford's ironworks at Clonskeagh, and been greatly gratified at the large amount of Irish enterprise and skill we saw there exhibited. Being so long accustomed to believe that nearly all our work of any importance could be, as it is in fact, almost exclusively done only in England and Scotland, it was an agreeable surprise to us to see the great extent of Mr. Rochford's establishment, the considerable number of men employed, and the ponderous and difficult works that were in course of being executed. Under the skilful and constant supervision of its present proprietor, this establishment is now in a more efficient and flourishing condition than it has been at any other period during the last half century. There is an extensive series of furnace houses, workshops, stores, &c., with all the machinery and appliances requisite for such an establishment. Immense furnaces were in full operation, fusing together quantities of scrap iron. Then there were ponderous hammers worked by machinery, one of the hammers being three tons weight; from which fact some idea may be formed of the tremendous power of its blows, and from 80 to 90 of these blows were given per minute; it is the heaviest in Ireland. There were also powerful machines for cutting iron. Screwing machines, drilling machines, turning machines, punching machines, were all in full play, every set receiving the attention and skilful direction of workmen. The most interesting work at present in progress, and the inspection of which was the main object of the visit, is an iron keel for an iron ship. This keel is manufactured of the best scrap iron; it is 42 feet in length, about  $\frac{3}{4}$  of a foot wide, and about 3 inches in thickness. Nothing of the kind has heretofore been made in this country, and it is satisfactory to know that an Irish establishment has made a successful commencement in so important a branch of iron ship-building. The keel is being made for the eminent firm of Webb and Walpole, of the North-wall, who deserve the utmost credit for true patriotism in giving so heavy an order at home. Arrangements have been made by Mr. Rochford to manufacture those keels to a length of 90 feet, and also to manufacture shafts fully two feet in diameter. Our eminent ship-building firms in Belfast, Cork, and Waterford could do a vast deal to promote Irish enterprise and industry, in so valuable a department of manufactures by having such branches of their work done in this country. Great employment would be afforded, and a branch of industry of which Ireland has been so shamefully destitute would be encouraged. The same may be said of our railway companies, who could get axles and other portions of the ironwork used in the construction of carriages, &c., made at home, instead of sending across the water for the smallest ironwork, even for the wire used in making fences. Mr. Rochford's ironworks turn out, however, a greater variety of iron machinery and implements than we actually knew to be made here, and his orders in these departments are rapidly increasing, requiring further enlargement of the concerns, and also the taking in of additional hands. Indeed the amount of employment already afforded is of the greatest advantage in the neighbourhood.—*Freeman.*

NOTICE TO PUBLISHERS AND AUTHORS. —Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

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# The Dublin Builder.

VOL. V.—No. 87.

## ENGINEERING IN IRELAND.

**A**LTHOUGH the profession of Engineering in Ireland, when compared with that of her wealthy sister England, has had, from time to time, but a small field for its lucrative pursuit, nevertheless, with our national history are associated many accomplished facts, in which that great utilitarian science has worked wonders. We cannot boast of vast docks, such as Liverpool and London—of impregnable forts, such as Dover and Portsmouth—of huge arsenals, such as Woolwich—of wonderful bridges, such as the Menai, the Conway, &c.—of extensive factories, such as are to be found in every great commercial town in England—of great breakwaters, such as Plymouth and Holyhead—and of various element-defying structures, such as the genius of a Smeaton, a Rennie, a Telford, a Watt, a Brunel, &c., gave to England: still we possess much, in examining the history and particulars of which, an important amount of interest is to be derived. The growing necessities of Commerce have caused the execution of vast works, in making suitable the navigation of our rivers, our loughs, canals, and harbours; in forming tramroads for the swift iron horse to speed his way upon; and the agricultural interest—the all-predominating characteristic of Ireland—demanded reclamations of waste tracts, and the thorough drainage of almost the entire face of the country. Our towns are better bridged, lighted, paved, sewered, &c., than they were days gone by; we travel over highways better paved and more spacious than did our forefathers when the tedious old coaching system was in vogue, and, as time proceeds, so must future necessity for even greater improvement arise.

In navigation, amongst the most important works undertaken in this country, were those connected with the Upper and Lower Shannon, the Newry Canal, the rivers Lagan, Boyne, Barrow, and Nore; Carlingford Lough, and the Ulster, and Royal, and Grand Canals; at the harbours of Kingstown, Belfast, Cork, Drogheda, &c.: but still very much remains to be done before several other great commercial seaport towns are afforded proper facilities. Of these latter, the wants of Galway—which, at this moment, must be anxiously regarded as the future hope of Ireland's prosperity—and of Dundalk (alluded to fully in another portion of this impression) are amongst the most apparent; and the perpetual inundations of the Shannon—in the modern improvement of which the vast sum of £584,804 has already been expended—have yet to be overcome.

Railways—which, by the great arteries of the M. G. W., the G. S. and W., the I. N. Western, the three W.'s and their numerous branches, traverse the length and breadth of the land, have almost superseded canals altogether, quite so unless for the conveyance of heavy goods such as coal, building materials, &c.; and thereby wrought a revolution in the previously adopted mode of transit.

Unquestionably the most remarkable structure in Ireland connected with railways, is the great lattice viaduct which carries the Dublin and Belfast Junction Railway over the River Boyne at Drogheda. There seem to have been grave doubts as to the necessity for this structure *at all*, and for the enormous outlay required to complete it,—which many believe might have been advantageously avoided by directing the line to another course,—but with that we have nothing to do, and only regard the structure as it is, a triumph of great engineering skill and masterly surmounting of a practical difficulty. The merit of its design formed the subject of a sharp passage of arms some time ago through the medium of the public press, between Sir J. Macneill, engineer-in-chief of the

line, and Mr. Barton, the resident engineer; and we shall not re-open the question, but content ourselves by naming each in connection with the undertaking.

Before we quit the subject of railways it would be invidious not to associate with it a few honoured names who have performed the respective duties of engineers and contractors of these great highways, and foremost in the former capacity stand those of Hemans (son of the celebrated poetess) and Lefanu; and in the latter is supreme that of Wm. Dargan, whose giant mind and princely heart, have established a universal reputation for his professional as well as his private character. Would that Ireland had a few more such men to give her the benefit of their genius, their enterprise and their disinterested benevolence, for it is a memorable fact that this gentleman, the generous donor of our great Industrial Exhibition of 1863 at a loss to himself of £20,000, refused the honour of a baronetcy from the Queen of England.

A previous application of the lattice girder construction, as adopted in this, had been tried in carrying the Drogheda Railway over the Royal Canal, but as the company's engineer has had lately to cause two masonry supports to be placed under the latter, it is to be apprehended that the principle may prove fallacious. We shudder, however, at the thought that it should prove calamitously so. The Boyne bridge is 95 feet above high water, admitting tall-masted vessels to pass under it without impediment, and shows three openings of 264 feet for the central, and 138 feet each for the sides respectively, the entire length of the lattice beam being 540 feet with a depth of 22 feet 6 inches. At the north side of the river, three great semicircular cut stone arches, and at the south twelve, form the approaches to the viaduct, which, taken in its *tout ensemble*, must be admired as a successful combination of architectural taste with engineering skill.

Another important viaduct, but of totally different character in every way, is the Newfoundwell, close by that we speak of. We cannot, however, more than passingly allude to it at present, as we also do to that at Athlone and at Lough Athalia, near Galway.

We shall in our next pursue a minute review of the various other topics touched on in the above.

## SCOTTISH AMICABLE ASSURANCE BUILDINGS, BELFAST.

WITH the present number we give a view of the buildings in course of erection for the Scottish Amicable Life Assurance Company, at the corner of Waring-street and Victoria-street, Belfast, a description of which will be found in our number for July 1st.

## PROPOSED IMPROVEMENTS AT GRANGE-GORMAN PENITENTIARY.

ON this day (1st inst.) the competition plans for the improvement of a portion of this prison, and provision of suitable buildings for the accommodation of 120 prisoners, on the separate system, are to be sent in. We have heard the names of some of the gentlemen about competing, and from their ability to deal with the subject, we expect that their suggestions will evidence great merit. The portion proposed to be remodelled has been for a long time almost in total disuse, and the general principles of the arrangements faulty, although in former days when prison discipline was not as perfect as it is now, it was found to answer, and the general design of the establishment for its then purpose reflected credit on the distinguished architect, the late Mr. Johnson. The instructions comprise provision (as stated) of 120 cells, together with lavatories, w.c.'s &c. (all so placed as to be under perfect supervision of the matron from a central point); six yards for exercise, the enlargement of the present city laundry, with requisite mangling, drying, ironing, &c., rooms, in connection with the fitting up of the present convict laundry of the church, chapel, and schoolroom, ensuring a perfect system of ventilation throughout, and everything necessary for carrying out the rigidity of the system with due regard to the physical and moral well-being of the prisoners.

There are many matters referred to in the instructions which, being "details," it is hardly to be expected

that the competitors at this stage will go into for on the *general plan* mainly the decision must be based. The economical adaptation of the existing buildings, as far as practicable and consistent with the suitable design, ought to be an important consideration; also the facility for extension of the principle of complete central supervision hereafter, should same become desirable. The gentlemen comprising the board are remarkable for their business aptitude, intelligence, and high honour, so whatever may be the result, we anticipate that it will be arrived at in the spirit of *fair play*.

## ARCHÆOLOGICAL EXCURSIONS.

*Archæological Institute of Great Britain and Ireland.*—The annual congress commenced at Rochester, on Tuesday, with an unusually large attendance of members. The opening meeting was held in the Guildhall. The chair was occupied by the Marquis Camden. Congratulatory addresses were read, and speeches made by the town clerk for the mayor and corporation; by the Earl of Darnley, on behalf of the Kent Archæological Society; by Lord Talbot de Malahide; and on behalf of the dean and chapter, by the Provost of Oriel—the latter remarking that Rochester Cathedral stood on the site of the second Christian church of the Anglo-Saxon times. The meeting was subsequently addressed by the Bishop of Rochester, Lord Leigh, Mr. Beresford Hope, Mr. Roach Smith, and others; after which, the members of the Institute commenced an exploration of the chief objects of antiquity in the city. After inspecting the sites of All Souls' Chapel and St. Clement's Church, both of which have entirely disappeared, the party visited the ancient Crown Inn, immortalised by Shakspeare, but which, in the course of a few months, will be demolished to make way for a modern hotel of the same name. The visitors then inspected the sites of the ancient gates of the city and its massive walls, and the ancient Danish, or more properly Roman, mound, at the base of the castle, termed Boley-hill, and paid a brief visit to the ancient Satishouse, so named by Queen Elizabeth on her visit to the mansion, in which the present Archbishop of Canterbury was born. The temporary museum, opened in the Corn Exchange, includes most of the Anglo-Saxon remains discovered from time to time in Kent, as well as highly-interesting Roman remains. At the evening meeting, Mr. Bennett read a paper on Beyham Abbey, and Mr. E. Foss, F.S.A., one "On the Archæology of the Law, with an Account of some of the Legal Celebrities of Kent," which was a valuable history of most of the Kentish legal customs and practices. These were, for the most part, of Saxon origin. The paper also gave sketches of the lives of many of the legal celebrities connected with Kent. On Wednesday morning, the Rev. H. M. Scarth read a paper on the recent discoveries of Roman antiquities at Wroxeter, which advocated the importance of the Crown appointing a commission with a view to the preservation of descriptions of any archæological remains, as was the case in France. Mr. Roach Smith spoke strongly in favour of the suggestion. Dr. Edwin Guest, Master of Gonville and Caius College, Cambridge, read a paper on the landing of Julius Cæsar in Britain. In the afternoon the members of the Institute visited Cobham Hall, and on Thursday were to inspect Malling Abbey.

## THE STEAMSHIP ADRIATIC.

THIS noble steamer was built in 1858 by George Steers, of New York, the famous builder of the yacht America. She is a wooden ship of 4,000 tons register. Her extreme length over all is 660 feet, and her breadth of beam 50 feet; her draught of water 22 feet. The hurricane-deck, which is 300 feet long, extends from the stern to the foremast, and it is hardly an exaggeration to describe it as a vast promenade. On either side at the centre rise the huge paddle-boxes, containing wheels forty-two feet in diameter, while the bases of each of the two funnels are like small towers. She has two masts, both square-rigged, and these, though small in proportion to the dimensions of the vessel, are actually very large. On the fore-part of the hurricane-deck, within a securely contrived house, is the ship's wheel, so that the steersman can do his work completely protected from the weather.

Eight large boats—four on each side—are slung on the deck. Underneath the hurricane deck, on each side, are covered gangways extending its whole length, this being the main deck level. The principal saloons, the cabins of the officers, and the cook and steward's departments all stand upon the main and are roofed by the hurricane deck. At the sternmost end is the armoury, which is also fitted up as a smoking-room; in the centre of it is a capstan. There is accommodation on board for ninety-six first-class, eighty-two second class, and 521 third class passengers.

## PICTURESQUENESS IN ARCHITECTURE.

BY THE REV. J. L. PETIT, M.A., F.S.A.\*

(Concluded from page 122.)

PERHAPS one of the most perfect and beautiful of the round churches is the little church of St. Thomas in Limine, near Bergamo. It is described and figured in Mr. Fergusson's "Handbook." I think I must have mentioned it on some former occasion, as I have had it among my sketches six or seven years. It consists of a circular part supported on arches, and surrounded by an aisle of the same shape, eastward, is a small projecting chancel. Above the pier-arches is a triforium, and above that the clerestory, which externally takes the form of a central round tower, finished with a small turret or cupola. The whole is Romanesque; all the arches are round, and the external wall is ornamented with tall slender shafts. Most of the specimens with which I am acquainted are in the Romanesque style—some, as St. Constanza in Rome, so early that they might be called Classical; and there are churches of revived Italian of the same form, which is a good one when the dome is used. The plan is often octagonal or hexagonal instead of round—in one instance, Rieux, near Narbonne, it is heptagonal. The polygonal form would be suitable for Gothic of any period; and the whole might be, as it generally is, wholly constructed of durable material, since a vaulted or domed roof would be neither difficult or expensive.

But a more picturesque form, though equally solid and monumental, is given in the little apsidal churches of which that at Mont Majeur, near Arles, presents a typical form. I can hardly imagine a model better adapted than this for a single cemetery chapel; and the Romanesque of the South of France, much more than either the Northern or the Lombard Romanesque, is worked with a refinement which renders it worthy of imitation in the present day. Though the general aspect of this building is extremely simple, there is some remarkably delicate work in the strings and cornices, such as might be introduced in any composition, whatever be its style. The plan is a square tower surrounded by four apsidal projections, to the western of which is attached a nave or porch. At Peyrolles, also in Provence, is a small chapel, having only the four apses, without any further addition in the way of porch, the western apse having a door. Nothing can be plainer or simpler than this structure, which is also perfectly regular; but, even independently of its situation, which certainly adds to its character, any one would pronounce it to be highly picturesque. There is a chapel of this description in the cloister of Ratisbon Cathedral, having three apses, the nave being rectangular and built up in the wall of the cloister. Here the upper part is octagonal. The whole, if insulated, would form a very beautiful composition; but it is in the German Romanesque—a style which, interesting as it is to the student, will not, I think, by its introduction, tend to improve our own architecture. The interior, however, is plain, and without the peculiarities of any style, so that a copy of it might be enriched with any kind of ornamental detail we please. The little chapel at Quesquevill, near Cherbourg, is another of the same kind. This, I believe, is considered to be of great antiquity; but there are really no architectural indications in the way of detail, its few windows being clearly Gothic insertions, and certainly a part of the tower must be comparatively modern. The masonry of the walls is very rude, and the interior wholly without ornament; yet there is something very impressive in this little monument. Fortunately, the parish church, close to which it stands, though of no great architectural value, and barely Mediæval in its date, has a venerable character, and rather adds to, than detracts from, the interest of its neighbour. I sincerely hope no architect will think it necessary to build a new Romanesque parish church in its stead, by way of making the whole group harmonious. But such things are done in France as well as in England. I believe one great element in the picturesqueness of these buildings is their fortress-like simplicity and strength. They look as if when once built, they need never be restored—as if they could withstand anything that time or nature could bring against them; and this ought to be the expression of a cemetery chapel, at least, as far as its external aspect is concerned. Internally, either sculpture or mosaics might be introduced; the effect of the latter will be appreciated by any one who is acquainted with the chapel of Galla Placidia at Ravenna.

I have at different times had occasion to speak of the Byzantine churches of Athens and Constantinople. The typical form of the plan is square below, but cruciform above, with a lantern which rises above four Classical columns. To the east are apsidal projections, and westward is a porch; but

these are unnecessary if we adopt one of these churches as a model. Such buildings have the same durable appearance and venerable aspect as those of which we have been speaking, and might be treated exactly in the same manner. The introduction of the columns would allow the use of costly and beautiful marbles, porphyry, serpentine, and the like. The very curious old church of Germigny, near Orleans, has much the same plan. The piers under the tower are square. This example is remarkable for the fine mosaic in its apse.

I would by no means assert that these are the only forms proper for the cemetery chapel, or that altogether new ones might not be struck out with advantage. I merely express my opinion that we are not at present treating the matter in the best way, and that we might improve ourselves by at least studying some of those structures to which I have adverted. But I should not like to suggest the idea that by merely adopting such or such a model, we shall be sure of attaining what we want; for I do not suppose that our object is to copy one of these French or Byzantine examples, stone for stone, but that we should try and produce a building of the same general design. Now it requires a good architect to do this, and he must employ thought and care upon his work. A composition that does not depend upon ornament or fanciful additions of a perishable material for its effect, must be carefully studied as to its proportions. We may imitate the finest building in such a manner that every one will see that it is an imitation, and a very bad one. Even our example itself must not be taken altogether on trust, but criticized as severely as if it were a new design of our own. A difference in scale may involve the necessity of difference in proportions. The difference, also, of material must be considered. If we build with a rough stone, irregular in its colour and involving the use of large joints, we may have an unbroken surface of any extent. But if our surface is smooth in texture and uniform in colour, it must be limited in extent, or in some way interrupted. To do this without destroying breadth and simplicity, requires a small knowledge of art. And even style must be adapted to texture. Such a style, for instance, as the Northern Romanesque, does not bear very smooth stone or neat and elaborate work. The contrast between somewhat barbarous design and finished execution is not a harmonious one. It ought to be the other way, between refined design and careless or rough execution. We don't like to feel that the hand is better than the mind. We look with pleasure at a statue of Michael Angelo roughly hammered out in the marble; but we can only feel pity and disgust when we see the labour which, if rightly applied, would bring a work of the highest art to perfection, wasted in the execution of ill-conceived details or figures below ridicule.

The wayside chapels we meet with in Italy might, with a little modification, make good cemetery chapels—some of them would not be found too small in their dimensions—and though mostly plastered and often painted externally, they have a monumental appearance.

I have dwelt upon this subject, because it is one which affords considerable scope to the genius of the architect. Great picturesqueness might be obtained in these buildings, and I think it has been missed because it has been so obviously aimed at. Had we thought less about picturesqueness, it would, perhaps, have come of itself.

If I were to attempt to deny that Gothic is a most picturesque style, I should be contradicted by nearly every village church that has been spared from restoration. But I am very certain that the selection of Gothic is not enough to ensure picturesqueness in a modern building. The mere use of the pointed arch with certain mouldings, and of tracery, foliation, deep buttresses, crocketed pinnacles, and other features of the style, does not necessarily make a building picturesque. Many modern Gothic structures have these in profusion, and well executed and arranged, and yet are not picturesque as a railway shed. Romanesque buildings are generally without any of these features, and yet are quite as picturesque, many will think more so. The truth is that much of the charm which we attribute to the style is really due to age and association, and to the fact that the style is thoroughly expressive of the period to which it belongs. Besides this it will bear a great deal of irregularity, from additions and insertions of different dates, from decay, destruction, or an incomplete carrying out of design. A church may be in a very imperfect state, and yet if it be in good repair it conveys no unpleasant impression of neglect. In most cases a restoration beyond necessary repair would spoil it. And nearly all our picturesque ruins are Gothic, or Mediæval, and on this account we associate picturesqueness with the style. We know that vast changes have taken place since the erection of the buildings whose remains we are contemplating, and

we are neither shocked nor startled by their partial destruction, as we should be by the ruins of a house which we know from its style to be no more than one or two centuries old; and yet even such ruins are, to the eye, just as picturesque as those of a Gothic abbey, often more so. The Classical style is in reality quite as picturesque as the Gothic, when it has the same adjuncts of age, partial ruin, and association. The Parthenon, in its present state, is as picturesque as any Mediæval remains; and whoever has seen the ruins of any Roman structures of magnitude and importance, will not allow that they yield to Mediæval work in picturesqueness.

But we will speak of an object on which any of us may form a judgment in the course of a morning's walk. There are few more picturesque buildings in a state of completeness than St. Paul's. Though it has quite enough regularity to entitle it to a place in the first rank among perfect and symmetrical compositions, yet it offers a variety of outline not exceeded by the most imaginative Gothic. As we walk around it, we are struck with a succession of unrivalled architectural groups and combinations, evidently not brought together for the sake of a startling effect, but restrained by some law of harmony; and a single glance convinces us that so far from attempting to break up his surfaces and outlines for the sake of picturesqueness, the architect has forborne to avail himself even of those varieties and irregularities of which he might have legitimately taken advantage, as a clerestory rising above the aisles, and a range of flying buttresses, which an inferior artist might have been glad of the opportunity of employing, and which he himself could probably have introduced more effectively than any one else. But he preferred a higher style of picturesqueness, that, namely, which resulted from the breadth, simplicity, and harmony of his masses. It is the more valuable as it seems to come without effort.

If we go upon the roofs we find the clerestory and flying buttresses, and we obtain a thoroughly picturesque subject. Sir Christopher concealed this, not because it was bad, but because he could give something better; and he therefore built the screen which some have condemned as a mere sham. Now, though it is not the actual wall of the nave or choir, but one in front of it, it does not follow that it is a more useless sham. Constructively it is of the highest value. In the whole range of Gothic architecture there is no system of flying buttresses so well supported as these. In a great many instances they appear to have a very inadequate support, resting against a tall slender, detached mass which rises above the wall of the aisle, and is crowned with a pinnacle apparently insufficient for equilibrium. Now these of St. Paul's are, in the first place, brought as low as possible, so as to reduce the horizontal thrust to the smallest amount, and in the next place are secured by a weight which is real and decided; not merely a detached pinnacle, but a solid connected wall, the more durable inasmuch as the resistance of any part to its corresponding buttress is vastly increased by the adjacent parts on each side, which are firmly attached to it; and another element of durability is, that a far less surface in proportion to bulk is exposed to the weather than would have been by a series of detached buttresses and pinnacles. Moreover, these outer walls from their position afford a great support to the substructure of the dome, towards which the actual clerestory walls by themselves, which form no direct abutment to any arch, might have proved inadequate. On these grounds I cannot think the architect is chargeable with having built these walls or screens merely for the sake of external appearance. That they do add much to the beauty of the structure, and give it both a higher degree and a higher description of picturesqueness than would have resulted from their omission, can hardly be questioned.

The colonnade below the dome combines an extraordinary play of light and shade with great simplicity of composition. Its magnificence, and that of the dome itself, can be best appreciated if we look at it from the roof of one of the aisles, thus throwing the lines into rather sharp perspective. The plainness of the accessories, which are simply designed for constructive purposes, and are wholly without ornament, gives value to the architectural grace and richness of the principal object.

I fear I have taken up a great deal too much of your time, and have said little that has not been already said much better by others. What I have wished to impress is this—that picturesqueness implies order and arrangement no less than irregularity; that irregularity should not be, or at least appear to be, the aim of the architect, but seem to be forced upon him by circumstances; that he should not lead us to suppose that he has studied to make his composition picturesque. In no branch of art is the saying more true, "Ars est, celare artem." The principal art is to conceal that any art at all has

\* Read at the Architectural Exhibition.

been exercised. That the mere adoption of what is justly considered a picturesque style will not of necessity ensure picturesqueness; and that we are far more likely to attain it by working according to the spirit of the age in which we live, than by attempting to transfer ourselves to an age whose habits, customs, views, ideas of taste, and general tone of thought have virtually become extinct.

# RATHMINES WATERWORKS—CEREMONY OF TURNING THE WATER INTO THE RESERVOIR.

His Excellency the Lord Lieutenant on Thursday the 23rd inst. inaugurated the new waterworks at Clondalkin, upon the banks of the Grand Canal, by which the inhabitants of the township of Rathmines are to have an improved supply of water. The works are situate a little above the eighth lock of the canal. The water is taken from the canal above the eighth lock at Gullinstown; its level is 178 feet over the ordnance low water mark, and is sufficiently elevated to insure a constant supply of water at high pressure. Owing to the difficulty of obtaining a suitable site for the works on the south or township side of the canal, the Commissioners were compelled to construct the works on the opposite side on a piece of land advantageously situated for the purpose. The water is drawn from the canal by a conduit under the towing-path, which leads into a large overflow iron tank, and from which it passes through a large iron pipe into each of the three filter beds by means of powerful sluices, so arranged that one or more can be shut off for cleaning, repairs, &c., while the remaining ones are working. The water is first admitted into a brickwork well at the bottom level of the filter beds, over the sides of which it ascends into the bed and spreads itself over its entire surface, and percolating downwards through several strata of fine sand, fine gravel, and broken stones, in all four feet deep. It then finds its way to open-work brick drains which run longitudinally and transversely on the brickwork bed of the filters, from which it flows in a perfect filtered condition into the reservoir for distribution through the main pipe which leads from it, a distance of about four and a-half miles, along the canal bank to Rathmines. The reservoir is constructed on the covered principle by means of a series of semicircular arches, built in the most permanent manner, and is capable of holding nearly half a million gallons. It is thoroughly ventilated above high water mark, and the top is covered with clay and soil, which gives it the appearance of a neatly kept grass garden plot. This covering is intended to keep the water in the reservoir during the summer months at a low temperature, while in the winter it will preserve it from the action of frost. The supply pipe is taken across the canal, and in order to do so the contractor for the works, Mr. Thomas Wardrop, who constructed the quay walls between King's-bridge and Victoria-bridge, was obliged to construct an extensive cofferdam. The water is then conducted by a fifteen-inch main, relieved at certain points by pent-pipes which empty themselves into the canal.

Shortly after three o'clock a barge with the invited party on board reached the site of the works.

At half-past three o'clock his Excellency, accompanied by Lieutenant-Colonel Foster, A.D.C., and Captain Walling Everard, arrived, and was received by Mr. Frederick Stokes and the Commissioners, and conducted to a tent, where plans of the works were shown him by Mr. Johnston, the engineer.

Mr. Frederick Stokes, as chairman of the Commissioners, then read the following address:—

"In requesting your Excellency to put the finishing stroke to the work of providing for a populous district an ample supply of pure water, we tender your Excellency our most cordial thanks for your kindness in complying with our wish in attending, at some inconvenience, the inauguration of an undertaking of minor importance in comparison with the great works you have so recently visited. The commissioners had, however, the less hesitation in preferring their request for your Excellency's presence, from the knowledge that since your earliest connexion with this country you took a lively interest in the question of which a water supply is an important branch. The district which we represent was incorporated into a township by special Act of Parliament in 1847, and complete powers of self-government were conferred upon it. It was the first township in Ireland independent of grand jury control, and still enjoys more extensive powers than any other similarly circumstanced. Amongst these were very complete water powers. And two plans for supply were then laid before and approved of by Parliament—one from the Grand Canal, very nearly resembling that now carried out; the other from the city watercourse, the property of the Corporation of Dublin. A desire to keep down the taxation to the limit of 2s. in the pound, together with the fact that the district was well furnished with spring water,

and a belief that the supply could best be obtained in conjunction with the city, caused a postponement of any active measures on the part of the township. When the measure for an improved supply for the city was brought forward the Commissioners made an endeavour to negotiate with the Corporation for water. At that time, however, that body declined to recognize the principle they have since adopted, of dealing with townships in bulk, and the Commissioners having been unsuccessful in their parliamentary opposition, no alternative was left them but to undertake independent works. And, consequently, these your Excellency is now about to open were constructed at an expense of £15,000, from a plan of the eminent engineer, Mr. J. F. Bateman, carried out by the engineer to the township, Mr. Johnston. They are expected to supply every part of the township at high pressure; and Mr. Bateman is confident that the quality of the water, when delivered to the inhabitants, will be perfectly pure. The rapid growth of the township, which has largely increased in valuation, coupled with careful management of the funds, will, the Commissioners expect, enable them to supply the inhabitants with this great necessary of life, without any increase on the ordinary rate of two shillings in the pound. The Commissioners have been most liberally met by the Canal Company, and hope that, in return, the water of the Grand Canal will be presented to the public in a condition of purity which will tend to remove some of the prejudice which has attached to it. Having thus briefly presented to your Excellency the circumstances under which the waterworks now before you have been designed and completed, we have again to return our thanks for your Excellency's kindness and condescension in opening them; and to express a hope that, by the blessing of Providence, the supply may add to the health and comfort of the district in which we are interested."

His Excellency replied briefly.

His Excellency then proceeded with the ceremonial of turning the water into the reservoir, which simply consisted in drawing up sluices at each of the filtering beds, and the process of filtration was then witnessed, the flow of water spreading over, and percolating through the beds.

A splendid *dejeuner* was prepared in a large marquee for his Excellency and the principal visitors. It was supplied by Murray and Walsh, of Baginbun-street, and served in a style of great elegance, the wines being in abundance and of superior quality. Upwards of 500 persons sat down, including a number of ladies. Mr. Frederick Stokes, as Chairman of the Commissioners, presided, occupying a seat to the right of his Excellency. The *dejeuner* having been partaken of, several toasts were proposed and duly responded to.

## THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN COMPANY.

THE first general meeting of the shareholders of this company was held at two o'clock on Tuesday, the 21st ult, at the boardroom, 112, Grafton-street. The chair was occupied by the vice-chairman, B. L. Guinness, Esq., D.L.

Mr. Parkinson, the secretary, read the

### REPORT,

as follows:—

In submitting the following report to the proprietors of the Dublin Exhibition Palace and Winter Garden Company, the directors desire to offer a brief record of their proceedings in connection with the progress of the undertaking from the date of incorporation till the present time. Shortly after the issuing of the prospectus, in the month of May, 1862, it was found that so large a portion of the capital was subscribed that the directors felt themselves authorised to take immediate steps to carry into effect the objects of the company, and secure, in the first place, an eligible site in a central position for the proposed buildings. With this object the directors at once entered into negotiations for the lands known as the Coburg Gardens, which were obtained on reasonable terms at the end of last summer. Arrangements were then made to have the company's property fenced in. This has been accomplished in a substantial and permanent manner. The directors next turned their attention to the best means of obtaining a suitable design for the proposed buildings, and it having been determined to submit the matter to competition, an advertisement was published inviting architects and engineers to submit designs and drawings for the Exhibition Palace and Winter Garden buildings, in accordance with the board's printed instructions, showing the requirements of the company as to accommodation, and the sum of money to which the expenditure should be limited. A number of very beautiful designs were sent in towards the close of last year, many of them reflecting the highest credit on their authors for

originality of design, accuracy of drawing, and care with which the various details had evidently been attended to, the whole forming, as may be recollected, a very interesting exhibition in College-street. It now became necessary to adopt some mode by which the most suitable design could be selected for the purposes of the company. To obtain this result a special committee was appointed, who devoted a considerable period of time to a strict examination in detail of all the plans and drawings submitted. This committee at length sent in their report, by which it was found that not one of the designs that afforded the required accommodation, when the test of measurement was applied, could be carried into execution, with proper materials, for anything like the sum named in the printed instructions. Under these circumstances there remained only one of two modes of proceeding to take, viz.—either to invite a fresh competition or to select the design that approached the nearest to the requirements of the company for further consideration, with a view of reducing the expenditure. To save time the latter course was adopted, and the plans of Mr. A. G. Jones were selected. This gentleman received instructions to re-consider his design in conjunction with Mr. F. Darley, advising architect to the company, and make such alterations as were calculated to reduce all necessary expense. This caused an unavoidable delay, yet the directors confidently expect that it will be amply compensated for, when it is considered that a well matured plan is now being carried into execution, and that before long the company will be in possession of a building second to few of a similar character, in beauty and finish of design considering the ample and varied accommodation it will afford, and the permanent stability of its construction, and, what is most important, that it will be completed at an expenditure within the means of the company. To get a respectable contractor to carry out the adopted plans expeditiously, and on reasonable terms, next engaged the anxious attention of the directors; to obtain this desirable result the contract was offered for competition, bills of quantities prepared by eminent surveyors were supplied, and every facility was afforded to competitors for testing their accuracy. A number of tenders were received, at the appointed time, from eminent firms, and, the matter having received the most mature consideration of the directors, it was finally decided to accept the tender of the Messrs. Beardwood and Sons, of this city, for all the buildings, according to Mr. Jones' plans. The directors have also to report that the formation of the ornamental pleasure grounds has been rapidly proceeded with, under the superintendence of Mr. Niven, landscape gardener. A large number of trees were planted in the early spring, the ground thoroughly drained, and the principal walks formed. An archery ground of large dimensions, suitable for all kinds of athletic sports, has been long since completed, and promises to form, not only a very attractive feature in the gardens, but also prove a source of considerable revenue to the company. The applications from intending exhibitors to rent space are, even now, so numerous, that the directors feel satisfied that the profits derived under this head, as expected, will prove very considerable. Your directors, in closing this report, feel that they have every reason to congratulate the shareholders, both on the present position and the future prospects of the company. It will be necessary to appoint two auditors, to whom will be submitted the statement of accounts now before you. The board recommend that, for the ensuing year, the number of directors be limited to eighteen, and, for future years to be not more than eighteen, nor less than nine. All the directors now retire; but the following, being duly qualified, offer themselves for re-election:—His Grace the Duke of Leinster, the Right Hon. the Lord Mayor; Benjamin Lee Guinness, Esq., D.L.; William Dargan, Esq., D.L.; Francis William Brady Esq., Q.C.; Maurice Brooks, Esq.; Alderman Campbell, J.P.; David Drummond, Esq.; Edward Fottrell, Esq., J.P.; William Foot, Esq., J.P.; Alexander James Ferrier, Esq.; William Fry, Esq.; Thomas M. Gresham, Esq.; Alderman Moylan, J.P.; Gilbert Sanders, Esq.; William R. Stephens, Esq.; John W. Switzer, Esq.; Thomas Vance, Esq., J.P.

LEINSTER, Chairman.

HENRY PARKINSON, Secretary.

7th July, 1863.

### ADVISING ARCHITECT'S REPORT.

MY LORDS AND GENTLEMEN.—I have the honour to report, for the information of the directors of the Dublin Exhibition Palace and Winter Garden Company (Limited), that the plans and specifications of your proposed buildings, to be erected on the company's ground at Earlsfort-terrace, have been all completed in a very satisfactory manner by Mr. Jones, your architect. From the rapid progress already made by your contractors, Messrs. Beardwood and Sons, in carrying up the walls of the

basement story and the general foundations of the building, I have every reason to think they will lose no time in the completion of their contract. According to your instructions I have had the ground (comprising an area of nearly 15 statute acres) enclosed with substantial walls, averaging 12 feet in height, with the exception of those portions fronting Earlsfort-terrace and Wellington-square, and which are (when the proper time arrives) to be enclosed with a stone base and iron railing. It has, however, in the mean time been temporarily fenced in by Messrs. Beardwood. I have the plans for the lodge and gates at the Harcourt-street entrance in hands, which I hope to submit shortly for the approval of the directors.

FREDERICK DARLEY.

The Chairman moved the adoption of the report, and after some preliminary observations said that in rendering an account of what had been done by the provisional committee, it might be mentioned that it was now fourteen months since the undertaking was originated. Considerable difficulty was experienced, in the first instance, for providing for all the requirements of such an edifice as it was proposed to erect. In the first place, it was found necessary to provide largely for the musical world. Dublin was an extremely musical city, and it was therefore a primary object to provide proper accommodation with reference to that particular matter. Accommodation had been provided in the great concert hall for no less than 3,000 individuals, and a smaller concert hall, capable of adequately accommodating fully 1,500 people, would also be found amongst the advantages of the new building. There would also be an exhibition room in which persons desirous of displaying the products of their manufacturing skill could do so in a proper way. The apartment provided for this purpose would be found a most noble one. The building in other respects would be found to comprise all the accommodation requisite in a structure of that nature. Perhaps the main object of interest would be the winter garden, for which adequate space had been provided. This section of the building, when completed, would be found completely adapted for the purposes for which it was designed. Special attention had also been given to the matter of easy ingress to and egress from the building. A great corridor, running the whole length of the building, would be erected, capable of affording proper accommodation to, at least, twenty carriages in a line, and to complete the advantages of this arrangement there would be no less than ten doors leading from this corridor. In conclusion the chairman stated that the members of the provisional board would be happy to answer any question which might be proposed by any member of the company.

After the passing of various resolutions, the appointments of directors and auditors for the ensuing year, the meeting separated.

#### A NATIONAL MUSEUM OF ARCHITECTURE.

THE following is a report submitted (by desire) from the Council of the Architectural Museum to the Department of Science and Art, on the formation of a National Museum of Architecture:—

The Council of the Architectural Museum begs, in compliance with the intimation conveyed by the Committee of Council on Education, of the date of December 11, 1862, to submit the following considerations on the formation of a National Museum of Architecture in London. In doing so the Council feels itself absolved from the necessity of proving the desirability of such a museum. The only question about which there can be any difference are those which concern the details of a measure which in itself meets with universal approbation.

I. The first point which must be settled is the nature of the museum. All museums may be divided into two classes, which for want of better terms may be called exhibitional and scholastic. An exhibitional museum is one of which the primary use is the display of a collection or collections in given branches of art and science, brought together with a view to the completeness of the collections in themselves, and not for the purpose of direct instruction. Valuable, or rather indispensable, as such museums are for the purpose of study, yet their scholastic use is a secondary and not a direct one. They exist indeed for the student to profit by, on his own responsibility, but they were brought together for the sake, so to speak, of their contents, rather than for that of the visitor. The British Museum and the National Gallery are instances of exhibitional museums.

A scholastic museum, on the other hand, is one which has been constituted for the scholar; and the selection of specimens is made with a view to his direct instruction, rather than to the completeness of the objective display. The staple of an exhibitional museum must always consist of original ob-

jects; a scholastic museum admits of, or rather invites, models, diagrams, and facsimiles.

The Council of the Architectural Museum is convinced that the National Museum of Architecture must be mainly scholastic. Within what limits it would be desirable to make it also exhibitional will be noticed farther on in the report. It must at the same time be noted, that while the museum will profitably stand open to the studies of the architect who is engaged in the elaboration of his details, it will be still more useful to, and more frequently used by the architectural artist, whether he is composing for himself, or merely carrying out the working drawings which have been placed in his hands. It will, as far as its more conspicuous contents are concerned, rather be a museum of architectural art, than absolutely one of architecture.

II. The next consideration is that of the limit of the collection, both as regards the sweep of subjects to be included under the definition architecture, and as regards the various styles of constructive art which it is desirable to illustrate.

While it is very easy to define what is painting, and not perhaps very difficult to attain a proximate definition of sculpture, the limits of that wide field which architecture may be said to fill to the exclusion of cognate arts, are almost undecipherable. The difficulty of attaining a right understanding on this head in regard to a National Museum of Architecture is increased by the consideration which the Council ventures to assume as axiomatic, that the collection must rather be one of the details than of large portions of buildings, and that those details must be selected for the beauty of the architectural art which they display. In other words, a National Museum of Architecture must, to a great extent, be a sculpture gallery. It is useless to attempt to evade this truth. If it is admitted, the question passes from abstract to practical considerations, and it becomes one of expediency. It is accordingly submitted that the Museum of Architecture, properly speaking, should, on grounds of expediency, stop short of objects of which, from their moderate size and portability, fine original specimens can and may be displayed elsewhere in London in exhibitional museums, or which from their peculiar contexture ill admit of being copied. The first head excludes portable furniture, tryptic pictures, small articles of metal work, ivories, textile fabrics, and partially ceramics.

III. It follows from the premises already recited that the contents of the museum should rather be whole-size casts of peculiar meritorious specimens of architectural ornamentation, than reduced models of entire buildings, or of large portions of buildings. The Council does not of course mean to say that models should be excluded. They have their own great and distinctive value in connection with the casts as keys to the relevancy and position of the details exhibited at large, as well as for the amount of direct teaching which they may convey as to the general character and proportions of the buildings which they portray. Still the position of models (unless they are made on a large scale and with the most extreme accuracy) in the cycle of systematic and direct architectural teaching, must always be somewhat subordinate; their distinctive and especial value is as guides to the architect and employer during the actual process of construction. It is needless to observe that such models as the one which Wren prepared of his first sketch for St. Paul's, now at South Kensington, have an historical value in themselves which removes them from the merely practical considerations which have just been urged.

Happily, modern science has intervened to provide completely and inexpensively the needful complement to the collected whole-sized casts, by the discovery of photography. It is impossible for an architectural museum to have too many photographs. Cheap and compressible as they are, they are always worth the collecting, and any fastidiousness as to their acquisition would be misplaced. Plans and measured drawings are also of great value, and no museum of architecture would be complete without its ample store of them.

As to the objects which may appear in the form of plaster casts, all ornamentation in stone, whether sculptural or not, is admissible, including such statues as are introduced as parts of architectural composition. So are the casts of such specimen woodwork as, in modern parlance, would be termed fixtures, such as panelling, church stalls, &c., and to a certain extent those which reproduce the details of important articles of portable furniture. Similar discriminative principles will decide what objects of metal-work do, and what do not, admit of being cast for the purposes of the museum.

The above suggestions lead up to the direct question of what should be the styles of architecture admissible at the museum. The answer appears to be that all nations and ages should be represented which possessed an architecture based on

scientific or artistic principles, but that the largest portion of the museum should consist of examples of the styles which have, generally speaking, been reproduced in modern architecture. These styles briefly recapitulated are the Greek, the Roman, the Romanesque, the Pointed, and the various forms of Renaissance. An architectural museum confined to any one of these styles would be, as far as it went, valuable; a national collection must represent all if it is intended to be complete, while the limitations which have been offered as to the selection of examples are equally applicable to all the styles, should the museum or should it not comprise specimens of contemporaneous architectural ornamentation. The truth appears to be that, speaking abstractedly, contemporaneous architecture must be admitted if the collection is to be accepted by future generations as an adequate exponent of architectural history. But the difficulty of selection is the obstacle, for a crowd of mediocrities admitted through favour or fashion would be a misfortune to art. On the whole, it is best to say generally that contemporaneous architecture is admissible, and at the same time to throw the responsibility of selection upon the managers of the museum. As to the admission, however, of photographs of contemporaneous buildings, there need be no limit, for it will be always possible to store them, and the larger the collection is, the more valuable will it be for purposes of reference. There is hardly a new building now undertaken, which is not photographed at the instance of the architect or of the employer, and an understanding might easily be established that it was expected that a photograph of every new construction, possessed of any architectural character, should be deposited in the national collection.

The National Museum of Architecture has hitherto been treated exclusively in its scholastic aspect, but it will possess an exhibitional character as the central place of deposit for the many valuable fragments which are let loose by excavation, demolition, restoration, sale, or gift. It would, however, be a great mistake to make the admission of such antiquities too easy, as such a course might lead to the wholesale mutilation or destruction of monuments which would otherwise have been preserved intact or placed in durable repair. Worst of all, the opening of such asylum might tend to the encouragement of that destructive system of restoration which has become so fashionable in France, and which consists in refabricating every portion of every ancient building which has been in the least degree disintegrated by time and weather. If there were a national museum open to receive the original pieces a strong temptation would be thrown into the way of our own restorers to commit similar enormities. Still, after all these abatements, there are many things which would be either lost or useless unless they were deposited in some central receptacle, and for them a sufficient space ought to be provided in the national collection. As instances of what is meant, may be quoted the Chertsey tiles and Sir Bartle Frere's most interesting series of Hindoo sculptures, both at present in the Architectural Museum.

The management of the future museum is a detail which hardly comes within the scope of this report. It may, however, be assumed that no Board will be either efficient in itself or generally acceptable which does not include a large proportion of professional and amateur capacity named on some principle which shall give due representation to educated public opinion. Any importation of bureaucracy would be fatal to the popularity and usefulness of the institution.

As to the *locale* of the National Museum of Architecture, it cannot be too strongly urged that its position in London ought to be central, rather than suburban. Utility and popularity alike combine in favour of this recommendation; moreover, it is highly to be desired that the character of the building should be such as to correspond with and to enhance the teachings of beauty, which the collection is intended to enforce. The consignment of England's collected masterpieces of architectural art to any structure which ill concealed poverty of design and ignorance of proportion by a superfluity of misapplied ornament, would involve a practical contradiction, alike discreditable to our national character and detrimental to our architectural progress.

MANCHESTER MASONIC HALL.—The foundation stone of a hall intended to be "a fitting temple, protected from all profane intrusion, for the rites, and consecrated solely to the solemn mysteries" of freemasonry, was laid in Manchester, on Saturday, by Mr. Stephen Blair, provincial grand master, in the presence of an imposing assemblage of members of the craft, as well as of a large number of general public. The ceremony of laying the stone was followed by a banquet at the Manchester Corn Exchange.

## TOWNS' SURVEY.

## DUNDALK.

For its magnitude, *this* is undoubtedly one of the best laid out towns in Ireland. Spacious main thoroughfares, fairly paved, sewered, and lighted; an excellent central market square; more than ordinarily architectural public buildings, generally neatly designed, and tidily kept commercial fronts, and a notable paucity of those wretched lanes and alleys that disgrace other really good towns, are amongst its characteristics. Arriving at the station (which, by the way, for an important junction is worthy of a more capacious building), a descending road conducts towards the town. On one side (the right) is an old established alms-house, of pretentious character externally, and (as we learn) most beneficent in the purpose for which it was erected; on the other is that indispensable stronghold of crime—"that admisher of evil doers"—the county gaol, which for its extent is one of the most skillfully arranged establishments of its class in Ireland, reflecting the highest credit on its designer, the county surveyor, Mr. Neville, who has architecturized not only this capital town, but the county of Louth generally. Close by this latter building is a new Roman Catholic friary in course of completion, the design being in the Gothic style—perpetuated in substantial materials—by Mr. J. Murray, who for many years pursued the occupation of a local contractor, but who has lately devoted himself almost exclusively to the profession of architecture; and at the other extremity of the town, near the bridge, another ecclesiastical edifice for same creed was completed some time since under that gentleman's directions. From the general merits of this latter, however, we must observe, that the extremely abrupt connection of the tower with the spire, and stunted proportions thereof, detract materially—the more to be regretted as the position is most commanding. With the features of the late Roman Catholic parish church, as one of the principal works of the late Mr. Duff, of Newry, architect, we have been theoretically familiar; but as some buildings look better on *paper* than in *execution*, we confess as to this to a feeling of disappointment in beholding the reality. It is composed of non-orthodox Gothic, of half Tudor, half perpendicular character, with simple nave and aisles arrangement, the roofs over the latter being of greatly depressed pitch, a mass of unrelieved masonry over the windows, and parapet tracery in some respects not harmonizing with other portions of the building. The interior is, however, well proportioned, and each of its numerous windows are filled in with stained glass subjects, perhaps the best executed and certainly the most abundant of any building in this country. The most tastefully designed and most admirably executed entrance front—indeed, the best thing of its kind that we know of in Ireland—which does all honour to the ability of Mr. Thomas Turner (son of our old respected fellow-citizen of Hammersmith Works fame), stands out in full relief, leaving a spacious area between itself and the church. In same street is the new Exchange—a light and airy Italian building, well arranged internally, and with a general hall of noble dimensions. For this there was a very brisk competition, Mr. Neville proving successful some couple of years ago. The court-house, after Parnell model, is also (we believe) by Mr. Neville, and is found suitable to its purpose. We presume that the new Exchange has so superseded the old market-house, as to render the latter useless; but if so there would seem to be no use in leaving it to a fate of dilapidation which now seems to threaten it. Of the many important commercial concerns in the town, one, whose purpose appertains most closely to our own, stands prominent in the market-square—we allude to the fine establishment of Mr. Shekleton, the eminent machinist, a gentleman as much respected for his private worth, as he is admired for his professional capacity.

The all-important feature of this town is, however (or we should more properly say *ought to be*), her river and quays, touching which a vast deal of interest has been manifested of late years, and the following able report obtained from Mr. Neville on the plans previously submitted for their improvement by Mr. Telford Macneill, Sir John Rennie, and Captain Hoskyn:—

I find that the plan of the southern embankment is not laid down accurately, and that the proposed new embankment on the northern side does not correspond with the wall on that side as far as it is constructed, neither is the line of low water shown with accuracy. I refer to these points because an accurate plan or chart of the harbour, as it now stands, showing the works constructed, the works in progress, the low water lines and soundings, is a desideratum, and one of the first requisites to a knowledge of the regimen and alterations, natural and artificial, in progress in the bed of the river. The Ordnance Map of 1836 delineates with accuracy the state of the channel at that time at low water springs, but considerable alterations have been made since then by natural as well

as artificial causes. M'Kenzie's Map of 1776, compared with that of the Ordnance, shows further natural alterations between 1776 and 1836; these surveys, the twelve-inch survey, and the Admiralty's survey of 1858, show that the harbour has a topographical history, the elements for an accurate knowledge of its present state being, however, wanted. A twelve-inch survey, showing by different coloured contour lines the state of the harbour from 1776 to the present time, would afford much valuable information on the alterations in progress, from whatever causes; and it would afford the most valuable assistance in designing works to assist, instead of obstructing the regimen of the river.

With reference to the levels and the depths of water, there are very great discrepancies between those given by Sir John Rennie, those given in Sir J. Macneill's section of 1839, and those found by admeasurement made for me on the 8th instant, with calm water, and of the accuracy of which latter there can be no doubt. Before, however, entering into the question of levels, I must (as formerly to the Town Commissioners, before any of the reports to which you have called my attention were written) observe that the harbour, with reference to plan, is divisible into two portions, one from the bar to Soldiers' Point, and the other from Soldiers' Point westwards. But with reference to levels, the river course is properly divisible into three portions. First, from the bar to the junction and inner bar or delta of the Ballymascanlon river; second, from this latter point as far as George's-quay; and thirdly, from about this point to the bridge, or further westward. Now, in treating of the present depths in the inner and outer stretches here named, those portions navigable should only be compared, and the actual comparison must be made between the depths on the stretch extending from the quay to Soldiers' Point, and the depths in the stretch between that point and the bar, because the proposed northern embankment extends only to George's-quay, and the effects of any improvement of the stretch above this point suggested by Captain Hoskyn or others, would be common to any alterations effected lower down. The depths for navigable purposes and indicating the direction of any improvements now required, must therefore be taken between the Steampacket-quay and the Soldiers' Point, and between this point and the outer bar.

Sir John Rennie's report states—"The above work, moreover, would have no effect upon the channel between the town quay and Soldiers' Point, which at present requires the greatest improvement, for here the greatest impediment to the navigation up to, the town exists. For whilst at spring tides there is a rise of tide of 17 feet at the bar, and from 2 to 3 feet at low water—making together a depth of 19 to 20 feet over the bar at that time—there is only a rise of 10 feet at the town quay, which together with the depth at low water of 2 feet 6 inches, make together only a depth of 12 feet 6 inches, being a difference of 7 feet 6 inches fall between these places; and while there is rise of tide at the bar during neap tides of 13 feet 6 inches, which add to the depth there at low water of about 4 feet 9 inches, makes a total depth of 18 feet 3 inches, there is only a rise of 5 feet 6 inches at the town quay, which added to the depth of about 4 feet 4 feet 9 inches at low water, makes a total depth of 10 feet 3 inches at high water at the town quay, or 8 feet less than upon the bar."

These statements, and consequently the inferences from them, are wholly inaccurate. On the 8th of July, with a depth of from 12 feet 6 inches, to 13 feet at high water at the Steampacket Quay, and above it there was only a depth of 11 feet 3 inches, to 13 feet 3 inches outside Tipping's Quay, and from 14 feet to 14 feet 9 inches on the bar, making the difference of level from the quay to the bar only about from 1 foot 6 inches to 1 foot 9 inches, instead of 7 feet 6 inches, as stated by Sir John Rennie; and when the water rises 10 feet 3 inches at the Steampacket Quay, the water rises at the level only from 9 feet to 11 feet immediately below Tipping's Quay, and from 11 feet 9 inches to 12 feet on the bar. The whole ground of Sir John Rennie's inferences, that the channel between the town quay and the Soldiers' Point requires greatest improvement, is therefore without foundation, and so far from the fall being 7 feet 6 inches to the bar, as stated by him, the fall in the bed on the 8th instant was only from 18 inches to 2 feet. Again, Sir John Rennie makes the rise of springs at the bar 17 feet, and of neaps 13 feet 6 inches. Sir John Macneill (section in harbour plans of 1839) gives springs 14 feet, and neaps only 6 feet 6 inches. The Ordnance gives only 15 feet for the rise of springs exposed at Clogher Head, and 7 feet 10 inches for the rise of neaps. There is here, therefore, a great mistake in the fact, and those facts are the foundation of the plans suggested in the report. It is not, therefore, necessary to deal with Sir John Rennie's facts, inferences, and reports, any further.

The proposed plan of Mr. Telford Macneill is very ingenious in its first aspect, and if the depths in the outer channel were considerably greater than those

inside, there would only be a question of *how much*, and of the constructive detail in the advisability of carrying it out. The effects, however, of the plan, if carried out, under all the circumstances, would be the silting up of the Ballymascanlon estuary in time, an increase of deposit on the bar and outer harbour, while the improvements in the navigable channel would be confined to the limits between the present quays and the Soldiers' Point, or Tipping's Quay. On this point I must again quote Sir John Macneill's section of the channel in 1839, before any alterations were begun. The fall then from about the Steampacket Quay to the bar was 40 feet 10 inches, less 33 feet 10 inches, or about 7 feet, while the depth at low water springs between the bar perch, was 7 feet 4 inches, and at low water neaps it was 10 feet 4 inches, it being at present only about 2 feet at low water springs. These figures would show that the depth of the bar has been reduced sometime since 1839, by about 4 feet 6 inches at low water springs. This important fact appears to have been unobserved by the gentlemen who lately reported on the harbour, but its bearing on the question of alterations in the inner harbour is important, as showing how they have affected, and would affect hereafter, the outer channel. The alterations in the inner harbour appear also to have had heretofore but little effect, however valuable otherwise, in keeping the channel clear; for, taking the section of 1839, there was then 14 feet 4 inches of water, at spring tides of 14 feet, near the quays—the principal obstruction lying inside at the delta of the Ballymascanlon river, as it is evident must have been the case. Indeed, it is to the dredging alone we must look for the explanation of the increased depths in the inner channel; and I agree with Captain Hoskyn in tracing the increased depths of water to this cause, although the effects of Mr. Needham's walls must have been so far beneficial to the navigable channel. Generally I consider Captain Hoskyn's views as sound and valuable; they not only contemplate the immediate effects of any alterations on the harbour, but also how it will be effected in time to come.

The points now most necessary to be attended to for the maintenance and improvement of the harbour are:—

1.—To maintain the dredge in sufficient working order, to cut off the slit between low water and the walls lately constructed at the bends; also, to put back the walls at those bends, so as to further straighten the channel. It would also be of advantage to the regimen, if the present quays were carried out to correspond more nearly with the river channel in front.

2.—To remove immediately the ridge crossing the channel below the Soldiers' Point, where the steamers so frequently get on bottom. This should have been long since done.

3.—To make straight and sink a new channel above George's-quay, as far as the bridge parallel to the new line of road, nearly on the site originally laid out by Sir John Macneill in 1839. This channel will give not only increased scouring powers, but it will assist to extend the quays westwards towards the bridge. The waterway of the bridge is abundantly wide, but it should be sunk, however, between the piers to correspond with the depth of the new channel. Continue the sinking to the deep water at the west.

4.—To construct a new jetty wall from near the county road at the North Strand to a point westward of the junction of the Ballymascanlon river and the main inner channel. To remove and open out a space of about 300 feet of the wall lately constructed to the east of and adjoining the spur wall constructed by Mr. Needham. These will direct the scour of the upper space, through the main channel and assist the dredge in keeping down the delta of the Ballymascanlon river. The height of the jetty wall at present need not exceed a few feet over the strand, and may be of very inexpensive construction.

5.—Under all the circumstances, the alteration of the Ballymascanlon river and a new cut for it westwards up to George's Quay is not advisable.

6.—The works proposed by Captain Hoskyn below Soldiers' Point and Tipping's Quay, as far as I can judge from the description, not having seen the plans, are well conceived and would be of advantage.

7.—The suggestions of Captain Hoskyn with reference to the outer channel and bar are also of value. There is no avoiding the difficulty presented by the bar to the improvement of the navigation as it exists, in virtue of causes in operation and which may be modified but cannot be removed within the limits of any prudent outlay available from the harbour dues. Upon the best means of obtaining five or six feet at low water springs on the bar, and other important works necessary for vessels frequenting our port, I for the present withhold my opinion, but I cannot see any advantage in obtaining increased depths of water in the inner channel at a heavy outlay until the outer channel is improved.—Yours, my dear sir, faithfully,

JOHN NEVILLE.

At a meeting of the Harbour Commissioners on the 29th ult., we find "that the question of the re-

port on the state of the harbour as obtained by Mr. Brown, at his own expense, was brought forward by Mr. M'Ardle, who stated that he would give notice at next meeting to the effect that it should be taken into consideration. It was decided that as the report of the consulting engineer, Telford Macneill, Esq., had not yet been received, it would be premature to discuss the matter at that meeting. Mr. Macneill is professionally engaged in London for the next fortnight. An addition to the harbour office was ordered, as well as a new party wall to be rebuilt."

#### PROFESSIONAL PRACTICE AND CHARGES OF ARCHITECTS.\*

*New buildings, &c.*—The usual remuneration for an architect's services, except as hereinafter mentioned, is, a commission of 5 per cent. on the total cost of the works executed from his designs; besides which, all travelling and other incidental expenses incurred by the architect are paid by the employer, who is also chargeable, under certain conditions, as hereafter mentioned, for time occupied in travelling.

But for all works in which the art required is of a high kind, and the expenditure mainly for skilled labour and not for materials, *e. g.*, in designs for the furniture and fittings of buildings, for their decoration with painting or mosaic, for their sculpture, for stained glass, and other like works, the architect's charge is not made by way of commission on the cost, nor does it depend upon the time employed in making the design, but is regulated by special circumstances, and varies according to the skill and artistic power of the architect.

A commission of 2½ per cent. is to be charged upon such works as sculpture, stained glass, and others of a similar nature, for which the architect does not give the design, but arranges with the artists or with the tradesmen, and directs the work generally.

In works under £500 in amount, 5 per cent. is not fairly to be considered remunerative, and in such cases it is just to the employer as well as to the architect, to charge by time or by scale, varying from 10 per cent. for works under £100, to 5 per cent. on amounts above £500.

The commission is reckoned upon the total cost of the works, valued as if executed *entirely by labour* and of *new materials* provided by the builder.

The commission is to be charged upon the whole value of the work executed, with the addition of 2½ per cent. upon any omissions.

This is exclusive of the charges for measuring extras and omissions.

The architect is entitled, during the progress of the building, to payment on account, at the rate of 5 per cent. on the instalments paid to the builder, or otherwise to half the commission, on the signing of the contract, and the remainder by instalments as above.

*Travelling.*—All traveling expenses are to be charged extra.

These rules suppose the work to be executed within an easy distance of the architect's office, but if the work be executed at a considerable or inconvenient distance from it, an allowance beyond the 5 per cent. ought to be made for the time occupied in travelling, in addition to the actual expenses.

*Extra services.*—The per centage does not cover professional services in connection with the first visit for the purpose of determining on site negotiations for same arrangements respecting party walls, or right of lights, nor services incidental to arrangements consequent upon the failure of Builders, whilst carrying out work; but all such services are charged for in addition, the basis for charge being the time employed.

*Alterations in design.*—Supposing that the employer, after having agreed to a design, and had the drawings prepared, should have material alterations made, an extra charge may be made, according to the time occupied.

If the architect should have drawn out the design complete, with plans, elevations, sections, and specification, ready for estimate, the charge is half the usual commission above named.

If the architect should have, in addition, procured tenders, in accordance with the instruction of his employer, the charge is one-half per cent. extra to the above.

*Alteration of buildings.*—For works in the alteration of premises, the remuneration may be increased according to the time, skill and trouble involved.

*Duties of the architect.*—All of the following requirements for buildings are included in the ordinary charge of 5 per cent.

Preliminary sketches.

Working drawings and specifications sufficient for an estimate and contract.

Detailed drawings and instructions for execution. General superintendence of works (exclusive of the clerk of works).

Examining and passing the accounts (exclusive of measuring and making out extras and omissions).

No additional remuneration is due for making such a rough estimate as may be obtained, for instance, by cubing out the contents. If a detailed estimate be framed, additional remuneration is due from the employer.

An architect is bound, under the 5 per cent. charge, to provide one set of drawings and one set of tracings, with duplicate specifications; it being understood that the architect is paid for the use only of the drawings and specification, and that they remain the property of the architect.

*Estates.*—The charge for taking plan of an estate, laying it out, and arranging for building upon it, should be regulated by the time, skill, and trouble involved.

For actually letting the several plots (in ordinary cases) a sum not exceeding a whole year's ground rent, may be charged.

For inspecting the buildings during their progress (so far as may be necessary to ensure the conditions being fulfilled), and finally certifying for lease, the charge should be a per centage not exceeding one-half per cent. up to £5,000, and above that by special arrangement.

All the above fees to be exclusive of travelling expenses, and time occupied in travelling, as before mentioned.

The charge for the above does not include the commission for preparing specification, directing, superintending, and certifying the proper formation of roads, fences, and other works executed at the cost of the employer, nor for putting the plans on the leaves.

*Valuations.*—The following definite charges are recognized for valuation of property.

The charge throughout is one per cent. on the first £1,000, and one-half per cent. on the remainder up to £10,000. Below £1,000 and beyond £10,000 by special arrangement. These charges do not include travelling expenses, nor attendance before juries, arbitrators, &c.

*Per day.*—The charge per day which may be made by architects, depends upon their professional position, but the minimum charge is three guineas per day.

*Dilapidations.*—The charge for estimating dilapidations is 5 per cent. on the estimate, and in no case less than £2 2s.

*Quantities.*—It is not desirable that an architect should supply to builders quantities on which to form tenders for executing his design; but in case of such being done it should be with the concurrence of the employer, and the architect should be paid by him and not by the builder.

#### DUBLIN, WICKLOW, AND WEXFORD RAILWAY.

THE following items are from the report of the directors to be submitted at the next general meeting on Monday, the 10th inst:—

A further portion of your extension line has been opened for traffic, namely, the length between Rathdrum and Ovoca; reaching, as it does, into the heart of the beautiful scenery of Wicklow, this section of your line may be expected to add considerably to your revenue in the present summer and coming autumn. The directors hold to their opinion that the remainder of the line to Enniscorthy will be opened in the autumn of this year. The branch line to the Traders' Wharf at Dunleary is completed and at work; its usefulness, however, will not be developed to the full until the Ovoca mining district shall have been brought into connexion with it. The bill for the construction of a branch line of railway from Wooden Bridge to Shillelagh received the royal assent on the 22nd June. Preparations are being made for the construction of the works. The improvements in the station at Westland-row to facilitate the English traffic, have been carried out, and the new portion of the terminus will be in use before this report reaches the shareholders. The station will then be convenient for the public, and its former objectionable features will be quite changed. An extensive addition to the station at Harcourt-street is being carried out, which will afford the necessary facilities for greatly enlarged traffic. A bill was promoted in the present session of Parliament for the construction of a railway from Enniscorthy to Wexford. The proposed mode of connecting this line with yours was by a tramway to be worked by horse power. For this and other reasons your directors considered that they could not, in justice to your interests, allow the measure to pass unopposed. They, therefore, petitioned against it, and it was thrown out. The directors have to regret the loss of the services of Mr. Le Fanu as chief and consulting engineer to the company—his resignation being

consequent upon his appointment to the office of Commissioner of Public Works in Ireland; but while they do so regret it as a loss to the company, they cannot but rejoice at the recognition of the talent and ability of a gentleman who was so long connected with them, and who always conducted the business of his department in so able and satisfactory a manner.

GEORGE HANDCOCK, Chairman.  
E. W. MAUNSELL, Secretary.

#### ENGINEERS' REPORT.

GENTLEMEN,—We have the honor of reporting that during the last half-year the permanent way and works on your lines previously open, as well as on the portions of the extension line now open for public traffic, have been maintained in good order. The extension from Rathdrum to Ovoca has been inspected and passed by the officer of the Board of Trade, and is now ready for opening. The further extension to Enniscorthy is in a very forward state. All the earth-works and masonry are nearly finished, and we confidently expect it to be ready for opening this month. The works at Harcourt-street terminus, by which increased goods store accommodation will be provided, are as rapidly progressing as the nature of the work will admit. The new approaches to the platform at Westland-row are all but completed, and will be ready for use in a few days. The new siding to the pier at Kingstown has been finished for some months.

COTTON AND FLEMING.

#### Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Permit me to avail myself of your assistance in bringing before the proper authorities the important fact, that the inhabitants of Kilmainham, Island Bridge, Richmond, &c., are without one of the common necessities of life, viz., "a supply of pure water." It is a very sad thing to see a great number of the people living on Richmond-road taking their supply of fresh water from the drain or channel immediately above the police-barracks; at one moment you may see a lot of horses drinking, and the next the tea-kettle is being filled out of the same place. Probably the Ordnance Board would allow a pipe to be inserted in their main now supplying Richmond and Island Bridge Barracks, while supplying this other from the new water-works at the eighth lock of the Grand Canal? I would suggest to the inhabitants of the above localities that they should at once form and hold a meeting to carry out so desirable an object.

SAMUEL DAVIS.

#### Review.

*Transactions of the Institution of Civil Engineers of Ireland.*

THE respective presidential addresses to the members of this Institution by M. B. Mullins, Esq., A.M., at the commencement of the session of 1859-60, and of Sir Richard Griffith, LL.D., in the early part of that of 1861-62, together with four of the most important papers read during those periods, form the contents of a recently-issued volume of transactions of the above body. The first-named gentleman instead of contenting himself, as is customary with presidents of engineering societies, with a *resumé* of the current topics, presented to the Institution an erudite and most interesting complete "historical sketch of engineering in Ireland," reviewing the several engineering features of, and circumstances connected with her rivers, harbours, canals, loughs, &c., each section constituting a most valuable paper in itself. Sir Richard Griffith—a name universally known as being associated for a large number of years with the public works of Ireland, and more especially with the survey and valuation of the whole country—also has concentrated in a more limited space, a vast amount of the results of his lengthened professional and official experience, and gracefully pays a well-merited tribute to the ability with which his predecessor, Mr. Mullins, had dealt with his subject previously. On the 10th May, 1859, Mr. William Anderson, C.E., one of the honorary secretaries, gave in a short paper a descriptive account of "a joint chain for bridge rails, designed by Mr. Marcus Harty, C.E., whereby it seems that the joint of the rails rests on the centre of the chair, the ends of which

\* Circulated amongst the members of the Institute.

† *i. e.*, 2½ per cent. on the instalments paid to the builder, when half the commission is paid on signing the contract.

are carried by the ordinary sleepers, the bottom flange of chair being thicker in the middle than at the ends, so that the rails only bear on the centre, and the weight of a passing train is nearly evenly divided between the two sleepers." The principal portion of Mr. Hassard's paper "On the river Vartry as a source of supply of water to Dublin," has already appeared in these columns, and attests strongly his eminent professional qualifications,—all his deductions on this long-veiled question being already slowly but surely borne out by subsequent circumstances.

An elaborate paper "On boiler deposits and incrustations," by Mr. Robert Trefusis Mallet, communicated by his relative Mr. Robt. Mallet, V.P. of the Institute, concludes the volume. We are proud to see at least one of the professional societies of Dublin working its way so usefully.

## Public and Private Works.

Sundry works are to be executed at the church of Aughrim, Co. Roscommon, under the directions of the architects to the Ecclesiastical Commissioners.

The church of Clonleigh, Co. Donegal, is to be enlarged. Same architects.

A new coast guard station with residences for chief officer, chief boatman, and other boatmen is to be erected at Lackeen Point, near Kenmare, by the Board of Works.

The governors of Dr. Stevens' hospital are about effecting improvements in the laundry. Mr. Symes, architect.

The directors of the Waterford and Limerick Railway Co. propose to build booking and general offices near "the Bridge," Waterford.

New quarters for married soldiers, with out-buildings, are to be provided at Arbour hill barracks, Dublin.

The Port of Dublin Corporation propose to erect a dwelling for light-house keeper at Donaghadee, also for assistant light-house keeper at South rock, near Portaferry, and at Carlingford.

The foundation stone of the new church which is about to be erected in the cemetery at Kingstown was laid on the 21st ult. at Dean's Grange, in presence of a number of ladies and gentlemen.

A new church is to be built at Queenstown Park. (Co. Cork). A premium of £50 is offered for the design which may be selected.

A stained glass window is to be erected in the new transept of Kilkeel church, in memory of the late Lorus Kilmorey and Newry.

An additional storey is to be added to the south corridor of Belfast College, together with other works at same building, by the Board of Works.

## General Items.

We (*Athenæum*) are glad to learn that it is contemplated to hold in the spring of next year, at the South Kensington Museum, an Exhibition of Modern Stained Glass, to be combined, we presume, with some examples of ancient success in the art. It is highly desirable that our "patrons" of the revived art—whose gifts to churches and cathedrals are innumerable, and often sad disfigurements of those edifices—should learn in what consists a real stained-glass window: above all, that it is not a picture in any sense, but a transparent mosaic. We do some of the firms which produce certain things which it is the fashion to call stained-glass windows no injustice, when we say that, to judge by their practice, they are equally ignorant of the nature and limits of the art they have fallen on.

Last week the nave of York Cathedral was lighted for the first time with gas. With 740 gaslights burning in the nave, in addition to 400 in the chancel, the effect was most brilliant and effective, not only within the building, but also without. The light reflected through the gorgeous stained-glass windows produced a grand effect.

Some friends of Mulready have agreed to produce a memorial of that eminent artist by furnishing each one a chapter or chapters on the different parts of his life and the practice of his art, which will be edited by Mr. Cole, who for many years had enjoyed his intimacy, and suggested that exhibition of his works which took place at the Society of Arts in 1847.

## Miscellaneous.

THE NEW ULSTER BANK, SLIGO.—The construction of this handsome building reflects much credit on the Directors of the Ulster Banking Com-

pany, and is eminently calculated to beautify the architectural appearance of the town. It was only in February last that the first stone of this edifice was laid, without talk or noise. The plans of the building had been entrusted to Mr. James Hamilton, of Glasgow and Belfast—a gentleman who, out of forty competitors, carried off the prize in connection with the construction of the splendid head offices of the Company; and it is only right to say that the trustees of the contractor—for that gentleman, Mr. John Finlay, of Glasgow, who did not live to complete his contract—have, so far, carried out the work with great ability and judgment. The building, when viewed from Stephen-street, is extremely chaste; it may be said to have three fronts, in which the stone employed is from the well-known quarries of Orchard and Giffnock near Glasgow. In the Stephen-street front there is a blending of the composite style of architecture—Corinthian, Ionic, and Italian; and some very fine chiselling has been shown in the scroll-work, key-stones, and pilasters. The key-stones of the upper storey bear "the red hand of Ulster," and these again are surrounded by a neat rail which runs round the front of the building. The clock tower, with a very fine carving of the arms of Ulster, here form most attractive objects. It will be recollected that the company added this feature to the building at the request of the Corporation, and although it will involve a cost of some £150 to the directors, it will be a great boon to a town where a public clock is so much required. While the external appearance is calculated to please the eye, the internal accommodation will no less satisfy the wants of the public. The windows will be of plate glass, and the counters of highly-finished mahogany. From Stephen-street the visitor enters the cash-office—a handsome apartment of 28 by 23 feet in dimensions. Private rooms have been set apart for the convenience of the officers, and to these are added all the other accessories which are to be found in every well-regulated public office. The residence of the resident manager is got up with equal care and taste—there are handsome dining and drawing-rooms which would be worthy of any gentleman's mansion in the country. It is anticipated that the premises will be opened for public business in September. It is to be hoped that the other banking companies in town, not only for the sake of their customers, but for the health of their officers, will follow the spirited architectural example of the Directors of the Ulster.

THE NEW PARISH CHURCH OF BRAY.—On Saturday the newly-completed parish church of Bray was consecrated by the Bishop of Killaloe. The ceremony was attended by a very large and respectable congregation. The church is capable of accommodating over 1,000, and has been erected from the designs of Mr. Slaton, the eminent architect of London. The contractor was Mr. Carroll, who acted under the supervision of Mr. Gillespie, one of the architects to the Ecclesiastical Commissioners, all of whom deserve much credit for the way in which the church has been planned and executed. The cost did not exceed £6,000, a portion of which was met by private subscription, and part was contributed by the Ecclesiastical Commissioners. The design is Gothic, the material being the finest Glencree granite, with dressings of Caen stone. In the eastern gable will be placed a large stained glass window, to be presented by the Countess of Meath. At the western end a tower surmounted by a spire, will be erected at a cost of £2,000. The interior of the church is peculiarly neat and tasteful in appearance. A handsome pulpit and font have been presented by the Countess of Meath and Lady Stamer.

SLIGO ENTERPRISE.—It is somewhat rare to meet with a tall chimney stalk in Sligo, reminding one of the manufacturing industry of other places. Messrs. James O'Connor and Co. have, however, broken the spell in this respect by the construction of their new and extensive premises at Adelaide-road, which are surmounted by a chimney that would do credit to the mills of Manchester or Leeds. The building in question has been specially got up for a new branch of business in the West of Ireland—saw mills; and, in style and mechanical appliances, surpasses the majority of the best establishments of its class we have seen in the leading towns of the country. The new premises cover an extensive space of ground, and seem admirably adapted to the purposes in view. Already four machines from the eminent firm of Messrs. Worssam and Co., of Chelsea, are at work, and promise to completely revolutionise the trade of the sawyer in this quarter of the land. All the machines are very simple in their construction, and include a "rack bench" for cutting rods or scantlings; a "hitch frame," for cutting deals or fitches; a "saw bench," for cutting scantlings of any size; and a

"moulding or planing machine." Without going into unnecessary details with respect to the simplicity of the mechanical arrangements of these beautiful contrivances, the reader may judge of their character, when we state that the "rack bench" passes through a log of wood two feet six inches in diameter, at the rate of two feet per minute; and that the "pitch frame" will do more work in a week than ten pair of saws by manual labour during the same period! The "saw bench" is a machine equally valuable, and passes the saw through wood at the rate of thirty feet per minute, the cutting being executed with the utmost beauty. Nor is the moulding machine a less remarkable contrivance. The planing and moulding of timber eleven inches wide by three and a-half thick, is completed, on its four sides, by this instrument at the rate of fifteen feet per minute! In fact, mighty lords of the forest are only pitiful emblems of weakness under the teeth of Messrs. Worssam's mechanism. Messrs. O'Connor and Co. have had fitted up a fine 25-horse power engine from the eminent firm of Messrs. Victor Coates and Co., Belfast, by which the entire machinery of the mill is driven. We believe it is their intention to increase the mechanical appliances of the establishment on an early day, and there can be no doubt that their enterprise, in this respect, will be eminently successful. Their present manager, Mr. Stowe, has had great experience as the representative of Messrs. Worssam in several parts of Europe, and his presence will lend confidence in the satisfactory execution of the work as well as in the safety of the machinery. Our local readers, who have not yet witnessed saw-mill operations, will find the time and trouble repaid by a visit to Messrs. O'Connor's yard, while the public must wish them every success in their spirited enterprise.—*Sligo Chronicle*.

WORKS IN COUNTY ANTRIM.—COUNTY SURVEYOR'S REPORT.—By this document, recently presented to the Grand Jury, the following comparative results appear:—

	Summer Assizes, 1862.	Spring Assizes, 1863.	Present Assizes.
New roads, ...	£6,663	£356	£4,239
Hill cuttings, ...	1,649	1,573	551
Repairs of roads now to be approved ...	5,163	5,174	6,169
Existing contracts for road maintenance, ...	9,686	9,091	8,450
Special works of a minor class, ...	1,846	1,066	1,006
Instalments and repayment of loans for works heretofore executed, ...	3,971	3,592	2,854
Special levies in connection with the Bann navigation and with the Red Bay River, ...	1,578	1,578	1,578
Total, ...	£30,556	22,430	24,847

CLONMACNOISE, with its seven churches and lofty round towers, is now a cluster of ruins; once it was one of the most famous monastic establishments in Ireland, rich, extensive, and celebrated, as the chief place for imparting education to the high born youth of the country as well as to numbers that flocked to it from abroad. The abbey was founded so early as the fifth century, when Dermot Mac Cervail, monarch of Ireland, bestowed the site, called in the Irish dialect *Druim Tipraid*, to St. Kieran. This foundation, we are told, was afterwards enlarged by several additions in different periods. The piety, or pride, of kings and princesses added nine churches for the sepulchre of their remains all within the same enclosures, and within the small space of two acres. Of these churches, one called *Temple Ri* was built by O'Molaghlán, King of Meath, and to this day is the burial place of his family; *Temple O'Connor*, by O'Connor Dun, or Don; another by O'Kelly and Mac Carthy More; another by Mac Dermott. The latter is accounted the most elegant of all the edifices, the chief entrance of which is thus described by *Cæsar Otway*:—"The northern doorway is executed in blue limestone—marble it may be called—and the elaborate tracery on which is very fine. Amongst other ornaments of this highly finished doorway are figures in alto-relievo, one evidently of a bishop giving his blessing, the other of an abbot, the third is mutilated, and that apparently done on purpose."

NOTICE TO PUBLISHERS AND AUTHORS. —Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABOTT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

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**THE** Subscribers having lately erected very extensive Machinery, of the most improved construction, for the manufacture of the above Bricks, are now prepared to supply Builders and others in DUBLIN and surrounding districts on most advantageous terms.

The Clay from which these Bricks are manufactured is well known to be the best around Belfast, and they will be found to be second to none in the market.

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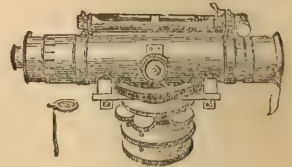
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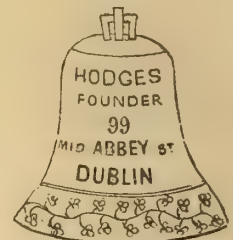


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# The Dublin Builder.

VOL. V.—No. 88.

## THE SANITARY SUPERVISION OF DUBLIN.

IT appears that there are no less than *five* persons receiving in the aggregate an income of £305 per annum, charged with the sanitary supervision of this notoriously filthy city. A worthy Alderman (Tarpey), in moving the confirmation of a section of the report submitted by the committee in charge, said:—

"It was quite evident, from the manner in which the business of the sanitary department had heretofore been conducted, that it was necessary to infuse into it new elements of energy and activity. He regretted that there was not an addition to the report recommending the appointment of an 'officer of health.' It would be a great advantage to the city, if an officer, having proper control, were appointed to inspect and report upon all the localities in which disease existed or threatened to arise. He believed the mortality of Dublin was greatly in excess of its proper proportions, owing to a want of proper attention to such precautionary measures."

How, then, are these *five* gentlemen assumed to fulfil their duties? Are their offices sinecures by corporate consent—mere bugbears? One gentleman has been recently appointed at a salary of £75 a year, as head "inspector of nuisances," and he is to receive £30 per annum additional, as "inspector of diseased meat." We do not quarrel with the remuneration so afforded: on the contrary, we believe it to be not half sufficient; but we consider that the duties of the *one* office ought not to be amalgamated with the duties of the *other*, if they are to be performed *at all*. Where is evidence, in the present state of our lanes and alleys, of the *daily*, the *weekly*, the *monthly*, nay, the *annual* visits of any one of these *chefs de surveillance* to those foetid rookeries which abut even on some of our principal thoroughfares? Where are these *five* gentlemen's labours made manifest in the compulsory removal of accumulations inside or outside the tenements inhabited by squalid poverty? Where is the application of the whitewash brush to be seen in Dublin lanes, as it is elsewhere—Belfast, for example? And yet the householders must pay these "five" gentlemen upwards of £300 per annum for the supposed performance of duties which the most casual observer must see are not even *partially* performed. Why not appoint *one* responsible party for each department, at a remunerative salary, that will enable him to devote his time to a proper systematic periodical supervision? We advocate no cheese-paring principles: the man who does his work earnestly and well, has a right to be paid for it, and a sum of £300 per annum, or thereabouts, *divided amongst five persons*, is barely sufficient to enable any one of them to live, and so the public interest must suffer by non-performance of duties undertaken. But one "sanitary inspector," or officer of health, if the term suit better, say with an annual salary of £200, and with the *whole* responsibility on his shoulders of visiting every locality within the municipal boundary in its turn, and reporting the results of his mission to the committee in charge—who again should report to the public—would remedy this state of things, which, as it exists, reminds one of the truth of a very trite, though somewhat vulgar proverb, that "too many cooks spoil the broth;" and again, another inspector at a salary of £100 per annum—quite ample for proportionately lighter duties—might take charge of the slaughterhouses and the victuallers' stalls, which need perpetual looking after. This modification of the present anomalous disposition of duties, would, we apprehend, in practice prove conducive to cleanliness and comfort, with their invariable concomitant, "health."

## THE USE OF ROUND TOWERS.

MR. PETRIE and his followers, says a writer in *Blackwood's Magazine*, have cleared away a good deal of the mystery surrounding these remarkable buildings; and I cannot say that they have less interest in my sight that they are practically connected with an incidental and important epoch in early Christianity, and we hear no more of Phalic temples, fire worship altars, Chaldean Observatories, provincial Babel towers or pillars for followers of St. Simeon with improved accommodation, calculated to mitigate the hardships of that school of anchorites. They are Christian edifices, connected with ecclesiastical establishments, and rank in age with the earliest English churches. All that was special and inexplicable in their nature—their great height, the doors a considerable distance from the ground, the absence of interior stairs or other means of ascent, and their existence without any other address, such as churches or monastic buildings, attached to them—can be shown to be peculiarities adapted to particular objects. It is known that, at the time when they were built, places of worship were often constructed of wood, wattles, or turf. The question sometimes being—How the means at the disposal of a community for building with stone could be best invested? the answer would be—In making a place of strength for securing the treasury of the establishment and those relics and holy books which are beyond all price, from the rapacity of the heathen Northmen. It was the way of these unwelcome guests to run their galleys on any tolerably safe landing-place, scour the country for some distance, carry off whatever was both valuable and portable, and then scamper away to their galleys before a force had collected sufficient to trouble them. Suppose the dangers which a nest of peaceful monks have to meet from such an incursion, and you will easily suppose their round tower to be a good investment of the funds available for building purposes. On hearing that the galleys have touched land, the brethren carefully collect their reliquaries, psalters, ecclesiastical robes, and other valuable things, and remove them from the sacred, but fragile, fane in which they worship, to the top of the round tower, and then the bulk of the brethren take to their heels and get protection where they can. The tower, though untenanted, will protect its precious contents for a time; but if some four or five of the brethren shall valorously remain with them, whether trusting to the arm of the flesh or to the influence of the sacred chattels in their charge, they may give a good deal of annoyance to the enemy. They have, of course, taken with them the ladders and temporary platforms by which they have ascended, and so they await their coming enemy. This latter let out a portion of their ferocious excitement in burning the church and the cells of the recluses. The little garrison, perched a couple of hundred feet up in the air, were they in a condition to indulge in a sense of the ludicrous, might amuse themselves with noting the perplexed counsels of their adversaries, trying to solve the question how they are to be got at. To undermine the tower, or batter down its lower courses, so as to topple it down, would, of course, be almost certain destruction to those who might bring such an attempt to a successful conclusion. If they should attempt to mount up by scaffolding and ladders inside, the brethren, waiting a judicious moment, may knock their whole apparatus to pieces by dropping on it one of the stones abundantly at their disposal. An attempt to smoke them out would go for nothing, as they could easily shut out any draught from the interior, and breathe the pure air of heaven. As to starving them out, of course that would be possible had the northern rovers time for such an operation; but as professed ascetics, of course the garrison would have more than average capacity for resistance in this direction. It would be difficult, indeed, to design an edifice better fitted for the protection of what these recluses counted the most valuable of all temporal things than these round towers.

## MURAL DECORATION.

THE *Building News* mentions that amongst the various objects exhibited at the late *conversazione* of the Institute of British Architects, was a specimen of a new description of mural decoration invented by Baron Triqueti, and which appears to us, in the present low state of architecture in embellishment, to be worthy of notice, both on account of its ingenuity and the opportunities which it affords for artistic treatment. We should state, by the way, that the work now opened to, and which we believe is the first of any extent produced by, that artist, represents a choral group of angels, upon three slabs of marble, and is intended to be placed in the church of St. Tearn near Salisbury. The process employed is as follows:—The design

being traced upon the polished marble surface, the outline is then incised to the depth of about a quarter of an inch, and filled in with a peculiar kind of stucco, which on drying becomes so hard as to be capable of receiving as high a polish as that of the marble itself. The larger masses of light and shade are formed by letting in inlays of white or shaded marble; which in time are susceptible of linear treatment when occasion requires. The effect is very striking and satisfactory, that of something between sculpture and mosaic; and the work, from the nature of the materials, has the great recommendation of extreme durability.

## GOVERNMENT SLAUGHTERHOUSES.

MR. J. MARTIN, T.C., in a letter to our morning contemporaries imparts the following information relative to recent government proceedings in the matter of slaughter houses:—"The War Department have selected the ground adjoining Aldborough House, and lying in the angle between Gloucester-street and Buckingham-street, as the field for their slaughtering operations. They have erected a large building, directly joining Gloucester-street, to be used as a slaughter-house, and another building to be used as a meat-store, as well as a third for a bake-house, having determined to turn bakers as well as butchers.

The field next the houses they intend dividing into two parts—one to be a yard for cattle about to be killed, and the other to be a paddock for beasts in reserve for a similar purpose.

With the slaughter house the citizens have more especially to do. A more objectionable site could hardly be selected. The ground lies low and flat without suitable drainage, and the builder has provided air-holes in the structure, through which the disgusting effluvia of the shambles will directly reach the foot passengers, while the accumulation of cattle in such a neighbourhood will be a public nuisance. No private person would be allowed to open a slaughter-house in such a locality, and it would be illegal to use any building for such a purpose without the license of the corporation was first obtained. It remains to be seen whether the government who should set the example of obedience to the law are above it, and outside its operation in this instance, for the No. 1 committee of the corporation have directed their officers to take the necessary steps to enforce the law.

[Under any circumstances slaughter-houses should not be permitted within the precincts of a city.—ED.]

## SCIENCE AND ART EXAMINATIONS.

IRELAND has ever maintained her proportionate superiority over each of the sister kingdoms, in scientific and artistic attainment; and we are afforded an opportunity of recording an additional evidence of that fact by the returns of the recent examinations of the Science and Art Department. The report states that 2,543 persons have been under instruction in science classes, taught by certified masters, besides 870 in Glasgow and Manchester, by uncertified; and that out of *seven* Irish schools, numbering 474 students, *one hundred and forty-nine* prizes and *twelve* medals were obtained out of a total of 689 prizes and 35 medals. The total number of schools now open in the kingdom is 90, so the balance in favour of Irish talent is very palpable.

## THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN.

THE following appears in the issue for 8th inst. of "the *Builder*":—

Dublin Exhibition Palace and Winter Gardens Company. Mr. A. G. Jones, architect; Mr. H. Saxon Snell, surveyor.

For concert-halls, picture-galleries, and offices:—

Beardmore & Sons, (Beardwood) (accepted) £24,800.

For exhibition building and winter garden:—

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Without Transpt.	With Square Transpt.	With Circular Transpt.	Reduced Plan.
£19,092.	£20,835.	£21,173.*	£17,562.

\* Accepted.

(What about the iron work—disposed of to a Liverpool house, and *rather* an important item?)

## KINGSTOWN.

SOME flagging operations are being proceeded with, and it is intended to flag the entire township, each householder paying half the expenses. A widening of the George's-street end of Kingstown-avenue is in contemplation. The new Royal Marine Hotel, for which plans have been obtained from Mr. J. McCurdy, architect, will be contracted for shortly, and proceeded with immediately. Defective sewerage in the vicinity of Summer-hill, Islington-avenue, &c., is much complained of.

## ON THE THEORY OF DESIGN IN ARCHITECTURE.\*

A FEW years since we were indebted to Mr. Fergusson for a volume which, without disparagement of his predecessors, may, it is believed, be truly described as the first scientific classification of architecture. In this the bold and industrious historian not only, as had before been often attempted, characterized each style by a summary of its own essential features, but, by combining the results of a wide ethnological survey with his more technical criticism, showed how each grew spontaneously out of the preceding, and how its growth was favoured or arrested by the circumstances of national life. What has been observed of the history of Philosophy Mr. Fergusson proved true of the history of Architecture, during the prevalence of what he names the true or rational styles; it is an organic development, in which every phase is the distinct—almost the inevitable—result of what went before, and the cause of what followed it. One item of construction was taken by Athens from Assyria, another from Egypt; these, fused into harmony by Hellenic genius, gave, in the architecture of the Lintel, the most perfect union which the world has yet seen between grace and severity. Rome at first rather awkwardly imitating Greece, brought the round arch into common use, threw it from pillar to pillar, and finally gave an admirable type of internal construction in her palaces and basilicas. Then followed another period of embarrassment: the great northern races, in their turn conquerors of Rome, were perplexed for centuries by the rich inheritance they had acquired and defaced; till from a series of hesitating though most interesting attempts, a third style was evolved, which, without the severity of Athens or the massiveness of Rome, added a measured profusion unknown to either, and by its unparalleled flexibility of adaptation proved itself capable of meeting, with new constructive features, every want of a new and more complex civilization. Some of the links in that vast chain which connects in one natural system, the mountain masses of Egypt with the fairy fabric of Rouen have been brought to light by Mr. Fergusson's unwearied research; some wait still further materials for completion. Yet the series in its scientific sequence has been lucidly set forth. And although the æsthetic aspect of architecture may possibly be brought under a less artificial law than he seems to recognise, yet it does not appear too much to speak of Mr. Fergusson as the Linnæus of a subject hardly less interesting or less important than the vegetable kingdom.

Such, in the briefest outline, is the story of Mr. Fergusson's first volume. But now comes a great change; a change of which the influence is daily spreading over the whole world, carrying Regent-street and the Rue de Rivoli into New Zealand and India. Architecture ceases to be truthful; and with truth sacrifices beauty, interest, and homely usefulness. Under the peculiar influences of the 15th and 16th centuries, it becomes an expression of professional learning, in place of national life. It is practised at first by men who study Vitruvius, for men who read Vitruvius: by men who measure the scanty fragments of ancient Rome, for patrons who have made the "grand tour." This change was part of the great simultaneous movement of the human mind in every direction. In science and religion that movement soon became magnificently progressive. In architecture alone it remained galvanic and reactionary. Men soon ceased to imitate the Latin of Cicero. But they continued long to imitate with exclusive rigour the temples and theatres of Cicero's age and nation. As civilization went on, and the attempt to live a modern life within Roman walls was found increasingly onerous, the style took various developments, but found permanent success in none. Such monstrous forms of art appeared as excite our wonder in Spain and France, in the Zwinger Palace of Dresden, or the gateway of the Schools at Oxford. In the better examples, we have such fine works as the Grimani Palace, the original Louvre, the northern portion of Somerset House. Yet these efforts were what naturalists would call sporadic; they generated no permanent school: lifeless imitation always gained the final mastery. Men as nobly endowed for art as Wren or Sarmiceli worked on no basis of real principle, and could hence hand down nothing to their successors. Before long architecture took more recondite lessons in scholarship from Greece and Egypt, with even less practical success. At last she ended in that cento from the ruins of long-extinct styles which we see everywhere in Europe—either without form and beauty when common life and its comforts are concerned, or in the more ambitious efforts tortured into some imperfect accordance with wants and wishes unknown to Thebes or Athens, Rome or Baalbec. And during this whole period

the Italian, Renaissance, or Modern-classical styles were never able to fulfil the first duty of architecture—they never produced one single pleasing or appropriate design for the dwellings of the poor, hardly even of the middle-class citizen. It is no wonder that architecture has hence lost all hold on common sympathies and intelligence, and is no longer reducible to the scientific treatment under which Mr. Fergusson exhibited the "true styles." During the whole interval between the fall and the revival of Gothic, she became an ornamental art for a few persons, not a national development suited for the wants and delightful to the taste of all. Under the "true styles," she was at once a fine art and a useful art. Her kingdom is now divided into a learned art and an art of mere building. Vast as has been the expenditure of study and of treasure, yet in the long succession from Alberti to Visconti Mr. Fergusson is compelled to avow that "not one single building has been produced which is entirely satisfactory, and thousands which are very much the contrary; while during the three preceding centuries, it would be as difficult to find a single edifice in any part of Europe which is not beautiful in itself, or which we cannot now contemplate with delight. The latter were the work of men comparatively ignorant and rude; the former of men in the highest state of refinement and civilization which the world has yet known, and this difference in result can only be ascribed to the difference in the principles on which the art was carried out during these two periods."

This is but a blank conclusion to the history of modern architecture; it is enough to make one despair of the art; and Mr. Fergusson adds to this melancholy summing up a verdict on modern Gothic, not less severe than that which we have quoted on the Italian. He belongs, it will be seen, to neither party in the battle of these rival styles. *Tros Tyrusve*, they are alike—with equal decision, if not with equal cause shown—cast out as convicted of falsehood. It is hence hardly probable that Mr. Fergusson will find entire acceptance amongst the many whom this contest has interested. Putting aside fanatics on either side, the partisans of Gothic from love of theology, and the partisans of Italian from love of commonplace—a more honourable class of diffidants will remain, who may unite in thinking that the argument of this very able and candid writer is least confusing when it touches the line where building passed into architecture; that the province which taste and imagination hold to guide and even to control construction is not recognized with adequate fullness. Our criticism on present attempts and our hopes for the future are, however, mainly governed by our convictions on architecture as a fine art. It would be foreign to the purpose of this journal to enter into the battle of the styles which has roused so much amusing discussion in books and academies, and has even been waged, with dubious issue, within a chamber which is not always or often celebrated for an atmosphere propitious to matters of taste. Art has there certainly but a limited representation; the lessons of beauty fall on a barren and incredulous soil:—

*Reu fuge crudelem terram, fuge litus avarum!*

So far, however, as Mr. Fergusson's argument rests on the general laws of Fine Art, it is legitimately open to discussion. This side of his great subject is indeed by no means excluded. Architecture "ought to be the noblest and the grandest of the Fine Arts." Speaking of the contrast between the days when architecture was matter of national enthusiasm, and the days when it is the pursuit of individual professors to please a learned class, he says, in words which we recommend heartily to the reader's notice, whether he be Greek or Goth, "Perhaps the greatest inconvenience is the remarkably small amount of thought of any kind that a modern building ever displays. An architect in practice never can afford many hours to the artistic elaboration of his design. The plan, the details, the specifications may occupy weeks, in large buildings probably months, but once drawn, it is done with. In almost all cases the pillars, the cornices, the windows, the details are not only repeated over and over again in every part, but are probably all borrowed from some other building of some other age; and, to save trouble, the one-half of the building is only a reversed tracing of the other. In one glance you see it all. With five minutes' study you have mastered the whole design, and penetrated into every principle that guided the architect in making it; and so difficult is it to express thought where ability must be consulted, and where design is controlled by construction, that the result is generally meagre and unsatisfactory in the extreme. In a work of Fine Art, such as a mediæval cathedral the case is different. Not only have you the accumulated thought of all the men who had occupied themselves with building during the preceding centuries, and each of whom had left his legacy of

thought to be incorporated with the rest, but you have the dream and aspirations of the bishop who designed it, of all his clergy who took an interest in it, of the master mason who was skilled in construction; of the carver, the painter, the glazier, of the host of men who, each in his own craft, knew all that had been done before them, and had spent their lives in struggling to surpass the works of their forefathers. It is more than even this: there is not one shaft, one moulding, one carving, not one chisel-mark in such a building, that was not designed specially for the place where it is found, and which was not the best that the experience of the age could invent for the purposes to which it is applied; nothing was borrowed, and nothing that was designed for one purpose was used for another. You may wander in such a building for weeks or for months together, and never know it all. A thought or a motive press out through every joint, and is manifest in every moulding, and the very stones speak to you with a voice as clear and as easily understood as the words of the poet or the teaching of the historian. Hence in fact the little interest we can ever feel in even the stateliest of modern buildings, and the undying, never-satisfied interest with which we study, over and over again, those which have been produced under a different and truer system of art." The fault may be with us, but we do not fully see how to reconcile these and other statements with the remark that "Speaking, Writing, Painting, Sculpture, are merely different modes in which man's thoughts can be communicated to other men, or perpetuated for the use of posterity. But with these architecture has nothing in common; it neither illustrates any literature, nor imitates anything (the exploded fallacy about the Fine Arts). Its object is to supply wants of a totally distinct class, and it reaches its aim by an entirely different mode."

It would be immensely difficult to define and classify the arts, and we must honestly confess that Mr. Fergusson's attempt, though it may be studied with advantage as the theory of a thoughtful and cultivated man, does not appear satisfactory. "All the arts," he says, "practised by man may be divided into two great classes—the technic arts and the phonetic arts. To the first group belong all those which are concerned with the production of food, clothing, and shelter for man, and generally all the useful arts. In the other class are grouped all those arts which arise out of the special gift of speech which man enjoys alone of all living beings. It comprises poetry, painting, sculpture, and, in short, all those arts which minister to the intellectual wants of mankind, as the technic arts were invented to supply his physical necessities." Without venturing on the perilous ground of definition, we cannot think that the arts can be exhaustively divided thus. We demur altogether, in the first place, to any division which rests on the difference between man and the other animals. This is to bring physiology into logic. Reference to the creatures of instinct is quite beside the mark when we are dealing with man, not as one in the vast series of organised life, but as a being capable of rational development—even were the resemblance between the dam of the beaver and the dam of the engineer much nearer than it is. We demur equally to the reduction of what Mr. Fergusson names "phonetic" arts from speech. For speech itself is only one medium by which the feelings, which are the basis of all fine arts, are expressed. It is only the readiest utterance of our thoughts, and is so far from deserving the dominant place assigned to it, that our best thoughts can rarely be uttered by words. Indeed, it has been generally and truly argued that the "phonetic" arts exist, not as a mode of speech, but as a complement to it; as a means of saying that which otherwise we could not say. Thirdly, the division into "technic" and "phonetic" (besides that it omits music, an art phonetic in quite a different sense) crosses awkwardly with the division between "fine" and "useful," elsewhere recognized by Mr. Fergusson. His own examples show this: cooking, he says, may be refined into gastronomy, pottery into the ceramic art, and building, by identically the same process, into architecture. Thus we seem to reach this dilemma—either architecture is not an expressive (phonetic) art (in which case it has no hold on our feelings); or from being a technic art it must grow gradually into a phonetic (from which it is divided by an impassable line). For we can conceive of no middle ground in which we could have a fine art of architecture, at the same time *not* expressive of the identical feelings which are the basis of Poetry, Painting, and Sculpture. Or, to restate the case, arts are in general roughly divided between the fine and the useful; but it is also recognized that each division crosses into the other, and architecture especially. Mr. Fergusson's substitute, technic and phonetic arts, besides resting on definitions which do not appear more philosophical

\* From the *Fine Arts Quarterly Review*.

and are certainly less intelligible than those that form the basis of the common division, are placed in radical opposition, and thus either compel us to "leave out in the cold" such arts as architecture, pottery, and metal-work—or to smuggle them under the old guise of arts belonging at once to the fine and the useful.

This theory, which indeed is never dogmatically pressed by Mr. Fergusson, does not affect the sterling value of his works. Their general conclusions appear to us convincingly proved by the wide historical induction and by the lucid practical criticism with which he accompanies the specimens illustrated in his volumes. He has, in fact, given a survey of the reasons which led to the revival of the Roman style in Italy and elsewhere, sufficient to account for the change, without laying the stress which he lays on the fact that some artists of the time also practised architecture. We think it was as antiquaries, not as artists, that men like Raphael and Michael Angelo diverged into a sphere in which, a candid judge must own, their admirable genius deserted them:—

Allo mentes, alio divisimus aures,  
Jure igitur vincemur.

What reason is there to class this exceptional activity as the beginning of a systematic cultivation of a "technic" art on the principles of a "phonetic"? Nor, again, does it seem necessary to recur with Mr. Fergusson to this theory to explain why the names of architects in the "true styles" have not been handed down, whilst the history of modern architecture is always biographical. We join issue on the facts. The names of many Greek architects, from a period before Ictinus to a period after Apollodorus, are recorded, with the names of the buildings they designed. During the Middle Ages the loss of such records is probably due to the prominent deficiency in mediæval literature—detailed biography and criticism on secular subjects. There is no Vasari for the Gothic styles. Yet even in these, Suger, William of Canterbury, Marc d'Argent, receive honorable notice from the historian. Still less can we follow Mr. Fergusson in denying (if we read him right) the influence of individual genius whilst the true styles prevailed. How can we doubt that the law which makes what we mass together as national advance due, in last resort, to the impulse given by individual effort, is true here also, and that these gifted Frenchmen, like their great predecessors in Hellenic days, exercised a vast influence on the Pointed style? The nation unquestionably co-operated with them in the manner so forcibly set forth by Mr. Fergusson. They acted as its leaders and representatives at once. "In the art of shipbuilding, from the master to the boy who sweeps out the workshop, every one must be skilled in his own speciality; all must know and be able to introduce every improvement and refinement that has been practised elsewhere up to that hour. With such an organization as this, perfection is now attained in the mechanical arts. With a similar combination, perfection was reached in architecture in the Middle Ages."

Mr. Fergusson confines this to the "technic" arts, but it is true of all, although the process is not always so manifest; from the poet with whom the legends and the language of the people must co-operate, to the musician who cannot give voice to his creations without singers and orchestra. This is the unfulfilling condition whenever art is really true and fine, and its absence in case of architecture during the last three centuries is one of Mr. Fergusson's strongest proofs that great genius and great expenditure have been wasted in the many forms of the Palladian, Renaissance, Louis Quatorze, and neo-Greek styles. And that this co-operation between designer, workman, and public, has more or less re-appeared in England since the Gothic revival, will be regarded as a sign of renaissance health by those who believe that style perfectly capable of vital adaptation to the wants and wishes of the present day.\* It has been said "there is no way of getting good art but one—at once the simplest and the most difficult—namely, to enjoy it. Good art has only been produced by nations who rejoiced in it;" and there never was a truer saying.

It may naturally be asked what principles Mr. Fergusson lays down, under which the "true styles" were formerly produced, and by returning to which alone we can once more regain truthfulness. He sums them up in his preface: the architect had only to consider, first, how he could contrive the most convenient and appropriate building; secondly, how he could arrange this so as to be most ornamental with the least possible sacrifice of convenience; and thirdly, how he could accentuate and ornament his construction so as to be most obvious and most elegant."

On this he enlarges afterwards, apparently advo-

cating a style which shall be at once eclectic and original, having "no guide but common sense, no master but true taste." To criticise this view would be to enter on the inadmissible controversy; and indeed Mr. Fergusson's modesty has led him to state it so briefly that we do not believe he has done justice to his own conception. But we may remark that, true to the theory, he seems hardly to give sufficient room or free play to the purely æsthetic side of his art. From anxiety to maintain the difference between the "phonetic" and the "technic," that which gives interest to half the fine buildings of the world, Ornament, is thrown into the shade. Hence, too, the element of proportion, so important as an underlying canon in design, holds a rank which we think comparatively exaggerated in his excellent lecture. At least it may be submitted that to "accentuate and ornament the construction so as to be most obvious and most elegant," is but a lean and insufficient definition:—that it is far—if we think of Chartres or Saint Mark's—how far!—from covering the facts. Ornament, not divorced from construction, but subordinating it, has surely characterized many of the finest buildings in the finest styles. In the Parthenon the sculptures of Phidias were the final cause of the pediments of Ictinus. In the great cathedrals of France, the tracery of the windows, the multitudinous imagery of porch and buttress, maintain a nearly equal predominance. Further, the same construction may be accented and ornamented in more than one way, and no law of "technic" progress, like that which holds in shipbuilding, will explain how styles of decoration differing as the Egyptian and the Gothic were developed. Sense and taste are equally insufficient as explanations. These qualities are displayed, indeed, in all the features of a "true style;" but they cannot supply the peculiar form which it follows. Homer shows them in every line; yet they would not have enabled Aristarchus himself to add one touch to the Parting of Hector or the Supplication of Priam. In a word, they are regulative principles, not creative.

It may be disputed which element in architecture is most important, its fitness for use or its attractiveness to the eye, and to the mind's eye. But there can be no doubt which element arises from the most deep and complex sources, and goes furthest into human nature. The wants which building supplies are universal, and comparatively alike everywhere. But the features which raise building to a fine art must be sought in the depths of the character of each nation. To unfold this, if it were possible, would be the most interesting portion of this history of architecture. That which gave the lotus capital to Thebes, the Doric to Athens—that which gave massiveness to the Roman style, aspiring grace and floral delicacy to the Gothic, lies in the very heart of the respective races. The ornament of the "true styles" expresses the religion and the poetry of the nation, and is part of that spirit, whatever it may be, which displayed itself in the mythology of Egypt and of Hellas; which found another mode of expression in Homer and Sophocles; in the "Nibelungen," the "Romance of the Rose," and the "Divina Commedia." We are here, in a word, within the realms of the divinest of human gifts, the creative imagination.

#### MEMORIALS.

It has been unanimously resolved by the corporation of Dublin to place a memorial bust of the late Alderman Roe in the council chamber. Sir John Gray, in proposing a resolution to that effect, at a meeting on the 3rd inst. said:—"They were indebted to their lamented friend for the council chamber in which they then sat. The preparations of the plans and designs for the chamber formed a part of Alderman Roe's labours. Before the council room was improved, it was a most uncomfortable chamber, and anything but a credit to the city. Citizens and strangers who had visited the council chamber since it was perfected, after the plans suggested by Alderman Roe, had eulogised it as a credit to the city, and as a chamber that might well be taken as a model by other cities. One thing, however, was at the present moment wanted by the council chamber—a bust of George Roe. The recent demise of their lamented friend suggested that tribute, and he would therefore beg to move the suspension of the standing orders, preparatory to moving for the appointment of a committee of the whole house, to take into consideration the best mode of perpetuating their sense of the services rendered by Alderman Roe to the city in connection with the town council."

Several inhabitants of the parish of Booterstown, Blackrock, and Dundrum, and other friends of the late Canon Ennis, have opened a subscription to defray the expense of putting up a stained glass window to his memory in the church of St. John the Baptist, Blackrock.

#### PROFESSOR PLAYFAIR ON THE SANITARY CONDITION OF TOWNS.

On the occasion of the ceremony of "capping" the students of the session 1862-63, who have obtained the degree of M.D. in the Edinburgh University, on Saturday last, Professor Playfair gave an address on the Sanitary Condition of Towns.

The Professor said:—The sanitary condition of communities is now receiving that attention and study which its importance so much deserves; but although long neglected, it is nevertheless true that in all except the Middle Ages sanitary legislation has endeavoured to grapple with the ills which affect public health, and even during the latter period it has always been recognized as a necessity that individual diseases should not be allowed to swell into public maladies. Just as we are not permitted to burn down our own houses lest the conflagration should extend to those of our neighbours, so ancient legislation prevented a man from keeping his own tent or house in an unhealthy condition lest the sources of disease should spread beyond it. The excellent hygienic laws of Moses have ample recognition to the truth that the health of an individual is of importance to the community in which he resides. Again we see this fact more obviously set forth in the laws of Taleucus, who ordained that if any patient drank wine during his illness against the advice of his physician, he should be put to death after his recovery on account of his disobedience. Among the Greeks, State physicians, in numbers proportioned to the size of the towns, were appointed to watch over all matters relating to public health. Rome, following the example of Greece, watched with attention the sanitary conditions of the various countries which it conquered. We see the effect of the knowledge of public health thus acquired when we look to the history of Egypt. This country, ravaged by plague during the Middle Ages, and even now scourged by it, has had complete immunity from this disease when its rulers enforced the laws of public health. Plague was unknown in Egypt during the reign of the last of the Pharaohs: it did not appear during the 194 years of its occupation by the Persians, or in the 301 years of the dominion of Alexander, the dynasty of Ptolemaeus, and during a great portion of the time that it was under Rome; but in the barbarism of the Middle Ages plague made a permanent home in Egypt, and visited occasionally every country in Europe—sometimes assuming different specific forms, as the conditions for pestilence became varied. When the black death and sweating sickness carried off nearly one-fourth of the population of Europe, then mankind began again to call in the aid of physicians as their safest public counsellors; but as their functions had been so long in abeyance, it is not to be wondered that for some time they were unequal to the call made upon them. The knowledge of public hygiene had indeed fallen low when we find the medical faculty of Paris, in the 14th century, issuing a public manifesto, in which they recommended, as a measure of public security against the plague, "that if rain came during the day a little fine treacle should be taken after dinner, and that fat people should not sit in the sunshine." After repeated attacks of the plague in London, the attention of our legislators was directed to the necessity of exalting the *status* of the medical profession; and the King, under the advice of Cardinal Wolsey, established the College of Physicians in 1518; but dire pestilence still frequently occurred, which should not astound us when we recollect the habits of the people and the ignorance of medicine long after this period. As an example of this, only remember the death-bed remedies applied to Charles II., who certainly was not in want of the aid of physicians, for some of the prescriptions were signed by fourteen doctors. The poor dying monarch's head was burned with hot irons, and a loathsome volatile salt, extracted from human skulls, was forced into his mouth. In the reign of that King, however, various circumstances advanced hygienic knowledge. Hitherto, the origin of plague had been ascribed to occult causes, such as terrestrial emanations, celestial conjunctions, or as the direct consequences of Jews poisoning the wells of Christians; but during the frightful plague of 1665, Oxford, where the Court and Parliament soon assembled, enjoyed a complete immunity from the disease, and the causes of this were soon traced to the recent improvements made in the drainage of the town, and to the care with which the magistrates caused all filth and garbage to be removed from the streets. The great fire in London during the following year enabled new and wider streets to be built, so that from that date this great pestilence has ceased to visit us; but removable zymotic diseases of other kinds still remain, and will be quoted by future historians as evidences of our low state of civilization in the 19th century.

\* We may notice that some clear and striking proofs of this are supplied by Mr. Fergusson, on p. 319 of his new "History."

To these I would now direct your attention; and as they are but modified forms of disease similar in origin to the old pestilences, I would remind you of the circumstances under which they occurred, and continue to occur, in some countries to the present day. In Egypt the plague is sporadic every year, and epidemic once in every six years. The condition of its poorer inhabitants explains why it is that plague still dwells with them. Their huts are generally built on the margin of stagnant waters left by the inundation of the Nile. The Fellah, nearly naked, works in the mud of the rice grounds, while his wife and children make into small cakes a nauseous compound of the waste matter of man and animals, which they plaster on the walls of the huts, so that they may dry in order to be used as fuel. Everywhere around these huts you tread on animal remains, and see dogs disputing for the mangled carcase of a cow, ox, or camel, and dragging their intestines to the huts. All these abominations wash into tanks and ditches of putrid water in which the Musselmans perform their religious rites of purification; and as these ditches are never emptied, their contents soak like black lava into the soil, and ooze out into the floor of the huts. All this is intensified wherever there is a mosque, so that a stranger may find his way to the house of prayer by the use of his organ of smelling (Dr. Hamont). Under such aggravated circumstances, plague does occur, while under modified conditions of filth our lesser epidemics, such as typhus, still flourish. The plague of a torrid country becomes the typhus of a more moderate climate.

The student of public health has the surest conviction that contaminated air, foul water, bad ventilation, and decaying garbage form the soil upon which all such diseases grow with the same surety as a crop of corn or of weeds will grow on a common soil according to the seed sown in it. We do not deny, or much care to discuss, the specific differences in the diseases which appear. They are modified as hygienic conditions become improved. They increase in severity when these are neglected. In the last century *typhus gravior*, scarcely to be distinguished from plague, prevailed in England, but has again been expelled as an epidemic by improved sanitary regulations. Even now, we have three forms of these zymotic fevers—the typhus, which kills twenty-four out of every hundred attacks; the typhina, or relapsing fever, in which the mortality is only one in forty cases, and the typhoid fever or typhina, in which nineteen cases in the 100 terminate fatally. It is, of course, interesting to us as scientific men to investigate the specific differences and causes of these modifications of typhus fever. But as promoters of public health, we are perfectly safe classing them together, and in declaring that, in their epidemic form at least, they are all results of hygienic errors. This disease destroyed in England and Wales, during the year 1861, 1,540 persons, and probably attacked about 154,400 people. Among the victims of this fever was a great and noble Prince, whose life was devoted to the public welfare, and who was particularly zealous in promoting all means which tended to extend a knowledge of the laws of public health among the people of this country. Besides these deaths from fever, 20,000 more persons fell of diseases which are propagated by the same channel. Whatever opinions some of us may hold in regard to the origin of individual cases of typhus, there is nearly a common agreement as to the conditions which give to it an epidemic character. The poison may or may not arise directly or approximately from the influence of decaying matter; but of this be assured, that, like certain animalcules, it will only remain where it can feed upon garbage, so that you are always safe in searching out the circumstances which enable it to localize itself, and, by removing them, to render the place untenable for the epidemic. Professor Christison gives you the means of doing this in a pithy sentence, when he says:—"Cleanliness and ventilation will extinguish any epidemic." The very simplicity of the rule prevents its general adoption, not now only, but in all periods of the world's history. "If a prophet had bid us do some great thing, would we not have done it?—how much rather when he saith unto us 'Wash and be clean?'" Do not suppose that it will be useless for you to act as missionaries in promoting throughout the world the truth that cleanliness is next to godliness. The hygienic state of this country is most imperfect. The inevitable deaths in a population need not exceed twelve in 1,000 annually, while our actual death-rate is twenty-one in the 1,000. In 1861, upward of 35,000 perished in England and Wales of diseases which we all recognize as being preventable, besides those which probably owe their fatal severity to a want of hygienic arrangements. By "preventable" diseases we understand those which need not occur if a proper system of drainage, an ample supply of pure water and uncontaminated air were enjoyed by our whole population throughout

town and country. It is always a useful exercise for us to divide preventable from inevitable deaths. Let us take, as an example of the former, deaths by fire. None of us would be inclined to include deaths from fire as among the class of inevitable deaths; and yet Dr. Farr assures us, that in the last fourteen years no less than 39,927 persons were burned alive in England and Wales. It would be difficult to parallel this devastation either in the time of the Druids, in the fires of Moloch, in those of the Inquisition and of Smithfield, or in the Suttees of the Hindoos. And if history refuses to hear of any palliation for these sacrifices of human life, depend upon it we will be held responsible for the neglect and fashion which causes such sacrifices to be continued. But the fires of disease and pestilence are still more cruel in their ravages, and require hecatombs annually to consume. And yet, by persistent courage, with constant watchfulness, we have the power to prevent or to extinguish them.

In proof of this you have only to compare the mortality in different parts of the same town, and you will find the variations in death-rates according to the differences of hygienic condition, to be from seventeen to forty-five in a thousand of the population. There is, therefore, a wide field of usefulness in which you can labour. We are now speaking not of ancient times, but of the state of the field in which each of us may work. To prove this to you I take the following quotation from the last report of the Registrar-General:—"The practice of keeping the refuse of the sick and healthy of successive generations in cesspools, alike of cottages and palaces, every day grows more pernicious as the population becomes denser; for the water is defiled in wells; and even when the cesspools are emptied into the Thames and other rivers, it is pumped into the houses only partially purified. The ova of worms and the seeds of various diseases are thus diffused among children, while great numbers of men and women in the prime of life also suffer, and often die of the maladies which are the inevitable consequences of violations of natural laws."

Let us pause here a little to inquire whether nature does point out to us, in the manner in which she deals with decaying refuse, how we ought to act in like cases. All organic beings die, and their bodies pass into a state of putrefaction and decay the products of which ultimately reach the air and contaminate it with miasms and organic poisons. With such a mass of festering corruption in the world, there must be efficient means through natural agencies of rendering them not only innocuous but also of positive utility. By the admirable ventilation of the atmosphere in the great systems of equatorial and polar currents, and by the continual movements of local winds, these emanations are rarely and never for long allowed to accumulate in one place, but are scattered by the aerial currents and by diffusion throughout the atmosphere. This now chemically attacks the putrescent substances, oxidizing and degrading them from the state of complex organic forms—carbonic acid, water, ammonia, and nitric acid. Although that the oxygen of air is at all times so active in its habits that it requires to be much diluted with nitrogen, yet it receives a large increase in its activity during the performance of its oxidizing work in the atmosphere, for then it is converted into or assumes two forms, each of which have augmented though differing powers—the one being used up by one portion of a decaying body, while the other is set free, ready to attack substances susceptible to its influence. I allude of course to the fact that when the ozonized form of oxygen is produced and appropriated during oxidation, a second active form of this element as it appears in peroxide of hydrogen, manifests itself, and is ready for its share of work. Through these agencies all decaying and putrid matter is broken up into simple forms—all of them, as in air, innocuous to animals, and most necessary to plants, which require them as food. It may indeed happen that the rain may wash some of the putrid matter from the air before the oxidation is completed, but then the soil on which it falls is endowed with a singular power by which it forces the oxygen absorbed by its pores to complete the transformation. Note well these two great facts—first, that the air renders innocuous these putrid exhalations; and, second, that the products of the transformation are immediately applied to plant life, a wonderful circle in which death and life rapidly alternate, plants first feeding animals, which in their turn feed plants.

How differently do we act in our civic arrangements! Instead of allowing the garbage to be oxidized and afterwards utilized in the most efficient way, we dig holes close to our own doors, and in these latrines or cesspools allow all the filth to accumulate and rot, until we or our neighbours are stricken down by pestilence; or, if a system of sewerage be introduced, we send the refuse of our

cities into rivers, to pollute the waters for those who live below, we, poor innocent lambs, wondering why the wolf growls at us lower down the stream. At the same time we waste that which ought to have been applied to the soil for the growth of food, and we send fleets to the Incas and Ichaboe for that which we possess so abundantly at home. It is true that while we could with perfect safety economize these waste products, yet that their removal from the vicinity of human dwellings is undoubtedly essential, and that for this purpose a free supply of water, a good drainage, and abundance of fresh air, are the main requisites. There must be no tampering with putridity, no making of snells with scents and aromatic odours. The requirements for these or for deodorizers indicates filth which ought to be removed. When we read that ancient Capua had whole streets devoted to perfumers, we are irresistibly compelled to believe that ancient Capua must have been a very dirty place. If in contending against the sources of disease, you were obliged to resort to such agencies, take those which destroy, not those which mask putrid matter. You must give no quarter to putridity, for it is a subtle enemy, which is sure to have no mercy in its turn, and will inevitably demand its organic emanations.

#### ROYAL DUBLIN SOCIETY.

##### ADDRESS TO THE STUDENTS OF THE DUBLIN SCHOOL OF ART.

MR. MACMANUS, to whose talents and exertions Art Education is so much indebted, is now retiring from the scene of his labours in the Royal Dublin Society.

When we consider his labours amongst us during the last fifteen years, and his kindness and attention to all who had the advantage of his instruction, we cannot deny ourselves, and the many pupils who have profited by his profound and universal knowledge of Art, the gratification of presenting him with a suitable testimonial of our sincere regard for him, and our appreciation of his abilities as a teacher.

We are desirous that Mr. Macmanus, when he leaves the school where he has exerted himself so successfully and so long in promoting the Arts of this country, should bear with him the conviction that his worth was not overlooked, at least by his pupils, whose interests his kindness promoted, and whose talents his ability developed.

The committee, wishing to mark their sense of the present change in his position, and his undoubted merit, have decided on presenting him with a silver palette and a sum of money.

The committee therefore suggest that the students, composed as they are of all classes, should contribute whatever amount they can freely and cheerfully give, and forward it to the secretary for publication before 31st instant.

WM. O'DELL, Secretary.

School of Art, Royal Dublin Society.

[We heartily appreciate the laudable movement inaugurated by the above document, and wish that it may be extensively and substantially responded to.—Ed.]

#### IRISH ARCHITECTURAL TALENT IN ENGLAND.

WITH much pleasure, and pride, too, do we announce that, in a very important recent competition for the intended new buildings in Manchester, of the Lancashire Insurance Company, the Directors adopted the designs submitted by our respected and talented fellow-countryman, Mr. Thomas Turner, architect. The compliment so paid to the well-known, but hitherto somewhat too tardily recognized ability of Mr. Turner, is the more to be appreciated, as being an Irish practitioner, with a great array of local talent—and disposition, no doubt, to local preference—against him, he won his prize in an unequal contest. The premium is £200, and the expenditure on the proposed work, which is to be carried out under Mr. Turner's supervision, will be considerable.

#### ENGINEERS DIFFER.

MR. HAWKSHAW, C.E., has recently been over the district through which it is proposed to cut the Suez Canal, and has declared the project capable of accomplishment. It may be in the recollection of some of our readers, that the great George Stephenson reported that it was not practicable; so it now remains to be seen which is right. Engineering has hardly advanced such a stride in the period during which these eminent men made their respective reports, as to remove any practical difficulties that existed in Stephenson's time; so a great deal of scientific interest must be attached to a result where eminent opinions are so conflicting.

## THE TELEGRAPH TO INDIA.

SIR CHARLES BRIGHT and Mr. Latimer Clark have been engaged superintending the construction of the telegraph cable which is to effect communication between England and her Indian possessions, and whatever may be its ultimate fate, it is quite certain that there never yet has been a cable manufactured with such care, or one which, in point of "conductivity" and insulation comes so nearly up to the standard of absolute electrical perfection. The design and construction differ materially from any line hitherto laid. Every operation in submarine telegraphy—even the great Atlantic line, has contributed its quota of valuable experience. The insulation of that line was not very perfect, as may be imagined from the infancy of the science at that time, but yet the electrical power used was such as would infallibly break down even the most perfect cables manufactured at the present day. Of this our readers may judge when it is stated that the large induction coils first used in signalling between England and America were probably equal in electrical power to 2,000 battery cells, while now it is found inexpedient to use more than two or three cells in working the longest submarine lines in existence.

The faults which led to the destruction of the Red Sea line were of another character. Though it was manufactured and tested with a care greatly superior to that taken with the Atlantic cable, it was submerged in a way which rendered its ceasing to work a question of a few weeks more or less. Sheathed in a covering of small wires, quite unprotected from corrosion, it was laid without any allowance for "slack" cable to fall into the irregularity of the bottom of the sea. It consequently lay strained across the points of the inequalities, with a tension of several thousand pounds. To obviate this cause of danger, which in the above-mentioned lines has probably occasioned a loss of property to the value of over a million sterling, the Persian Gulf is cased in twelve No. 7 gauge hard-drawn iron wires, thickly galvanized, so as effectually to prevent their corrosion. But, in order to secure more effectually the permanent stability of the line, the whole finished cable is thickly coated with two servings of tarred hemp yarn, overlaid with two coatings of a patent composition invented by Sir Charles Bright and Mr. Latimer Clark. The composition consists of mineral pitch or asphalt, Stockholm tar, and powdered silica, mixed in certain proportions, and laid on in a melted state. While yet warm it is passed between circular rollers, which give it a round, smooth surface. When quite cold this forms a massive covering of great strength and perfect flexibility, totally impervious to water, and incapable of being destroyed by the minute animalculæ which exist in such abundance in warm latitudes, and which, when the cable is not protected against their attacks, eat every atom of the hemp, as in the case of the cable laid between Toulon and Algiers. Galvanizing the wire is in itself an almost perfect protection from rust—certainly for many years, as the good condition of the cable picked up off the Kooria Moorla Islands, a part of which was galvanized, showed, as far as the galvanizing was concerned. But with the final protection both from rust and animalculæ which Bright and Clark's compound affords, there appears to be no reason why this cable, when once laid in shallow or deep waters, should not remain good for a hundred years to come. The copper conducting wire is composed of four segments, drawn into a hollow tube in such a manner as to appear like a solid wire. By this means all the advantages of a strand wire are combined with the condensed bulk and small surface of a solid one. The copper from which the wire is drawn is especially selected by the engineers for its high capacity for conducting electricity. It is, perhaps, not generally known, that different samples of copper vary as much as 50 or 60 per cent. in this respect—that is, some specimens of copper-wire will conduct electricity with greater facility than other specimens of double the thickness, though physically there may not be the slightest difference by which you can distinguish one from the other. This wire, which is nearly one-eighth of an inch in diameter, is then covered by the Gutta Percha Company with four distinct coats of gutta percha and four coats of Chatterton's compound, laid on alternately. This "core," as it is termed, is then tested in cold water at a temperature of 90 degrees, and then under a pressure of 600 lbs. to the square inch. After passing through all these ordeals, the loss by leakage through the gutta percha covering does not exceed one hundred-millionth part of the current of electricity passing through the conducting wire in every nautical mile. To such minute perfection has the system of testing adopted by the engineers been carried, that the loss of one thousand-millionth part of the current by leakage could be detected and estimated on the instruments. In the present state of the insulation of the cable, the loss

by leakage in working each section of the line will not exceed one four-hundredth part of the electric current sent through the conductor—a condition of insulation which we believe has never been equalled by any cable hitherto manufactured.

Before being sheathed at Mr. Henley's works the coils of gutta percha core, which are in three miles lengths, are again tested under water for insulation and for resistance of conductor; therefore, if any injury should have occurred to the fragile gutta percha covering of the wire during its transit from the Wharf-road to North Woolwich it is detected before the cable is made up, and then the process of sheathing them in their outer covering is commenced. The first coating outside the gutta percha is 12 thick strands of wet hemp, and over these again comes 12 solid No. 7 gauge wires, which have been most carefully galvanized by Mr. Henley. The outer covering of iron wire is generally the last which a cable receives, but in this instance, as the line is to be laid in comparatively shallow water, the wires themselves, though galvanized, are to be still further protected from their most formidable enemy, rust, which is done by the coverings of Bright and Clark's composition already described.

During the whole time the cable is at Mr. Henley's the current is kept always through it, so that the slightest possible defect in the wire can be detected. In addition to this the very able electrical staff test every portion regularly twice a day, for insulation and resistance of conductor. When everything has been done which the most jealous care and the most fastidious scientific skill can suggest, it is passed out on the river-side of Mr. Henley's factory, and coiled away in tanks filled with water; and even here perpetually watched and tested. There are upwards of 900 nautical miles of it thus manufactured lying at Mr. Henley's works—huge coils of thick black-looking rope, nearly 1½ inches in diameter, weighing nearly four tons to the mile, and 2½ tons in water, and costing as nearly as possible £200 per mile—the cheapest, strongest, and, electrically speaking, the most perfect cable that has ever yet been made. Three hundred and fifty miles more of the same kind have yet to be manufactured—to which, however, the great resources of Mr. Henley's factory are quite equal—in the time that yet intervenes before the last ship which composes the expedition will leave this country in September.

## THE WATERWORKS.

THE following is from the eighth report of the waterworks committee, laid before the municipal council at a recent meeting:—

Your committee quote the following passages from the letter of instructions issued to Mr. Bateman, in which he was directed to examine and report:—

1stly. As to the eligibility, practicability, and durability of the projected works for the supply of water within the limits of the 'Dublin Corporation Waterworks Act, 1861.'

2ndly. As to the sufficiency of the projected works, and of the specification to obtain the supply of water contemplated by the act.

3rdly. As to the estimated expense of maintaining and keeping in repair the projected works during a series of years.

4thly. As to the probable daily supply of water from the projected works, and the sufficiency thereof to meet the daily demand.

5thly. As to the quality of the water for domestic, manufacturing, and other purposes; and, lastly, the money borrowed, with the interest, being payable out of compulsory rates; as to the necessity for all, or what part of the projected works, and the benefit to be derived therefrom.

Upon all these points the report of Mr. Bateman was elaborately minute; and so satisfied were the Loan Commissioners by his report, as to the suitability of the project, the abundance of the supply, the efficiency of the works proposed, and the nature of the contract entered into by your committee for their execution, that they at once determined to advance for their construction a loan of £250,000 at 5 per cent. per annum.

Your committee regard this report and its consequences as being not only eminently satisfactory, but as affording conclusive evidence on all the points once so earnestly debated by the former opponents of the Vartny project. It is due to Mr. Bateman to state that, when making the investigations on which this report was based, new data were before him—such as careful gaugings of the rainfall within the catchment basin of the Vartny, and accurate measurements of the quantity of water passing down the river daily—which had no existence when he expressed a different opinion; in fact, the very experiments which he insisted on when he gave evidence against the bill before the Commons, as requisite to supply the materials for a conclusive judgment before adopting the Vartny, had been made in the interim, and the results of these experiments satisfied him that there will be in the

driest assumable years an available water supply of one-sixth, or 2,000,000 gallons daily, more than he estimates as requisite for the city and suburban supply. This report is so valuable a testimony to the project—to the amount of rainfall and available supply, and to the character of the works, that we reproduce it in appendix No. 2 in full. It will be seen on reference to it that Mr. Bateman has given his entire approval to all the modifications in the works suggested in our fourth report, and refers in special terms of commendation to the contract made with Mr. McCormick for their construction. He makes an important suggestion with respect to the filter beds, to which your committee allude in detail in a subsequent portion of this report.

After referring to loan negotiations, the report goes on to state that the first stone of the distributing reservoir at Stillorgan was laid on the 10th of November by his Excellency Lord Carlisle.

Since then your works have been prosecuted with great vigour, and it will be seen by the report of your engineer, which we subjoin, that the progress of the works, and the manner in which they have been executed, are, in all respects, satisfactory. Your engineer's report supplies a detailed statement of the actual progress made at the several points. The value of the works executed and of the material supplied up to the end of May, as certified by your engineer, amounted to £43,468 0s. 7d., and your contractor has been paid in cash the sum of £39,516 7s. 9d., leaving in the hands of your committee *ten per cent.* of the value of the works executed as a security for completion of the entire in accordance with the terms of the deed of contract.

The narrow limits of your borrowing powers and the uncertainty as to interest you would have to pay induced your committee, in their fourth report, to recommend that you should not, at the date of that report, determine to construct the filter beds at Roundwood.

The council will remember that in Mr. Hawkesley's estimate and in the estimate and report of the Royal Commissioner, Mr. Hawshaw, it was by deducting the cost of these filter beds, as an expenditure then assumed not to be absolutely requisite, they were able to bring the total estimate for the Vartny supply within the £300,000, the limit of borrowing powers fixed in the joint letter of the Lord Mayor and city members when applying to the government for the issue of a royal commission. The conviction that the filtering process might be dispensed with by a careful construction of screens at Stillorgan and strainers at Roundwood was considerably strengthened, as was most natural, by the other most coercive conviction that, if not dispensed with, the limit of the borrowing powers must be exceeded. The same feeling operated on the minds of your committee when preparing their fourth report, nevertheless they deemed it requisite to make all the necessary preparations for constructing the filter beds, in case funds could be procured for that purpose, and thus rendering your works absolutely perfect. The fact that Mr. Bateman, in his report so strongly recommends the immediate completion of the filter beds as a protection against discolouration from floods, are strong reasons for your doing so. The arrangement made with your contractor was that he should deduct £15,000 from the total contract, in consideration of his not being required to construct these filter beds and that in the event of being called on to make them he should construct them according to the specification for the same amount. If you should determine that on our recommendation, there would still remain for your use a contingent working capital, in excess of your borrowing powers, of £28,000, after the construction of the filter beds. Your committee, therefore, did not hesitate to give a conditional order to the contractor to be prepared to construct these beds, subject, of course, to the approval of the council, which they confidently anticipate will be at once accorded.

Your committee have to report that they solicited a tender from the Messrs. Edington for the supply of the pipes requisite for connecting your new works with your old works, and for such pipes as may be required within the city, and requested that it be put in in such form as to enable your committee to avail themselves of the present *low prices*, by purchasing at once, or to protect themselves by a *time bargain* against the probability of an increase in the price of iron, resulting from any change in the state of affairs in America or otherwise. Mr. Edington made so advantageous a tender that the committee adopted it at once, subject to the approval of the council. The tender which we place before you in the form of a contract offers to supply the pipes of all sizes at from 4 to 33 inches in diameter, at £5 6s. 6d. per ton, a rate somewhat below the present average, or to allow the corporation to specify for the pipes within *eighteen months* for an increase of price amounting to 2s. per ton, equal to an insurance of £1 5s. 1d. per cent. per annum against any possible advance of price within the next year and a half. The advantages of this *time bargain* are so obvious, and so large that your committee did not hesitate to accept the tender, subject to your approval, confident that it must meet with your approbation.

Your committee have also entered into a provisional contract with the same house for the supply of the pipes for the Kingstown district. The Messrs. Edington have given your committee two years to determine whether or not they will take the pipes on the terms offered, with this proviso, that if *unmanufactured* iron be higher when they declare than it is now, the additional cost of the *raw* material shall be added to the price to be given for the manufactured article. Your committee feel confident that this is a safe arrangement, and recommend that, inasmuch as you will have to lay down pipes in Kingstown, you would declare before prices advance, the tendency of the market at present being upwards.

The original design for the Stillorgan reservoir included two valve houses, one for each of the two basins, and involved considerable annual expense. Owing to the simple and cheap construction which was deemed requisite in order to keep down the estimates, both of these valve-houses were to have been open to the weather, and the machinery would consequently have been exposed to decay and to many chances of injury. Your chairman and engineer recently visited the valve houses of the Edinburgh, Glasgow, Manchester, and other waterworks, and, improving on their details, proposed a plan for a single valve-house connected by pipes with both basins—and having besides a direct communication with the pure water tanks at Roundwood, by means of which the water may at any time be drawn direct from Roundwood and distributed to the city without mingling with the water stored in the Stillorgan basins as a precaution against accident. The whole of this valve-house will be under cover, and all the working machinery will be under lock and key and protected from the weather, while one caretaker will be able to manage all, and at his discretion to send down the supply from either of the two basins of the Prince of Wales reservoir, or from both, or direct from Roundwood, and in any case either through the screens or otherwise, as occasion may require. In this valve-house it is also proposed to make an arrangement by which the Blackrock and Pembroke townships may be supplied direct from any of the reservoirs instead of by a branch from one of our mains, which would be an advantage to the city, and would have the effect of giving to these townships a considerably greater and more effective pressure than they could otherwise obtain. The advantage to these townships of this arrangement would be so great with respect to pressure that it is impossible to believe that they will not avail themselves of it. It is, in any case, the plain duty of the corporation as the originators of the great water-supply movement, which has through its agency now become a fixed idea with all the inhabitants of Dublin and its suburbs, to make provision for giving to these townships the best possible supply and leave it to the discretion of their own local authorities to determine whether a small additional outlay will deter them from obtaining the highest available pressure, in preference to one considerably less effective. The cost of the improved valve-house, including all the valves, pipes, connexions, &c., as above briefly described, will be about £1,184. It is the opinion of your engineer—in which your committee concur—that the annual saving will far exceed the annual interest (about £48) which this outlay will involve. The satisfactory arrangements made with reference to the government loan enables you practically to view this question as one of annual interest rather than as one of capital, and your committee feel that, in this view, the alteration will be productive of economy, not of increased charges. But even were it otherwise, the improvements are so important that your committee would not hesitate to recommend their adoption. It may be right to add, that Mr. Bateman took the same view of this question as was taken by your committee, as did also other eminent engineers, who were incidentally consulted on the matter.

The formation of the embankment of your great storage reservoir at Roundwood had been so far advanced, that they were able, on the 30th of June, to divert the waters of the river from the old channel to the new conduit constructed through the embankment. The ceremony was performed by his Excellency the Lord Lieutenant, on which occasion the Right Hon. the Lord Mayor, a large number of the council and of the leading citizens were present. An address from the committee was presented to his Excellency, which has already appeared in the DUBLIN BUILDER.

This able report concludes with references to the arrangements concerning the Pembroke and Blackrock townships, remuneration of officers, the fire brigade, and financial matters.

#### RAILWAY NEWS.

Several works remain to be done before the Clones extension can be considered to be complete according to the contract, and negotiations were lately entered into with the contractors for the purpose of closing their account, and releasing them

from further responsibility; but as their views and those of the directors, with regard to the serious delay in opening of the line, were so widely different, no settlement could be effected. The directors have therefore felt themselves compelled to serve Messrs. Edwards with notice forthwith to complete the works, and they will take such steps with regard to penalties as they may be advised.

The Banbridge line was opened for passenger traffic on the 13th July, immediately after the sanction of the inspecting officer of the Board of Trade had been given. The terms of the lease were referred to arbitration; but the award of the umpire, Mr. C. W. Eborall, has not yet been made. The line is not ready for goods traffic, and pending its completion, the company are working the passenger trains at a rate per mile.

The Portadown station was opened for traffic on the 1st July. The joint station at Omagh, and the new goods yard at Belfast, were opened for traffic during the half-year. The directors expect that increased accommodation to the public, and safety and facility of working the traffic, will result from the completion of these necessary works.

The necessary works at Cloughjordan and Nenagh, on the Great Southern and Western Railway, the intended stations on the Roscrea and Birdhill line, are in progress of erection, and, together with the line, will be ready for the inspection of the Government officer in a few weeks.

The works of the line to Westport have been suspended, and the commencement of the works of the line to Ballina has been deferred; but the directors of the company trust shortly to complete arrangements which may enable them to resume the Westport works, and to obtain means sufficient to enable them to proceed with their Ballina line.

The railway from Cork to Kinsale has been recently opened for public traffic, necessitating a new station at the junction, where a store will shortly be erected to accommodate the goods traffic of the district.

**MIDLAND COUNTIES AND SHANNON JUNCTION RAILWAY.**—This line of railway, which, when completed, will bring Banagher into immediate communication with Dublin, Belfast, and Galway, is now rapidly approaching towards completion. The eminent contractors, Messrs. French and Cheyne, have a considerable number of tradesmen and labourers employed upon that part of the line between Clara and Ferbane, and it is confidently asserted that the line will be open for traffic to the latter town next December. The bridges are all either built or in course of construction, and the road is nearly ready for the permanent way.

It is in contemplation to effect a rail communication between Dublin and Baltinglass *via* Sallins, a station on the Great Southern and Western Railway. The junction line will be 2½ statute miles in length, passing close to the towns of Naas, Ballymore Eustace, Kilcullen, Dunlavin, Ballitore, and Baltinglass. Messrs. Hemans and Dillon are respectively the engineers.

The *Irish Times* draws attention to the want of accommodation at Booterstown station, and says—“We are surprised that the directors should hesitate to improve the station-house at Booterstown, which is very small and inconvenient. The erection of one large room, which is really all that is required, would cost a mere trifle, and a flourishing company would certainly not lose by expending a little to increase the comfort of a large number of passengers by their line.”

The contracts are now settled for the whole line from Ennis to Athenry, and considerable energy has been already shown by Mr. Munro, the contractor, in securing possession of land and setting men to work between Ennis and Gort.

#### Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same; and that we will not insert or notice any communication, unless accompanied by the author's name confidentially.]

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The formulæ which I mentioned in my letter in your impression of the 15th ult., in describing a new method of making trial sections, are dependent upon the principles of plane triangles. If we suppose the waved line *MN*, in the annexed figure, to represent in section the undulating surface of a piece of ground, *FG* a 14-foot levelling staff placed at *G*, and that with a theodolite stationed at *A* the vertical angles *FAB* and *EAB* be observed, then, if the length *FE* upon the levelling staff be known, the horizontal distance *AB*, and

the height *GB* of the point *G* upon the surface of the ground above the line of sight of the theodolite,



or above any given datum, can both be calculated as follows. Let

Angle *FAB* =  $\theta$ ,  
Angle *EAB* =  $\theta'$ ,  
Horizontal distance *AB* = *D*,  
Height of telescope above ground = *S*;  
also let  
*FE* = 10 feet upon the levelling staff,  
*EG* = 4 feet,  
 $\Delta$  = height of foot of theodolite above datum,  
*H* = required height of the point *G* above datum;

then  $AB = AE \cos \theta'$ .

But

$$AE = EF \frac{\sin AFE}{\sin (\theta - \theta')}$$

Also

$$\begin{aligned} \sin AFE &= \cos \theta \\ \therefore AE &= EF \frac{\cos \theta}{\sin (\theta - \theta')} \\ \therefore AB &= EF \frac{\cos \theta \cos \theta'}{\sin (\theta - \theta')} \end{aligned}$$

or, by substitution,

$$D = 10 \frac{\cos \theta \cos \theta'}{\sin (\theta - \theta')} \quad \dots (1)$$

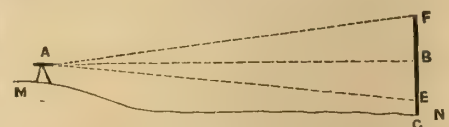
which is the formula already given. Also

$$EB = D \tan \theta'$$

This gives the height of the 4-foot reading of the levelling staff above the horizontal line of sight of the theodolite; and, since the height of the point *G* above this line is = *EB* — 4 feet, and also the height of this line of sight itself above datum is =  $\Delta + S$ , it follows that the height of the point *G* above datum is expressed by the formula

$$H = \Delta + D \tan \theta' - 4 + S \quad \dots (2)$$

If there be a slight fall in the surface of the ground, then  $\theta'$  will become an angle of depression; thus—



then the horizontal distance  $AB = AE \cos \theta'$ . But

$$\begin{aligned} AE &= FE \frac{\cos \theta}{\sin (\theta + \theta')} \\ \therefore AB &= FE \frac{\cos \theta \cos \theta'}{\sin (\theta + \theta')} \end{aligned}$$

or,

$$D = 10 \frac{\cos \theta \cos \theta'}{\sin (\theta + \theta')} \quad \dots (3)$$

and

$$H = \Delta - D \tan \theta' - 4 + S \quad \dots (4)$$

Lastly, if the fall be considerable,  $\theta$  and  $\theta'$  will both be angles of depression; thus—



then

$$AB = AF \cos \theta;$$

but

$$\begin{aligned} AF &= FE \frac{\cos \theta'}{\sin (\theta' - \theta)} \\ \therefore AB &= FE \frac{\cos \theta' \cos \theta}{\sin (\theta' - \theta)} \end{aligned}$$

or,

$$D = 10 \frac{\cos \theta' \cos \theta}{\sin (\theta' - \theta)} \quad \dots (5)$$

and

$$H = \Delta - D \tan \theta - 14 + S; \quad \dots (6)$$

which are the six formulæ, and are easily worked by logarithmic computation.—I remain very obediently yours,

H. PANMURE RIBTON, C.E.

## Publications.

Mr. S. O. Beeton of 248, Strand, London favours us with a monthly parcel containing his "Boys' Own Magazine," price sixpence, a most interesting and instructive journal for youths; "The Boys' Penny Magazine," and "The Englishwoman's Domestic Magazine," which contains some pretty stories, "the fashions," and beautifully colored lithograph patterns for bead and Berlin wool work, besides full-size diagrams for various articles of ladies' attire.

Mr. Delarue has issued twelve Parts of a series of children's drawing-books, entitled 'First Steps in Drawing,'—the plan of which is stated to be that of presenting to the pupil certain easy forms, which he may trace from printed and faint outlines of the same placed on the same page.

## Public and Private Works.

The new church of the Jesuit fathers, on the sea road at Galway, has been dedicated. It was erected from designs by Mr. S. U. Roberts, C.E. (as noticed in a former number of the DUBLIN BUILDER), Messrs. Semple and Nugent being the contractors. It consists of simple nave arrangement, and is in the Gothic style, in the form of a Latin cross, 115 feet extreme length, 36 feet wide, and 70 feet across the transepts, 66 to the ridge, and 110 feet to top of cross on spire. The roof is stained timber, with open Gothic framed principals and hammer beams, resting on ornamental corbels; the rafters and purlins are also stained, and the ceiling between them affords a pleasing relief to the timber work. Light is obtained by large windows in the north and south gables, two triple lancet windows in the transepts, and eight smaller two-light windows at the sides. A sacristy is proposed to be built to the north of the church, with access to the sanctuary.

The foundation-stone of the new church of St. Colman's, at Ahoghill, near Ballymena, was laid recently.

The foundation-stone of a new Convent of Mercy and schools has been laid at Cahir. The school-house will be ninety feet by thirty-five, and when completed will be a fine building. The entire is estimated at £1,065, to be completed under the supervision of Mr. Robert Boles, contractor.

Preparations have been made to place in the Hall of the Four Courts the statue of the late Lord Plunket. The statue has been executed by M<sup>r</sup> Dowell, and represents the illustrious orator in the attitude of addressing an audience. The pedestal bears the simple inscription—"Plunket: erected by the Bar of Ireland."

The new church of St. Joseph, at Newtownmountkennedy, was dedicated recently. It is in the early English Gothic style, having a handsome open roof. The shape is cruciform, with nave and transepts, and at the epistle side of the high altar is a "Lady Chapel." Over the altar there is a noble window, with several compartments. Mr. E. W. O'Reilly is the architect.

The works were commenced on the Parsonstown and Portumna Bridge Railway at Portland on the 27th inst.

A floating dock and graving dock respectively, and of large dimensions, are to be constructed at Belfast, according to plans by the harbour engineer.

The marble statue (heroic size) to General Stonewall Jackson, which is to be executed by our distinguished countryman, Mr. Foley, R.A., is estimated to cost £1,000, while £500 may be required for pedestal, inscription, and other extras. The completed statue is to be offered to Virginia.

The Kingstown Commissioners have got the consent of the Ballast Board to the making of a public bathing-place at Sandycove, and their respective engineers have arranged all details. Two bathing-places are to be made at Sandycove, in front of the battery, one for swimmers in the deep water, by cutting an entrance three feet broad in the rock, erecting a spring-board, making steps and railing, and otherwise making the place suitable for bathing purposes; and for those unable to swim, the strand at the bell rock is to be cleared of stones, &c., ropes, with corks, provided for safety, with any other necessary improvement.

A new Catholic church was consecrated at Castleconnel on Sunday last. It was designed and erected by Mr. Ryan, of Limerick, builder. It is in the Gothic style, and consists of aisle, chancel, and transepts, which are 87 ft. across, and upwards of 100 ft. long by 34 ft. The height to the top of the cross surmounting the belfry is 80 ft. Each gable is surmounted with a handsome stone cross. The windows are enriched with tracery. A memorial window has been fixed over the altar, filled with stained-glass, and adorned with pictures of the Crucifixion and other

subjects. The other windows are edged with coloured borders. In the north and south transepts are two spacious galleries. The roof of varnished pine of an oak colour, with groined and open wood-work.

## General Items.

The *Cork Examiner* announces the death of Mr. Lyster, an eminent local artist.

From the foundation of the British Museum, in 1753, to the 31st March, 1863, the sum of £3,339,177 has been expended upon its maintenance and in purchases for the various collections. The number of visitors to the general collections at the various periods will serve to show the progress of the institution. In 1805 the visitors were 11,939; 1815, 34,409; in 1825, 127,643; in 1835, 289,104; in 1845, 685,214; in 1851 (the first Exhibition year), 2,527,216; in 1862 (the second Exhibition year), 895,077.

The National Shakspeare Committee is rapidly increasing in strength. Mr. Alfred Tennyson has accepted office as a Vice-President, and Sir Richard Kirby, C.B., as one of the treasurers. The organization is extending into the country, the colonies, and foreign lands. Our own metropolis and provincial towns should be stirring in this matter.

The Society of Fine Arts at Liverpool is dissolved, and some of its members have joined a number of gentlemen who will carry on the exhibition, at the Academy's Rooms, in Old Post Office Place, this year, under the title of the Liverpool Institution of Fine Arts.

At the Luxembourg Gallery of Modern Art the works of Horace Vernet and Ary Scheffer are now in process of removal. No living artist's canvas is admissible to the Louvre collection, but death has opened that repository to the *chefs d'œuvres* of these two masters.

A strike occurred lately amongst the labourers engaged on the Stillorgan portion of the Dublin waterworks, which resulted in the contractors increasing the rate of remuneration slightly, and the majority of the men returning to their work.

## Miscellaneous.

TOWN SEWAGE AND AGRICULTURE.—In a letter to the *Daily News*, Baron Liebig says:—"Great Britain is large enough, if we take the arable surface of the land, to produce all the corn and meat necessary for its inhabitants; and it is neither fantastic nor ridiculous to believe that, without purchasing foreign manure, and by a judicious utilisation of the sewage of towns and villages, England would be able to dispense with the importation of food from abroad. For her it would be a blessing if the application of capital to agriculture were found sufficiently profitable to make speculations in this direction, so that the industrial population, manufacturers, and tradesmen might devote themselves to the production of bread and meat. These men are quite of another stamp to present farmers, and care little for tradition or the authority of custom. They know their multiplication table, however, and in competition with such men the farmers would find it impossible to persevere in their old jog-trot ways. The change thus brought about would be as great as after a revolution."

MOUNTAIN RAILWAYS.—A letter from Turin says:—"The most striking news of the day is the complete success of the experiments which were made to surmount the steep of Durino between this city and Asti by a system of traction invented by M. Aguidò, engineer, and a deputy in the Italian parliament. The train ascended the steep by means of curves with great facility. This success will be attended with important results, as the system will allow of the Luckmainer being got over long before the completion of the tunnel of Mont Cenis. The intention also is to apply it on the line from Naples to Chieti, in order to more readily cross the Apennines."

TIMBER.—Imported, per Maastroom, from Miramichi, 19,925 deals; per Gipsy Queen, from Quebec, 291 pieces timber, 17,515 deals; per Harriett, from same, 26 pieces oak, 81 pieces elm, 56 pieces walnut, 56 pieces cherry, 46 pieces ash, 327 pieces red pine, 171 pieces white pine, 2,753 pieces deals, and 7,276 pipe staves.

POMPEII.—A communication from Naples says:—"Five fresh rooms have been laid open in that part of Pompeii which had been uncovered this year, not far from the Forum. I have visited those rooms, and was astonished to find in them a number of pieces of bread, which must have been wrapped up in napkins, the tissue of which is still in a perfect state of preservation. There has also been found a petty seal, having

for motto the words 'Ani Mo,' which M. Fiorelli, the learned inspector of the excavations, tells me was a proper name—"Anicelus Modestus." M. Felix Padiglione, the persevering artist who is re-producing Pompeii, in cork, at 100th of its natural size, has just added considerably to that work, which travellers may see in the small museum of odds and ends which have not been sent to that at Naples. It contains specimens of all the small bronzes, terra cotta, utensils, and other articles of private life, which forms the riches of the Neapolitan galleries. The excavations of Pompeii, carried on with so much zeal and intelligence since the union of Naples to Italy, reflect the highest honor on the Government."

THE COASTGUARD STATION AT DALKEY.—This building we (*Freeman*) understand, will be completed and ready for the accommodation of the men towards the close of the current month. It is built on an eminence close to the ancient village of Dalkey, the front facing Killiney Bay, and the rear having an extended prospect seaward as far as the eye can reach. The building is constructed of the best broken ashler granite which was procured on the ground, and its estimated cost will amount to about £1,700. There are five houses in the pile, containing five apartments each, with the necessary out-offices, &c. There is no watch tower at present attached, but it is in contemplation to erect one similar to the Kingstown Coastguard Station. The ground was purchased from the Rev. Dr. McDonnell, and the building is in course of formation by Mr. Meighan, King's-inns-street, Dublin.

THE BOARD OF ORDNANCE HULK SHIP—THE FRIGATE MERMAID.—This magnificent Hulk, which is well worthy of remark, has been lying in Kingstown Harbour for the last month, and was towed in on Saturday last, without the regular pilotage, into the Pigeon-house Fort Basin, whose channel had been previously sunk to the depth of 12 feet below low water mark, thereby allowing the noble structure to ride securely in 16 feet of water at high tides, or rest securely in her moorings made up of twelve undoubted cables of more than ordinary strength, viz.:—two at the bow on the west; four breast cables, larboard, facing the quay wall on the south side; four from the stern facing the Kingstown east and west piers, and two breasting the north. This vessel was originally built as a four full-decker frigate. She is about 200 feet long, and is now retained by the Board of Ordnance, as a magazine to hold the ammunition for the Dublin metropolitan merchants, coast-guard stations in Ireland, &c., &c. It is only due to the very enterprising Irish contractor, Mr. Daniel Lawton, of Seville-place, to record and appreciate the intricacy and difficulty of his undertaking with the Board of Ordnance; his being the only venturesome tender. Having been well trained under the celebrated A. Nimmo, Esq., C.E., Mr. Lawton acquired a skill in practical engineering which has been by this effort now well nigh tested, and must be henceforth valued. As we have before remarked, no pilot was employed by Mr. Lawton, he acted himself as such on the prow of the Mermaid, under very unfavourable auspices, and we are happy to say that the pilotage was more than successful and the conduct of the mooring, &c., was highly appreciated by the authorities interested and flattering to their indefatigable employee.

[Mr. Lawton is the same gentleman of whose skill in raising the walls of a building at the Royal Barracks without disturbing a slate on the roofs, we had, some time since occasion to speak, and we are requested to state that he never was a sailor by profession, but served his apprenticeship as a carpenter and builder.—ED.]

COLUMBKILLE'S HOUSE, KELLS.—Dr. Petrie gave the following account, some time ago, of Columbkille's House, which is considered the most accurate extant:—"This remarkable building is in its ground plan of a single oblong form, measuring externally twenty-three feet in length, twenty-one in breadth, and the walls are three feet ten inches in thickness. It is roofed with stone, and measures in height, from its base to the vertex of the gable, thirty-eight feet. The lower part of the building is arched semi-circularly with stone, and has at the east end a small semi-circular headed window. The apartment placed between the arched floor and the slanting roof, is six feet in height, and appears to have been originally divided into three compartments, of which the largest is lighted by a small aperture at the east end. In this chamber is a flat stone, six feet long and one foot thick, now called St. Columbkille's Penitential Bed."

NOTICE TO PUBLISHERS AND AUTHORS.—Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

Communications respecting Advertisements, Subscriptions, &c., should be addressed to "The Publisher of the DUBLIN BUILDER, 42, MABBOT-STREET. All others to the Editor, 26, LOWER GARDINER-STREET."

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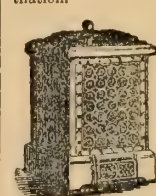
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# The Dublin Builder.

VOL. V.—No. 89.

## THE FINE ARTS AND CIVILIZATION OF ANCIENT IRELAND.\*

**I**N a recent number we briefly reviewed a book under this title, which for its admirable merit, and learned and zealous research, should occupy a position amongst the very first standard works relating to the history of the Celtic art, and which contains so much to interest a reader, that even a frequent return thereto cannot be deemed tedious.

The writer, in his opening chapter, draws a well-defined distinction between Byzantine and Classical art, the former of which he terms "essentially ornamental," and the latter "essentially representative," but maintains, that of the various styles of the former that prevailed during the thousand years that elapsed from the age of Constantine to the period of the Renaissance, "the Irish held the pre-eminence for every quality which rendered works of Art excellent, namely, great originality and fertility of invention, wonderful powers of execution, combined with profound knowledge of the principles of Art, to which may be added a thorough mastery of colour or chromatic effect." He likewise traces the influence of Irish art in the respective departments of sculpture and illuminated manuscripts, abroad "on the Continent of Europe as well as throughout Great Britain and the Isle of Man," and cites the opinions of Giraldus Cambrensis on that miraculous, but not now existent, artistic work, "The Book of Kildare;" of Mr. Westwood on "The Book of Kells," of Mr. Digby Wyatt (the eminent architect and writer) on Irish Art generally, besides others.

Mr. Wyatt, who must be regarded as an eminent authority (and we may remark, *en passant*, whose professional connection has been extended to Ireland recently, having just completed a new commercial structure, with Celtic façade, in Grafton-street—exhibiting a design more peculiar in detail and ornamentation than graceful in outline or effective in light and shade—also being about to commence a nearly new church at Abbeyleix), says in his "Art of Illuminating"—a work from which Mr. O'Neill quotes respecting "Irish Art"—that "it is to Ireland that the rich style of manuscript ornamentation is due;" also that Irish art was original and of marvellous perfection.

Connecting "ancient art" with "ancient civilization," according to text, the author enters into an able colloquial discussion, assuming first a negative position, wherein

"Shadows, clouds, and darkness overcome it;"

and next in the affirmative, showing that according to Ledwich—

"The Irish exercised their genius in acquiring languages, ecclesiastical history, and the liberal arts;"

and this, we are reminded, is of the Irish—not of to-day, but of twelve hundred years ago. In the seventh century it is further asserted that "Ireland was filled with learned men," and in the eighth and succeeding centuries, that "learning flourished there."

Charlemagne invited from all parts, "but especially from Ireland," men of the greatest reputation to promote literature in his extensive dominions; Alfred "sent to Ireland for learned men to instruct the English." In the tenth, eleventh, and twelfth centuries Ireland still preserved her literary reputation. Syer Cuming was of opinion "that the Irish people were civilized in very ancient times—during the times of Paganism; and Lord Neeve said that it was certain that at least from the introduction of Christianity Ireland possessed a high degree of learning and civilization.

These are a few of the many quotations Mr. O'Neill,

\* "The Fine Arts and Civilization of Ancient Ireland." By Henry O'Neill. London: Smith, Elder, and Co. Dublin: George Herbert. (Second Notice.)

in his diligent research, has produced in testimony of the civilized state of ancient Ireland; and he furthermore cites the venerable historian Bede, who "describes Ireland as being a great school of learning so early as the first part of the seventh century;" also D'Alton, who declared "the beautiful island to be once the land of genius and the mart of literature."

But we pass from this to another subject, which forms an important section of this book. For centuries the origin of the round towers, found in various parts of this country, has proved a *questio vexata*, on which a whole host of archaeologists, antiquarians, historians have exhausted themselves, and to little purpose, as the farther, generally speaking, they delved into the theoretical enquiry, the more shrouded in mystery still lay their subject. One of the most notable of antiquarian writers—our distinguished countryman, Dr. Petrie—says, according to Mr. O'Neill, respecting them:—

- 1st. That the Phœnicians erected them for fire temples.
- 2nd. That the Druids used them as places from which to proclaim their festivals.
- 3rd. That they were for astronomical purposes.
- 4th. That they were Phallic emblems (O'Brien's theory).
- 5th. That they were for good people, like Simon Stylites, to shut themselves up in.
- 6th. That they were for bad people to be shut up in, till by doing penance they became good.
- 7th. That they were for belfries.
- 8th. That they were keeps, or monastic castles, for the clergy and their treasures. And lastly—
- 9th. That they were beacons, or watch-towers.

Upon these and other points on which the author takes issue with Dr. Petrie, we desire, or are rather compelled, for the present to postpone discussion, but shall resume the consideration shortly.

## THE NEW PASSIONIST MONASTERY AT HAROLD'S CROSS.

THIS building, which is to be opened early in the present month is thus described by the *Freeman*:—

It is delightfully situated in a spot commanding an extensive and enchanting prospect, and was built from designs by J. J. McCarthy, Esq., the architect following the general plan of the Passionists Retreat in Italy, with modifications in its external and internal details to suit the climate and circumstances of this country, and to facilitate one of the special objects of the order here—that of giving spiritual retreats to the laity. It consists of three sides of a quadrangle, two of which are already complete, and the third will be occupied by the church. The completed sides comprise the monastery and house of retreat. The front or south wing is 205 feet in length, and the west wing is 140 feet long. The front entrance is an arched porch of singular beauty. It is ascended by five steps of chiselled granite, and consists of two light and graceful columns with beautifully-moulded capitals and bases, supporting a pediment whose tympanum encloses in relief the badge of the Passionist Order. The gable of the porch is surmounted by a floriated cross. From the porch the cloister is entered through an inner vestibule, from which spacious reception rooms open on each side. The cloister runs the entire length of the front wing, affording access to the community rooms, as well as to other rooms and offices set apart for the various duties of the religious. The central cloister leads through the west wing to the great refectory, and has on either side lavatories and various offices set apart for the duties of the lay brothers. The floors of the refectory, vestibule, and cloisters are paved with ornamental tiles, specially manufactured, and laid in mosaic patterns, and as they harmonise finely with the groined ceiling, produce a splendid effect. The refectory is a room thirty-two feet square, lighted by four large windows; it is demi-wainscotted in pitch pine, beautifully polished; the seats and tables of polished oak, are ranged along the sides. Behind the refectory are situated the kitchen and the various culinary offices. The upper floors are approached by staircases of chiselled granite, and consists of corridors placed immediately above the cloisters. The corridors of the south wing are occupied by the cells of the religious. On both sides of the west wing corridors are situated the rooms intended for the use of seculars on retreat, including a spacious reception room for the exercitants. On the upper sub-corridor is situated the infirmary. The library is placed at the extremity of the middle west corridor, and the chapel is situated on the upper floor immediately above the library. Although the style of the house and of all its details

is of the severest simplicity, the chapel has been made as beautiful as the slender means at the disposal of the community could afford. It is oblong in plan. In length it is 45 feet; in width, 20 feet. The altar is beautiful and graceful in design, and is surmounted by a baldechino, containing a painting by Laby, representing "The Agony in the Garden." The pediment contains a badge of the congregation in relief. The stalls for the religious are arranged round the remaining sides, and are made of the best pitch pine, richly pannelled and corniced, and in conjunction with the altar and ceiling, produce a graceful and solemn effect. Over the stalls are placed "The Stations of the Cross," a magnificent series of oil paintings. The ceiling springs from a moulded and richly gilt cornice, and is decorated in exquisite taste. The ceiling itself is a beautiful work of art. It is divided into 200 panels by moulded ribs of wood tastefully gilt; the panels are disposed in Mosaic of gold and purple, and contain the symbols of the Passion, interspersed with monograms of the holy name. The entire of the exterior is built of granite, and although of the greatest plainness of character and simplicity of design, as is required by the spirit of the order, yet from its height, massiveness, and boldness of outline, it produces quite a monastic effect. The only ornaments introduced on the exterior are simple crosses, surmounting each gable, and a figure of Blessed Paul, the founder of the congregation, occupying a niche in the gable of the south front, and a figure of St. Patrick occupying a corresponding position in the west front. A campanile, surmounted by a gilt floriated cross, containing bells that ring the signals for the various monastic duties, is raised above the roof of the west wing. The monastery is situated on an elevated platform, which affords ample scope for the development and display of its majestic proportions. When, by the addition of the church, this magnificent structure will be completed, it will form a principal feature in a scene of unrivalled beauty.

## THE MONUMENTS AT WESTMINSTER ABBEY.

IN due time, says the *Athenæum*, many of the monuments here may be removed to places where their offence will be less than it is now; even some of those which have merit, but are out of keeping with the building, must find a home elsewhere, so that people may decide if their excellence be of the best sort. Of these are the monuments to Captain Montagu, in the north aisle, which completely conceals Lord Holland's bust; the group representing Fox reclining in the arms of Liberty, Peace at his feet, and the negro at his side. Lord Haughton himself would scarcely like to continue the intrusion of such productions as the statue of Wilberforce in a church, nor would his calm reflection desire to retain the grouping of seas, ships, sailors, anchors, nude admirals, pancake-like clouds, geni, sepoys, savages, lions, bears, Cupids, Victories, battles, *columnæ rostrate*, coaches, guns, flags, spears, galleys, urns, spades, skulls, skeletons, trumpets, drums, steelyards, and heaven knows what, that now load the finest Gothic church in England. Pitt may find a better place to declaim from than the top of the western door of an edifice which, when it is used, holds an audience that turns its back to him. Poor Pitt! Vice-Admiral Charles Watson may receive the obeisances of the Genius of Calcutta, and exhibit the humiliation of Chander-nagore in chains, elsewhere than in the temple of mercy and of peace, or near the beautiful triforium, destroyed to give it room, of Westminster Abbey. "That amiable spy," Major André, might be commemorated in a better place than that which holds the monuments of Newton and a host of the truly glorious dead of England.

## THE ITALIAN OPERAS.

MR. HARRIS, the lessee of the Theatre Royal, has secured for the play-going public a series of rich musical treats in the forthcoming Italian operas, which will commence on Saturday, the 26th inst. The artists engaged are—Signor Volpini (who sang here with Mlle. Catherine Hayes), Signor Bettini, and Mr. Sims Reeves (tenor), Mr. Santly, and Signor Cassibianca (baritone and basso). Madame Titiens and Mlle. Volpini (soprano), and Madame Trebelli (contralto), with Signor Arditì as conductor. The first opera will be *Lucia*, in which Mr. Sims Reeves will appear as Edgardo, and Madame Titiens as Lucia.

**FALL OF A HOUSE.**—On Thursday last about half-past three o'clock, the floor and back wall of a house now being built at 60 Lower Mount-street, over the entrance to Mr. Sewell's horse repository, fell with a fearful crash. The greatest apprehension was entertained for the fate of the workmen employed on the premises, but no life was lost, although two persons have been seriously injured. It is supposed that the accident of the house falling arose from the recent rains acting on the new work. A large number of men who had been at work at the building escaped uninjured.

# THE INSTITUTION OF CIVIL ENGINEERS, LONDON.

Of the many subjects on which the Council of this body invite communications for the ensuing session, and to which premiums are proposed to be awarded, are the following, viz. :—

1. The decay of materials in tropical climates, and the methods employed for arresting and preventing it.
2. The theory of metal and timber arches.
3. Theory of construction of wrought-iron girder bridges.
4. Landslips.
5. Pressure of earth on tunnels.
6. Artesian well-boring, and sinking large shafts, as on the Continent.
7. Contrivances for facilitating the driving of tunnels, or drifts in rock.
8. The principles in laying out lines of railway through mountainous countries, with examples.
9. The means of preserving Alpine railways from snow.
10. Experience in iron permanent way.
11. Principles to be observed in the designing terminal and other railway stations.
12. Railway ferries.
13. Locomotive engines for steep inclines, especially when in combination with sharp curves.
14. Working of locomotive engines in long tunnels, with frequent stations.
15. Results of the application of Giffard's injector to boilers.
16. Working expenses of railways, and the influence on these of the original design and construction.
17. Observations on the flow of water from the ground, in any large district; with rain-gauge registries.
18. The construction of catch-water reservoirs in mountain districts.
19. Accounts of existing waterworks, and the distribution of the water.
20. The means of improving the water supply of the metropolis.
21. Structural details, and results in use, of apparatus for filtration of large volumes of water.
22. Drainage and sewerage of large towns, exemplified by accounts of the system at present pursued.
23. The employment of steam power and other measures for the improvement of canals as means of conveyance.
24. Iron paving compared with stone-block paving.
25. A history of any fresh-water channel, tidal river, or estuary, including notices of the effects of any works, of the relative value of tidal and fresh water, and of the effect of enclosures from the tidal area, of sluicing, groynes, and parallel training walls; also of dredging, with a description of machinery and cost.
26. Observations of the modifications which the tidal wave undergoes in a river or estuary.
27. Tidal and other dams, and on the use of wrought-iron in their construction.
28. History of any harbour or dock; the reasons for the site, the mode of construction, and the subsidiary works for the shipping, and commercial purposes, with the cost, &c.
29. Graving-docks, and arrangements having a similar object, with the conditions as dependent on rise of tide, depth of water, &c.
30. Floating landing stages.
31. Swing, lifting, and other opening bridges.
32. Lighthouses, their machinery and lighting apparatus.

[It should be noted that the competition for these premiums is not limited to members or students of the Institute, but is open to all.—ED.]

## WASTE OF COAL.

SIR WILLIAM ARMSTRONG, in course of his address at British Association, said :—

I have hitherto spoken of coal only as a source of mechanical power, but it is extensively used for the kindred purposes of relaxing those cohesive forces which resist our efforts to give new forms and conditions to solid substances. In these applications, which are generally of a metallurgical nature, the same wasteful expenditure of fuel is everywhere observable. With regard to smoke, which is at once a waste and a nuisance, having myself taken part with Dr. Richardson and Mr. Longridge in a series of experiments made in this neighbourhood in the years 1857–58 for the purpose of testing the practicability of preventing smoke in the combustion of bituminous coal in steam-engine boilers, I can state with perfect confidence that so far as the raising of steam is concerned, the production of smoke is unnecessary and inexcusable. The experiments to which I refer proved beyond a doubt

that by an easy method of firing, combined with a due admission of air and a proper arrangement of fire-grate, not involving any complexity, the emission of smoke might be perfectly avoided, and that the prevention of smoke increased the economic value of fuel and the evaporative power of the boiler. As a rule, there is more smoke evolved from the fires of steam-engines than from any others, and it is in these fires that it may be most easily prevented. But in the furnaces used for most manufacturing operations, the prevention of smoke is much more difficult, and will probably not be effected until a radical change is made in the system of applying fuel for such operations. Not less wasteful and extravagant is our mode of employing coal for domestic purposes. It is computed that the consumption of coal in dwellinghouses amounts in this country to a ton per head per annum of the entire population; so that upwards of 29,000,000 tons are annually expended in Great Britain alone for domestic use. If any one will consider that 1 lb. of coal applied to a well-constructed steam-engine boiler evaporates 10 lb., or one gallon of water, and if he will compare this effect with the insignificant quantity of water which can be boiled off in steam by 1 lb. of coal consumed in an ordinary kitchen fire, he will be able to appreciate the enormous waste which takes place by the common method of burning coal for culinary purposes. The simplest arrangements to confine the heat and concentrate it upon the operation to be performed, would suffice to obviate this reprehensible waste. So also in warming houses, we consume in our open fires about five times as much coal as will produce the same heating effect when burnt in a close and properly constructed stove. Without sacrificing the luxury of a visible fire, it would be easy, by attending to the principles of radiation and convection, to render available the greater part of the heat which is now so improvidently discharged into the chimney. These are homely considerations—too much so, perhaps, for an assembly like this; but I trust that an abuse involving a useless expenditure, exceeding in amount our income tax, and capable of being rectified by attention to scientific principles, may not be deemed unworthy of the notice of some of those whom I have the honour of addressing.

## MONAGHAN AND CAVAN COUNTIES' LUNATIC ASYLUM.

THE decision in this competition which has been so long anxiously looked for by the nineteen gentlemen who furnished plans, is at length announced to be in favour of Mr. McCurdy, of Harcourt-place, an architect who has won several competitions of late, and distinguished himself in all in which he engaged. We understand that there was an uncommon amount of ability employed on this competition, and that the drawings generally were most attractively "got up," to use a familiar phrase. The result is, therefore, the more gratifying to the successful author, from whom, as soon as circumstances will permit, we shall obtain particulars of his design, and to whom we, in common with many others of his profession, offer our congratulations. The building will cost £30,000, and combine all the most approved modern arrangements.

## GRANGEGORMAN PRISON.

WE learn that the Board of Superintendence have had several meetings with reference to the plans submitted to them in competition for the proposed alterations in this prison, and for the provision of 120 cells on the separate system, increased laundry and chapel accommodation, &c., and that out of the twelve sets sent in three were selected for the premiums of £25, £15 and £10 respectively, and for final decision as to the disposal of the job to either author. One of these sets has been (we believe) set aside, and the competition now rests between two gentlemen very well known to the profession, whose names, however, we must refrain from giving for the present. Whatever may be the result it is pretty generally admitted that the drawings submitted by these two gentlemen are highly creditable to the ability of each.

## THE EFFECTS OF CONGELATION UPON WATER.

DR. ROBINET, a member of the Academy of Medicine, Paris, has published an account of experiments conducted by him to test the effects of congelation upon drinking-water. It is well known that the ice which is formed in the sea yields nothing but fresh water, all the salt having been eliminated by congelation. In the northern parts of Europe this property is turned to account for the extraction of salt from sea water; for a large sheet of the latter having been left to freeze, the ice is afterwards cut away, and the unfrozen water left below is so rich in salt as to require very little evaporation to yield it in a solid state. This property will also serve to

analyze wine. Suppose it was required to determine the quantity of water fraudulently added to a certain wine; by exposing it to the action of artificial refrigeration, all the water would be alone, and the wine left in its purity. By a similar process, ships at sea, being short of water, might be supplied with this necessary article. We will suppose the temperature of sea water under the tropics to be 30 deg. centigrade. If a quantity be exposed in a vessel to the action of a mixture of sulphate of soda and hydrochloric acid, two very cheap commodities, the temperature of the water will fall to 10 deg. below freezing point. Let it then be exposed to a second mixture of the same kind, generally eight parts of sulphate to five of the acid, and the temperature may be lowered to 17 deg. below freezing point. Congealed water is then obtained free from salt, and may be used with impunity. Dr. Robinet has added a new fact to this theory by showing that the water of springs and rivers loses all its salts by congelation. These salts are chiefly those of lime and magnesia. The water subjected to experiment was that of the lakes of the Bois de Boulogne, the ice of which was found to be entirely free from the above-mentioned salts. Such, indeed, is the chemical purity of the water thus obtained, that it may in most instances be substituted for distilled water.—*Building News.*

## FURTHER IMPROVEMENTS AT CLONTARF.

THE reaction movement from "proverbial slowness" to the opposite extreme of "go-a-head progress," that has of late made itself manifest in the beautiful marine outlet of Clontarf and neighbourhood, is a subject for much congratulation. The last of the old ruins of dwellings that lined the main road are now being razed, and a long range of others, pointed out by us in previous articles as eyesores, have given place to handsome commodious dwellings after modern fashion, with red brick fronts, cement cornices, and bold projecting oriel windows, affording the occupants facility for enjoying an uninterrupted view of the expansive sea shore in front, the channel, and the endless hills and mountains in the distant re-re-ground—a view, perhaps, unrivalled in the three kingdoms for its beauty. The houses so built have found ready occupants, some of them, indeed, before being half finished, and will, we trust, amply and permanently recompense their enterprising proprietors, Mr. George Tickell, Mr. Plunkett, Mr. Kenny, &c. Indeed, so much encouraged has the former gentleman been so far by the return for his capital invested in the erection of his new houses adjoining Rutland-terrace, that he has secured another field with a frontage of 325 feet, between the chapel house square and Beechfield (Mr. A. O'Neill's), and has given directions to his architect, Mr. J. J. Lyons, of 26, Lower Gardiner-street, to prepare plans for some twelve houses, of nearly similar character and arrangement to those already erected from his designs, on the plot referred to previously. There are various other works of less importance in progress in the more retired portions of this locality, and it is but right to add that every encouragement to building speculators is now being afforded by the lord of the soil and by his efficient agent. A distinct shore railway to flank the main road along by Clontarf to Dollymount, Raheny strand, Sutton, &c., with a terminus in Lower Gardiner-street, is projected, and should it become *un fait accompli*, there can be no doubt that these neighbourhoods will, in course of a few years, become most populous and important. It is a matter for regret that the Dublin and Drogheda Railway line was not constructed to encircle the coast, as originally proposed, instead of inland, which is neither so convenient nor affords so fine a view of the surrounding scenery. We expect that at no distant period, Clontarf will be constituted into an independent township.

## PUBLICATIONS.

MR. BRETON'S (London) monthly parcel to us, of "The Boys' Own Magazine" (price 6d.), "The Boy's Penny Magazine," and "The Englishwoman's Domestic Magazine," is of more than average interest. The last-named contains the fashions for current moment, and a handsome design for a velvet toilet-cushion in headwork.

COOLATRA AND BOND MINES, CO. MONAGHAN.—On Tuesday last the huge beam or "bob" of the steam engine, now erecting at these silver lead mines, was placed in its situation. Some idea of the difficulty to be overcome may be formed when it is known the weight of the beam is not less than 15 tons, lifted a height of 50 feet. This work, great as it was, is comparatively light to what has been accomplished at these mines where the boiler now in its place weighing not less than 20 tons, the cylinder and castings weigh 9 tons.

## RESTORATION OF TUAM CATHEDRAL.

THE ceremonial of laying the memorial stone of this building took place on the 27th ult. in presence of a vast assemblage. The Cathedral of St. Mary, Tuam, has long been an object of great interest to the ecclesiastical antiquarian, not that it owes its celebrity to the beauty of its general proportions, or to the grandeur of its dimensions, inasmuch as the main body of the present structure is small and unattractive. The tower which surmounts it is insignificant, and the entire building is quite unworthy of the position which it occupies as the Cathedral of the ancient See of Tuam. Apart from these considerations it has been found that sufficient accommodation was not afforded by the present church, and to meet the requirements of the largely-increasing congregation it was deemed prudent to undertake the building of a new cathedral on the old site, in the carrying out of which care has been taken to preserve intact the deeply-interesting architectural remains which the original building itself contains. This will entail an expenditure of upwards of £12,000, of which sum the Ecclesiastical Commissioners have undertaken to contribute £2,000, the remainder to be raised by public subscription. Already considerable progress has been made by the contractors, Messrs. William Crowe and Son. The new building is the old Irish style of architecture, similar to that of St. Patrick's Cathedral. The west front is very handsome, with dressings of limestone, procured from Kilroe, Co. Galway. There is an arcade over the west door, with a large window above, and viewed from the Galway road will have an imposing appearance. There is also an entrance in each transept, north and south, over which is a fine light Gothic window. The tower and spire are carried on four piers at the intersection of the transept and nave. The old Norman arch of the old cathedral is to form the entrance to the chancel of the new church. A novel feature connected with this interesting undertaking is that the interior of the church is lined with sandstone obtained from Nephan, near Castlebar, at considerable expense. A space of about two inches is left between the outer wall and the lining, so that no damp can penetrate, while every part is thoroughly ventilated. The red colour of the sandstone gives the inside of the edifice a warm and comfortable appearance, at the same time presenting a pleasing contrast to the limestone, of which the cathedral is composed. The piers for supporting the towers are very massive, consisting of limestone artistically chiselled. In the north-east pier is a staircase leading up to the organ loft and top of tower. The nave and aisle passages will be floored with Maw's encaustic tiles. The cathedral, including nave and chancel, will be about 140 feet in length; the transept about 80 feet; top of steeple from floor level, 144 feet; spire about 64 feet, and the top of parapet of tower some 92 feet from the ground. At present one of the side aisle walls is nearly levelled to the eaves, so that considerable progress has been made with the carrying out of the designs. To-day the entire was minutely inspected by Professor Donaldson, President of the Institute of British Architects, who expressed himself highly pleased at the manner in which the building is executed. Indeed, the high character of the contractors, Messrs. W. Crowe and Son, of Brunswick-street, is a sufficient guarantee that the undertaking will be carried to a successful issue, more especially as they are ably co-operated with by Mr. Holloway, superintendent of works, a gentleman possessing very considerable talent and experience, and one in whom the building committee repose the most unlimited confidence.

A procession, headed by the Lord Bishop of Tuam, was formed, and proceeded to the exterior of the building, for the purpose of witnessing his lordship performing the ceremony of laying the stone. A commodious platform was erected for the accommodation of the clergy.

A large glass jar, containing a number of silver and copper coin of the realm, and a parchment scroll, having details of the day's ceremony inscribed thereon, was inserted in a space cut in the memorial stone.

The stone in which this parchment is enclosed was laid by Thomas, Baron Plunket, Lord Bishop of Tuam, on the 27th day of August, in the year of our Lord, 1863, and in the twenty-sixth year of the reign of Her Most Gracious Majesty Queen Victoria—George Lord Carlisle being Lord Lieutenant of Ireland—in memory of the restoration of St. Mary's Cathedral, Tuam.

The Rev. Charles H. Seymour, in obedience to his lordship's desire, gave the meeting an account of the new cathedral of St. Mary and its origin, and referred to the able architects who, in a curious way, had been brought into connexion with that building—Sir Thomas Deane and Son—in whom they had gentlemen who had exhibited great taste in carrying out the restoration of the church, in

accordance with the design of the old cathedral; also to their excellent contractor, Mr. William Crowe, who ably stood by him, and to whom he could hardly express too much gratitude for his energy and zeal in carrying out his designs.

The Hon. and Very Rev. the Dean of Tuam next said, that when the cathedral was completed, he hoped it would be regarded by the inhabitants of Tuam with pride and pleasure, and that it might not be an unfit cathedral for the episcopal metropolis of the county Galway. And he felt confident that when it was finished, it would be one of those works which would not in any way fall behind the character of those which had already earned for their architect, Sir Thomas Deane, a national character.

Sir Thomas Deane then addressing his lordship, said he felt deeply the privilege he derived from his position as one of the architects for the restoration of that ancient cathedral. He appeared there on his own behalf, and on the part of his son, who was unavoidably absent on the occasion of the restoration of another of the Irish cathedrals, that of St. Canice, in Kilkenny, and on the part of their contractor, so deservedly lauded by the Rev. Mr. Seymour. He saw around him many members of his profession. He had at his left hand his young brother in the profession, the distinguished architect of the Ecclesiastical Commissioners, Mr. Welland. He was peculiarly gratified—Irish art had been honoured, and his own heart had been gratified, for he was not only a distinguished architect, but a Christian architect. For his own part he felt deeply honoured, and he trusted that they all felt obliged by the presence amongst them of Professor Donaldson, the President of the Institute of British Architects. His own feeling had been gratified at seeing this noble work—he used the word “noble” in its highest sense; for as to the edifice itself it was not for him to call it noble, but Mr. Donaldson represented architecture. It was a time-honoured custom the laying of memorial stones—placing a white stone to mark the spot of blessing. His lordship was about to do the same. He had now the pleasure of handing his lordship a silver trowel, accompanied with the request that he would lay the memorial stone of that cathedral.

At this stage Sir Thomas Deane presented the Lord Bishop of Tuam with a very handsome silver trowel, the blade of which was exquisitely chased, having a perspective view of the cathedral engraved in the centre. The trowel, the handle of which was of carved ivory, bore the following inscription: “Presented to the Right Hon. Lord Plunket, Bishop of Tuam, on laying the memorial stone of St. Mary's Cathedral, Tuam, 27th August, 1863. Sir Thomas Deane & Son, architects; William Crowe, builder.”

The Lord Bishop, accepting the proffered trowel, proceeded to spread a portion of the mortar on the bed on which the memorial stone was intended to rest, after which the stone was raised by a windlass, and lowered into its destined position. His lordship tested it with the plummet, and pronounced it to be well and truly laid. Striking the block three times with a mallet, he said—“In the name of the Father, and of the Son, and of the Holy Ghost, I lay this memorial stone of the Cathedral Church of St. Mary's, which is now being restored. May the blessing of God rest upon this work!”

The choir then sung the 122nd Psalm, after which his lordship pronounced the benediction, when the proceedings were brought to a termination.

## MERRION HALL.

THIS building, which may be regarded in somewhat the same light as the Spurgeon Tabernacle, has been completed and opened. It was built for the special accommodation of the Rev. Denham Smith's congregation, and is a remarkable structure. The following are the particulars of its features and arrangements:—

The principal front faces Lower Merrion-street, and is in the Italian style, three storeys in height, the dimensions from foot-path to top of balustrade being 63 feet. The façade may be said to have three divisions; the centre or principal feature projects from the side-wings containing double staircases leading to the galleries. The lower part of the central projection is a piazza, having large arched openings separated by massive ornamented stone piers. The piazza is 46 feet in length and 9 feet in width, and leads into three internal porches in the body of the hall, affording shelter from the weather. The piers referred to also support an entablature of frieze and ornamented cornice separating the two lower storeys. The upper part of the centre is composed of Corinthian columns and pilasters supporting main entablature and bold projecting pediment. Both the upper and lower entablatures are continued along side wings on their fronts

and flanks, and the angles have handsome moulded and fluted quoins below and pilasters above, corresponding with those in central projection. In the lower storey of the staircase wings are large doors, with stone pilasters and heavy projecting carved hoods, and in the top storey large windows with stone pilasters and pediments, &c., over same. The sides of building facing Harcourt-place and Merrion-square were originally designed to be in character with the front, but have been carried out in a plainer manner, to reduce the expenditure. On the side next Harcourt-place, between the two projecting staircase towers, is a large area, which leads to extensive schools in the basement storey, well lighted and ventilated. The walls of both sides and rear are pierced with four tiers of windows, which light the body of the hall and the galleries and the schools underneath. The materials used in constructing the front and ends are Portland and Caen stone, as well as for the cornices, mouldings, columns, and other dressings, the intermediate spaces being faced with the best white Suffolk bricks, the first, we understand, that have been introduced into this city. The effect obtained with these materials is elegant and striking. The interior of the building is exceedingly imposing. On entering from the street level into the spacious body of the hall, three galleries can be seen, one over the other, continued all round the entire building, and forming the centre part of the hall into an elliptical shape. The great loftiness of the building allows ample space between each of the galleries without in any way interfering with the light from the side windows. The galleries are supported on substantial ornamental cast iron columns, continued up from basement storey into roof, which they also help to support. The fronts of the galleries are formed into enriched cornices, supporting handsome iron ornamental open pattern balustrades. The platform for the choir and the pulpit platform are placed in front of the galleries at rear of the building, standing out well towards the centre, so that the speaker can be well heard and seen from all parts of the building. The choir floor is at a level, half way between the body or ground floor of hall and first gallery, being sufficiently high to allow the space under it to be occupied on crowded occasions. This affords considerable increased accommodation. The platform is supported on light columns, as also the pulpit which is over the lower platform, its floor being on the same level as the front of lower gallery; both platforms have semicircular fronts, and are enclosed with ornamental metal railings. The floor of the body of hall reclines towards the platform, and the seats are arranged in amphitheatre form, so as that all face the preacher. The building throughout is fitted with permanent comfortable pew sittings of stained wood, the passage approaches being wide and convenient. The means of ingress and egress are most perfect in their arrangement, particular attention having been given to this object by the architect. There are in all ten entrance and exit doors, specially arranged for the convenience of the body of the hall and the galleries, so that the building is capable of being cleared in a few minutes. The three galleries are approached by six different staircases placed at the angles of the building; the front side wings each contain two separate double staircases, one in each being for the lower gallery alone, and the others for the two upper galleries. From their positions in the angles of the hall all crowding will be prevented. The ceiling of the hall is one of its beautiful features. It is deeply coved, and springs from handsomely enriched ornamental foliated capitals of the iron columns supporting the galleries, from which points enriched bands or ribs run up on the cove and on the underside of the arches between the columns, forming a groin at their junction with the arch of the ceiling. Over the centre of the hall in the ceiling there is formed a large compartment for ventilation. It is enclosed externally with sashes appearing above the roof; under those are fixed other sashes of ornamental forms, glazed with amber colour stained glass, which always presents the appearance of the sun shining into the building; the effect of which is novel and pleasing. These sashes are covered over with perforated zinc for protection. The ventilation promises to be most perfect from the amount of attention that has been bestowed upon it. The sashes in the sides of the ventilating compartment in the roof open for summer ventilation, as also all the window sashes in the side and rear walls; means being also adopted at each of the windows for admitting air without the sashes being opened. The undersides of the galleries, instead of being ceiled flat in the usual manner, are formed into arched coves between the columns and bearers, giving a light and airy effect to the building. The most complete and beautiful arrangements have been made for lighting, warming, and ventilating the building with gas. Round the entire range of galleries are a series of gas pendants so arranged as to carry away the heat and products of combustion by

means of horizontal rows of pipes traversing the entire length and breadth of the building. These pipes become intensely heated after the gas has been lighted, and consequently radiate a vast amount of heat. They continue up the side angles of the building, and are connected to the funnels of two large sun-lights which are fixed in the centre of the dome. When the sun-burners are lighted, a draught is at once produced through all the tubes, thereby carrying off all the obnoxious vapours arising from the gas-burners. For ventilation this arrangement is most admirable, for it not only conducts away the foul air from the gas pendants, but also the vitiated atmosphere produced by the respiration of those seated in the building. The view from the galleries is exceedingly fine, no gas-jets are to be seen whatever, but a rich halo of light universally diffused throughout the entire space, showing off the architectural beauty of the edifice. The idea of this combined principle of lighting, warming, and ventilating, originated with Henry Bewley, Esq., who instructed the Messrs. Edmundson and Company, of this city, to carry it into practice. Mr. Alfred G. Jones, of No. 3, Molesworth-street, is the architect, and the contractors are the Messrs. Cockburn and Sons, of Great Brunswick-street, who have executed their contract in an incredibly short time, and in a most substantial and satisfactory manner. The iron work has been done by Mr. Strong, of Hammond-lane. The dimensions of the site are about 85 feet in width by 90 feet in depth, and the building itself covers an area of 6,800 superficial feet. The cost is said to be about £10,000, including the fittings, furniture, &c. The building seats about 3,500, and, with standing room, would accommodate 5,000. The two upper galleries are free, as well as some of the pews in the body of the hall, and it is intended to keep 1,500 seats free to the public.

#### UNDERSELLING PROFESSIONALS.

"THE committee for the drainage of the River Suir are anxious to receive plans, specifications, &c., for the formation of the necessary works, and advertise for tenders from civil engineers for furnishing them." This is certainly not complimentary to the profession generally, as we presume that it is a mere question of "charge" with the committee. It would be much preferable for them to employ a competent professional man and pay him his proper fees, than try to evade same by putting the required services up to a sort of auction. Will any "competent" party demean himself by replying?

#### PROGRESS OF BELFAST.

THE stranger who treads the streets of Belfast for the first time, will receive a cheering impression from the bustle and "aspect" of business, the total absence of all suspicion of idleness, such unerring evidences of ample, continual, and general employment, so many proofs of activity, the results of past and anticipations of future success; and, with all this, Belfast is undoubtedly the healthiest manufacturing town in Great Britain. Although densely populated, there is far less wretchedness in its lanes and alleys, and about its suburbs, than in other large towns. One of the best evidences of the progressive prosperity of Belfast, is to be found in the increase of its population and house accommodation. The population has steadily risen from 8,549 in 1757, up to 100,301 in 1851, and 119,242 in 1861, whilst the increase in the number of houses has been in proportion. In 1841 the number of inhabited houses was 10,906; uninhabited, 1,906. In 1851 there were 13,802 inhabited, and 1,131 uninhabited; in 1861 there were 18,375 of the former, and 1,522 of the latter. Thus showing an increase in 1851, as compared with 1841, of 2,896, or 26.55 per cent.; and in 1861, as compared with 1851, of 4,573, or 33.13 per cent. Since 1861 the increase has been positively marvellous. Entire streets have sprung up as if by magic, and at this moment the building carried on as well within the town proper, as along the Antrim Road, Crumlin Road, Shankhill Road, Malone Road, Falls Road, Botanic Road, and the suburban districts, may be taken to represent nearly 400 houses. Of these, the large majority consists of a class suitable for persons of moderate means and for artisans; and a remarkable circumstance in connexion with them is, that they are scarcely completed before they become inhabited. There can be no doubt that the extension of this class of houses is a healthy indication of increasing means and independent spirit on the part of a large proportion of our population. It may be added that, with the exception of Dublin, Belfast possesses the largest number of houses of a high valuation of any town in Ireland; and that of the lowest class of tenements it has a smaller number than Dublin, Cork, Limerick, Galway,

Drogheda, Kilkenny, or Waterford, all of which, except Dublin, have a lesser population.—This, of itself, speaks well for the thriftiness of the working people of Belfast. The progressive prosperity of Belfast is further evidenced by the increase in the amount of Customs and Excise duties, in the tonnage registered as belonging to the port, and in the returns of British and foreign commerce. The working classes show their prosperous condition by the marked increase in the Savings' Bank deposits, and the decrease—as compared with increased population—of loans by pawnbrokers. In every direction, indeed, we have tangible evidences of progress based on sure and sound foundations—in the mills and factories, with their half-million of spindles, employing some 40,000 hands; in the warehouses which spring up around us in every direction; in the iron foundries, printworks, flour mills, chemical works, oil mills, saw mills, felt manufactories, and other works absorbing a large amount of labour.—In a word, the town is a hive of industry, the inhabitants of which are busily occupied in gathering that honey which leads to independence. It was considered a marvel, when, not very many years ago, the Dumfriesshire, a vessel of some 473 tons, was built and safely launched here. Later events have cast this marvel into the shade, and now a launch of even the largest-sized vessel is looked upon in the light of a mere ordinary occurrence. Such, we venture to say, will be the launch, to take place in a few days, of one of the magnificent vessels which Messrs. Harland have now upon the stocks, and the presence of which is sufficient proof of the capabilities of the port for shipbuilding purposes. In speaking of the progress of the town we may properly allude to the increase of railway accommodation. Belfast is now connected directly with every part of Ireland. By a trifling change of carriage, at long intervals, a traveller can proceed to Sligo, Galway, Limerick, Cork, or Waterford, by unbroken railway communication, and, of course, articles of commerce can be forwarded in the same desirable manner. Whilst on this subject we cannot avoid noticing with pleasure the near completion of the bridge over the Ulster Railway at Durlam-street, a structure which was so much needed to rescue pedestrians and vehicles from the imminent peril of passing over the railway by a level crossing. The new bridge is stoutly constructed of iron girders, but is too narrow and has too great an incline to permit much heavy traffic to be carried over it. If the proposed junction of all the railway termini at a central station be carried out—as it must ultimately—we trust that effective measures will be taken to properly accommodate the public traffic in the districts which it will affect.—*Belfast Morning News.*

#### DERRY PRESBYTERIAN CHURCH COMPETITION.

WE are much pleased at being in a position to announce that the committee entrusted with the erection of a new Presbyterian church in Derry, and who some time since sought for plans in competition, have awarded the first premium of £20 to Mr. William Hague, jun., of Great Brunswick-street, architect, and son of Mr. William Hague of Cavan, an old-established and highly-respected builder, who has executed most of the principal works in his neighbourhood. Mr. Hague's plans were distinguished by the motto of "Westminster." We believe that the second premium was awarded to Mr. Adams, of Mr. McCurdy's office, Harcourt-place.

#### OUR HARBOURS AND PORTS.

BY way of continuing the consideration of "Engineering in Ireland," generally referred to under that heading in a recent issue, we propose to review in this a few circumstances connected with some of our principal harbours and ports. Commencing first with Dublin, which has the manifest disadvantage of being a tidal port, and is literally non-navigable except to petty craft at certain stages of the tide, it appears that in the year 1711 a new straight channel was made from the city to Ringsend, and at nearly same time the formation of the south quay wall was proceeded with, the north not being commenced for eighteen years afterwards. It had been proposed originally to construct a low wharf from Irishtown to the South Bull, and make a dam from Ringsend to the high land on the north side, but this was not effected. In 1748 the present double stone wall, at the extremity of which the Pigeon-house now stands, was constructed to the extent of 2,646 yards or thereabouts, and nearly completed to the lighthouse—which is a most remarkable structure of its class—in about thirteen years afterwards.

Between this period and 1801 various surveys and soundings of the harbour were made, and by a

report of Captain Bligh in the latter year it appeared that "the bar was two miles in length and half a mile in width connected by a broad base with the North Bull, and tapering towards the south, where its nearest part was about 600 yards distant from the lighthouse." The building of the south wall is said to have cost £200,000, and did not yield proportionate advantages, so after consultation with eminent professionals, it was determined to project a pier from the Clontarf shore to within half a mile of the lighthouse, with the view of deepening the channel. A second wall from the North Lotts was likewise suggested for increased depth, but on the whole question having been referred to Mr. Rennie, that eminent engineer reported that "the improvement of Dublin harbour was one of the most difficult subjects which had perhaps ever come under the consideration of the civil engineer," observing that "from the limited extent of deepening the water on the bar produced by the extensive works already executed, he had not any very sanguine hopes of much good being accomplished." He, however, recommended first, that a pier be built from near the spit buoy off Clontarf shore half mile east of sheds, leaving an opening of 550 yards between its head and south pier; secondly, to embank South Bull so as to enclose 1,300 English acres and make large opening in the south wall; thirdly, to make low jetties on the flat shore from the channel towards the Clontarf shore. In 1819 the north pier was determined on, and its formation commenced by throwing huge granite blocks into the sea, and in 1822 was built its full height to an extent of 1,500 feet, but it was subsequently determined, on the recommendation of Mr. Halpin, to extend it 500 feet, but only to a height of 7 feet above high water of spring tides.

The various difficulties attendant on the conversion of Dublin into a suitable harbour led to the abandonment of all intentions to incur further expenditure in that direction, and to the selection of Dunleary as a more desirable position. We find that so far back as 1755 a petition had been presented to parliament for a grant of £20,100 to erect a pier at this place, and grants for sums of £5,000 and £3,000 respectively were obtained, the work being completed in 1767 for a total expenditure of £18,500. This it must be understood refers to the old harbour which is formed by a single segment shaped pier 33 feet wide at top, and extending 423 feet in a north-westerly direction. In 1809 the then Lord Lieutenant, Duke of Richmond, secured, by his influence with the government, an act for the construction of a new harbour close by, and the present eastern pier of Kingstown, 4,000 feet in length,—the foundation stone of which was laid in May, 1817, by his excellency's successor, Earl Whitworth,—was completed at a cost of £505,000. A corresponding western pier, 4,900 feet long, was afterwards built, leaving an entrance of 770 feet in width, which is 70 feet greater than recommended by Sir William Cubitt, who also proposed a detached breakwater, but his suggestion was not adopted. In 1842 an inner pier was built in the south western angle of Kingstown harbour, at an expense of £30,000, and again in 1855 the new packet pier, which has direct communication with Dublin by rail, was finished at an expense of £60,000, under the directions of the late Mr. B. D. Gibbons, C.E. The entire cost of the new harbour as it stands exceeded one million sterling.

#### CHURCH RESTORATIONS.

SIR H. Dryden, at late meeting of the Leicester Architectural and Archaeological Society, remarked on this subject—He had brought there for their inspection a few drawings relating to church architecture which he thought might be interesting. All antiquarians were interested in church architecture. Had the thought ever occurred to any of them as they passed through the country, "What would these old churches say if they could speak?" He thought that they would say, "We have faced and will face our enemies, but may the Lord deliver us from our friends." Yes, if they could, methinks they would with their grey hairs hang down their hoary heads and soliloquize, "We once had some good friends who built us and ornamented us; but then there came some fellows who pretended to be our good friends who damaged us. Those fellows reckoned that they had much sympathy for us, and felt kindly disposed towards us; but they were our great enemies, for instead of damaging us they had better have knocked us down altogether, and built us up again so that we could have braved, as we have done before, the wind and weather." As Shakspeare he believed said—

Blow, blow, thou winter's wind,  
Thou art not so unkind  
As winter's gratitude.

It was very evident from a look at these churches that people had not been very careful with adornments. Some figures had their nozes, and others their fingers

knocked off, and a disposition had been shown akin to that of boys now-a-days of pelting at and breaking the window glass. Indeed, so great had been the damage in this respect to these edifices of late years, and so much had they been patched, and what was termed restored (which was no restoration at all, because they destroyed all the old features which they meant to preserve), that he was not surprised at a friend of his saying, "I wonder that the earth does not open and swallow all the antiquarian societies and architects in England." The Church in general was in a soporific state twenty years ago, and it was very easy to see that there must even be a certain amount of damage done in order to get them properly attended to. He contended that nobody had any right to destroy the churches, any more than a gentleman had a right to melt down his family plate. What they called restoring, when they came to deal with a church, he called unredeemable destruction. If they would give 20 millions of pounds they could not put in the east end of a church as it originally stood, after doing what they called the restoring. That part was lost; lost for ever; a part of the history of that church was gone, and could not be recovered. Restoration was to put a thing in the state it once was; but he thought that he should have all the antiquarians and all the historians in England on his side, when he said that, viewing the matter in the sense of preserving the history of the past, they had no right to restore those churches.

#### A MEMORIAL CLOCK-TOWER FOR DUBLIN.

ONE of the most beautiful architectural objects in the English metropolis, is the graceful clock-tower that flanks the Westminster Palace, and serves the double purpose of ornament and utility. Owing to its great height, a view of the dials is commanded from various districts around—for instance, from Charing Cross, down Parliament-street; from each length of the Thames, to London-bridge eastward, nearly to Kew westward; from Lambeth, Kensington, Camberwell, &c., southward; and even from the heights of Holloway and Highgate northward, by the aid of a glass. At night the dials are illuminated, and their bright glare contrasts effectively with the darkness around, seeming almost, when viewed from a distance, like so many moons in the ethereal firmament. We never can hope to see so costly or so gigantic an erection in Dublin; but we suggest, that as there is a central, conspicuous, and reliable public clock badly wanting here, it would be a wise appropriation of the funds (say £6,000) at the disposal of the Albert Memorial Committee, to erect an "Albert Clock-tower," after the model of the Westminster clock-tower. For such a structure, there are a couple of sites available, either at the junction of O'lier-street and Westmoreland-street, next Carlisle-bridge, or where the hideous caricature of our national bard now stands.

#### PUBLIC MONUMENTS.\*

In public monuments, raised to commemorate any great event or personage, the French are particularly happy. The column of July, Place de la Bastille, is the most remarkable of the public monuments in Paris. I am not at all disposed to advocate the use of a column to such a purpose, especially in the present instance, where, elevated in the midst of a vast space, it looks very small and insignificant. But the idea of a column was not left to the architect's choice—it was imposed upon him. The interior construction of the greater part of the column was carried out by Alavoine, who died before he could carry out his own design, and M. Duc was appointed in his place to carry out the execution of another design which he himself furnished. M. Alavoine's design consisted of a simple Doric column without other decoration than the ovuli underneath the abacus. To misuse so beautiful a material as bronze in such a way, would have been a grievous misfortune. M. Duc designed a column which, for originality of treatment, elegance of detail, purpose and beauty in execution, has never been surpassed, and it will always be looked upon as one of the models of perfection for future generations. Cesar Daly says "that the capital and base might rank with the productions of the age of Pericles."

The Fontaine St. Michel, though possessing great beauty of detail, is a complete failure in general aspect. The arrangement and chief features are copied from a fountain at Rome; but the proportions are so much altered for the worse, and the broken pediment on the

top is so hideous, that it must for ever be a monument to shun, rather than to search for study.

The tombs and monuments of cemeteries may be divided into three classes. The first are the stones set up on an end, which we generally find in English cemeteries; the second, are monuments of a larger description, such as obelisks, towers, temples &c.; and the third, small chapels. These last are almost entirely unknown in England. They are about 6 or 7 ft. by 4 ft., with an interior chamber about 5 ft. by 3 ft. They somewhat resemble sentry boxes, and contain an altar with a cross on it, and a chair to kneel down upon. They are painted inside, and sculptured outside in a greater or less degree. They are also closed by an iron door with holes perforated in it, and accommodate only one person at a time. On most of the monuments in these cemeteries very great study and decoration is lavished. There are, in fact, some architects who having private property of their own, only make use of their professional acquirements and knowledge in the carrying out of the design of one or more of these tombs, either for their friends or for some great personage. A tomb is regarded by the French architects as the highest possible ideal of the art. There is nothing to restrain you in their design. They are not cramped by utility or construction, and the greatest amount of symbolism and ideal beauty only is required to show respect for the dead, or to commemorate their deeds and virtues. I may instance the tomb of Rachel, the tragic actress, in the Jewish Cemetery of Père La Chaise, as one of the most beautiful productions of the French school.

#### KILKENNY AGRICULTURAL SHOW.

THIS event, for which great preparations were made, came off on Wednesday, 27th ult., and two succeeding days, his Excellency the Lord Lieutenant being a visitor, and attending a grand banquet given by the Royal Agricultural Society. On the whole it was most successful, the implement stands especially being well filled, and amongst the exhibitors were the following well known firms:—R. Garrett and Sons, Leiston Works, Suffolk; Kennan and Sons, lathe and toolmanufactory, Dublin; Morton and Co., Liverpool; Perry and Son, Bilston Works, Glasgow; McKenzie and Co., Cork; Bentail, Heybridge; Maldon, Essex; and Hollwey, Kilkenny. The machines comprise steam threshing machines, horse power threshing machines, drill-cutters, horse-hoes, artificial railing (iron), gates, &c. Barrett, Exall, and Andrews, Katesgrove Iron Works, Reading; R. J. Reeves, Bratton Iron Works, Westbury, Wilts; James Coultas, jun., Spittlegate, Grantham; T. W. Ashby and Co., Stamford.

#### TIMBER TRADE.

WE subjoin a note of goods disposed of at Messrs. William Kelly and Co.'s public sale on Thursday week. There was a good attendance and fair demand:—

10,408 pieces Miramichi and St. John's spruce deals, plank, and battens and scantlings, at £12 15s. to £14 5s. per 120 of 12 feet 9 x 3, averaging about £14.

480 pieces Quebec spruce, first quality, £17 15s. per ditto.

2,082 pieces Miramichi and Quebec pine deals, plank, and battens, £15 10s. to £28 per ditto.

2,348 pieces red deals and plank, at £20 5s. to £23 per ditto.

748 pieces Swedish and Norway white deals, at £19 to £25 per ditto.

6,933 feet walnut, 2½ d. to 5 d.; only a few lots of square timber were offered, the prices being for red pine 67s. 6d.; white board pine, 80s.

Imported per Mary Ann, from Quebec, 250 pieces of red pine, 436 pieces white pine, 4,755 deals, 4,737 staves, 2,630 pieces staves, 4 cords lathwood; per Nereld, from St. John's, 14,929 deals, 2,348 boards, 2,217 deal ends; per Alliance, from Pugwash, 7,720 deals.

#### GALWAY.

A BUILDING for a dispensary and lying-in hospital is proposed to be erected at Galway by the Poor Law Commissioners, according to designs by their architect. The following tenders for the work were received on Friday last:—

J. O'Brien, Loughrea .. ..	£1,460
Hony Stone, Eyrecourt .. ..	1,260
Austin Semple, Galway .. ..	1,145
Matthew Glynn, Galway .. ..	1,098
John J. Brady, Galway .. ..	1,058

Mr. Brady's tender was accepted by the board of guardians, and the work is to commence immediately, under the superintendence of Mr. S. U. Roberts, architect.

At the harbour one of the moorings is completed, and the other, if the weather continues calm, will be finished in the course of the week. Each set consists of two of Mitchell's patent screws, 40 fathoms 2½ inches tested stud chain cable legs, or ground chain, and 15 fathoms of 2½ inches bridle chain connected by a swivel shackle, and marked by a large wrought-iron barrel buoy. The screws are placed inside Mutton Island in 5 fathoms water at low water ordinary spring tides, and sunk to a depth of 16 feet in excellent holding ground. The

moorings are being sunk by Mr. M'Shane, the patentee's foreman, under the direction of Mr. S. U. Roberts, engineer to the harbour.

Respecting the graving dock the local *Vindicator* says—"We are in a position to state that not only will the arrangements for the construction of the graving-dock be as speedily as possible completed, but that there is every reason to believe the other improvements will go on concurrently with it. A correspondence has taken place between the Graving-dock Committee and the directors of the Atlantic Company, and the directors will take shares to the amount of £10,000 or £15,000, provided the government can be influenced to lend the money for the construction of the pier and breakwater. The committee have forwarded the memorial to the Secretary of the Treasury for presentation to the Exchequer Loan Commissioners more than a week ago. A favourable reply, we have reason to believe, will be given. Now that the Atlantic Company's vessels are plying between Galway and America, and that a graving-dock is to be constructed by a private company, the government could not consistently refuse a loan on the security of the harbour dues, which will be more than an ample guarantee for the amount. Indeed, considering that those improvements in our port will constitute Galway bay a harbour of refuge, the government that would refuse the loan could not be said to have any desire for the progress or prosperity of this country. We are glad, however, to state that there is every prospect of the loan being speedily granted. In our last article on this subject we omitted stating that Mr. Benjamin Lee Guinness, who is one of our county proprietors, has consented to become a shareholder to the amount of £300. We have heard that the noble Earl of Clancarty purposes also to take shares largely. The appeal will be made to the county noblemen and gentlemen at once, and we have no doubt it will be successful."

#### INFLUENCE OF RAILWAY VIADUCTS ON PUBLIC HEALTH.

THE projects in contemplation for intersecting populous town districts by lines of railway viaduct, have an important bearing upon the public health, which ought not to be overlooked when discussing the questions of public convenience and commercial profit. It deserves to be borne in mind that the advantages of public convenience and commercial profit will be felt by a portion only of the community, and that they will be achieved at the sacrifice of the immediate, perhaps lasting, comfort of another portion. The demand to build up numerous walls, converging from various directions through the metropolis, in order to extend the railways towards the centre, is not one to be lightly yielded to the specious arguments of projectors. We are not without experience as to the effect of railway viaducts upon the property and the comfort and health of the inhabitants of districts traversed by these hideous structures that disfigure the earth, intercept the light of heaven, and offend every sense of propriety. A railway viaduct is essentially a continuous wall, obstructing the free passage of air and light. It places the inhabitants near it in a position resembling that of people shut up in a fortified town. The diminution of light is sure to entail a diminution of cleanliness. Many houses are passed on the level of, or above, their first floors, to the serious obstruction of light and air; whilst the basements are so wretchedly gloomy as to be in many cases literally little better than caverns. The new lines projected to run through various parts of London will certainly inflict similar evils. In the first place many hundreds of houses will have to be displaced for the construction of the viaducts. This will involve the displacement of many thousands of poor people, who must find dwellings elsewhere. They will, no doubt, be compressed or squeezed in amongst the already overcrowded population. Two people will have to live, or rather slowly etiolate, where there is now scanty accommodation for one. In the second place, the dwellings of many more people that will be left standing in the immediate vicinity of the viaducts will be deteriorated as regards the essential elements of light and air. Judging from actual experience of London viaducts, is is no exaggeration to say that every house destined to stand within the shadow of the projected viaducts will be condemned to an artificial climate, where the day will be shortened an hour or more by cutting off all the horizontal rays of dawn and sunset which bring most cheerfulness and health to the inhabitants of the humbler tenements of towns. Already the air of London, thickened by mists and smoke, is often impenetrable to the rays of the sun, which a few miles beyond are ministering life and health, and gladdening the hearts of men. To add a purely artificial and unnecessary barrier, that will throw large tracts of the town into deeper Cimmerian darkness, is a sin

\* From a paper on "The Architecture of Napoleon III." by M. Phene Spiers.

against society that not even accelerated trains and that *summum bonum* of railway shareholders, five per cent. dividends, can atone for. It may be urged by our iron kings that this undoubted sacrifice of the health of the poor and helpless classes, who cannot select their places of residence, is justified on the ground of the general convenience. But the question at least deserves consideration from those who believe there are other things worth caring for besides money. Is it right that those who are compelled to live in London should be called upon to lie down quietly in the mud in order that other people may trample them under foot in their way from pleasant country abodes into the city? It is a curious illustration of the confusion that characterises the measures brought before parliament, and of the unhappy conflict between private bills brought by interested schemers and public bills introduced by Government, that there is actually a measure before the House of Commons having for its object to secure public gardens and places of recreation for town populations. The necessity for a provision has been long urged, and is now deeply felt by all who have the interest of the people at heart. Yet, in the very teeth of this feeling, and in opposition to what may be taken as a recognized principle of public policy, we see a host of projectors coveting the few open spaces and squares that we actually possess for the purpose of converting them into public nuisances.

#### RAILWAY NEWS.

**BELFAST AND COUNTY DOWN RAILWAY.**—The following is from the reports submitted to the half-yearly general meeting of proprietors of this company, on the 31st ult.:—The last report referred to the backward state of the works at Portpatrick Harbour, and the necessity that existed for calling the attention of the proper authorities thereto. Since that period various communications have been had with the Board of Trade and the progress of the works has been somewhat accelerated, yet not at all to the extent that it might have been. The basin or new dock is now completely finished; the excavation and other operations requisite for the deepening of the channel in front of it are still in progress. Some difference of opinion exists as to the period of the completion of the work, arising from the uncertain nature of the material to be removed, but the most positive assurances of its being energetically pressed forward have been given. A meeting of the shareholders of this company will be called at an early date to sanction the working of the line from Holywood to Bangor, in pursuance of a notice which has been served by the Belfast, Holywood, and Bangor Railway Company for that purpose.

Sanction was given at an extraordinary meeting of the Limerick and Waterford Railway Company, held 23rd of June last, to a bill enabling them to give a moderate subscription to the railway from Ennis to Athenry. The bill has since been passed, and the works have already commenced; this line, which will be worked by the company, will open a wide extent of country, and, when completed to Athenry, will connect Waterford directly with Galway, while a large portion of the produce of the West of Ireland will find, over the Waterford and Limerick line, the cheapest and most eligible route to London, and the south of England and Wales.

The works of the new terminus adjoining the bridge at Waterford are now considerably advanced, and it will be open early next year, affording a great amount of convenience to passengers, and superseding the present narrow and ill-constructed road to the cattle and goods traffic of the line, for which, with the ordinary intercourse of a high-road it is barely sufficient.

A contract for completing the railway from Bandon to Skibbereen, a distance of 33 miles, has been entered into with Messrs. Wheatly, Kirk, and Co., of Manchester, by which the contractors are bound to complete the works within two years and so provide all necessary materials and land. The board desire to express their complete satisfaction at the vigorous manner in which the contractors have proceeded with their operations. Although they only commenced work in June last, they have so progressed that about twelve miles in length of land have already been agreed for by arrangements satisfactory to all parties, the greater portion of this land being now in the possession of the company, a length of about seven miles of the railway has been already made, a considerable portion of this length has been ballasted and is ready to receive the permanent way. The land plans and schedule of valuation have been duly deposited with the Board of Works and other offices, in accordance with the terms of the act of parliament, and the government arbitrator has been appointed to determine the value of the remainder of the lands required, which will be obtained with the least possible delay. The delivery of the permanent

way materials has already commenced, and the arrival of several cargoes of sleepers is immediately expected in Cork. Every exertion shall be used to secure opening of the line to Dunmanway during the ensuing summer. The works upon the remaining sections of the line to Skibbereen are being actively proceeded with, a considerable length of the railway at that end having been already formed. The Cork and Bandon Railway Company are empowered, under the West Cork Railway Act, to raise and subscribe £20,000 towards the West Cork undertaking, which they have by resolutions of their company formally agreed to do by subscribing £10,000 when the first section of the line to Ballaneen, ten miles, is finished, and the remaining £10,000 on completion of the line to Dunmanway, a further length of eight miles.

The works of the Newry and Armagh line are progressing in the most satisfactory manner, and the opening of the line is confidently expected on or about the 1st of January, 1864. The bill authorising a line from Newry to Greenore, starting from the Albert Basin branch, has received the royal assent. The engineer (Mr. Hemans) reports as follows:—During the last half year very active progress has been made with the works between Gorah Wood and Armagh. The heavy embankment at Gorah is two-thirds completed, and between Gorah and the Lissummon Tunnel the line is nearly finished, the permanent way laid and ballasted. Of Lissummon Tunnel 1,266 yards, out of 1,748 yards, have been completed, and the excavations and headings are driven to a further extent of 443 yards, leaving only 39 yards of heading to complete the piercing of the hill. It is a matter of regret that all hopes of being able to dispense with arching this tunnel were dissipated as soon as the rock was fairly opened, it having showed a tendency to loose fracture; making it quite unsafe to trust to its being self-supporting. The arching has, accordingly, been carried on simultaneously with the excavations, and is done in the stone of the tunnel itself. At the north end of the tunnel, the excavations and embankments are heavy as far as the entrance of Loughgilly tunnel, and they are very far advanced. Loughgilly tunnel has been for some time completed. From Loughgilly to Markethill the works are in a very forward state—the permanent way being almost all laid, and partially ballasted. The masonry between Gorah and Markethill with the exception of some occupation bridges, is completed, and very well executed. Between Markethill and Armagh the earthwork is finished with the exception of two heavy cuttings near Armagh, which will occupy three or four months more. The masonry, with the exception of one bridge, is completed. Three and a-half miles of permanent way are laid on this portion of the work. The stations are in progress of erection, and everything appears to warrant the expectation of being able to open the line at the beginning of next year. The success of the Newry and Greenore Bill is a most encouraging feature in the future prospects of your line.

The Midland Great Western Railway Company directors have decided upon recommending to their proprietors at the forthcoming meeting on the 17th proximo, a dividend at the rate of four pounds ten shillings per cent. per annum, free of income tax, for the half year ending 30th June, 1863.

The *Cork Reporter* announces that on Wednesday last the cutting of the first sod for the Cork and Macroom line of railway was accomplished, and says that "The line is one the necessity for which has been for years acknowledged, and long before a bill for its construction was applied for we urged the importance of opening up the extensive district of our county, of which Macroom is the leading town, by means of such an undertaking. While the line alluded to promises to confer large benefits on one great district, another railway has been, not only commenced, but advanced very considerably, although in so quiet and noiseless a manner as to have attracted little even local attention—we allude to the West Cork Extension. This most important artery of traffic, which is to connect Cork with Enniskean, Ballineen, Dunmanway and Skibbereen, by continuing the present Cork and Bandon Railway to the last named thriving and important town, with stations at the smaller towns named, will open up the extreme west of the country, approaching, at Drimoleague, within a few miles of the town of Bantry and its magnificent bay, with which a branch line, of course, will eventually connect it. It is, therefore, most gratifying to find the steady progress made in its construction, since it was begun, about three months ago, by Mr. John Moore. Seven miles of the permanent way are now constructed and ballasted, ready, in fact, for laying the sleepers and rails; and had not some difficulties arisen in getting up land, we believe that more than twice that extent would be now in an equally forward state. The heavy rock cutting at Gaggen is far advanced, and the like progress has been made with the embankment some forty feet high at that point. This is much the most difficult piece on this section of the line till arriving at Enniskean. About a mile and a quarter of the line is completed for laying rails at Enniskean—

the greater part of it a deep side cutting parallel to the coach road, westward of the road from Enniskean-bridge to the town; on the other side is an embankment very high at one point, where it crosses a culvert which will be finished in a few days. A lofty bridge crosses the road in question, the masonry of which is nearly finished. Altogether this difficult portion of the work is far advanced; indeed there is little of what could be called heavy work to execute in the eleven miles between Enniskean and Bandon, except about a mile, to connect the present Bandon terminus with the first portion of what has been newly made. In addition to the works we have described, about four miles of the line immediately entering Skibbereen are completed as to earthwork and masonry, and ready for the rails. It will thus be seen that, almost unobserved, an important portion of this important line has been already constructed.

**BANBRIDGE EXTENSION RAILWAY.**—The first sod of the Extension Railway from Banbridge to Castlewellsan was turned by the Marquis of Downshire, on Saturday, 22nd ult., at Banbridge. The original project of the promoters of this line was to construct a railway from Banbridge to Castlewellsan, traversing the valley of the Bann, by Corbet, Katesbridge, and Ballyrone, and passing within a short distance of Rathfriland, to Castlewellsan. It was also in contemplation to connect Dundrum and Newcastle with the line, by running tramways from Castlewellsan, and Rathfriland, by a tramway from Ballyrone bridge, which is within five miles of Castlewellsan, and eight miles of Newcastle. As proposed, the line would have been about 17½ miles in length, and the tramways an additional 10½, the cost of the entire undertaking being estimated at £138,000. The bill, however, when brought before Parliament met with determined opposition from the Downpatrick and Newry Company, and a compromise was entered into, by which material alterations were imposed upon the promoters. The Downpatrick and Newry Company proposed connecting Newry and Downpatrick by a line of railway running close to Rathfriland and Castlewellsan, and Newcastle, joining the Dublin and Belfast Junction Railway at Gorah Wood, and it was also proposed to connect Dundrum and Newcastle with the line by tramways. This project is a long time before the public, but the required capital not having been subscribed, lies in abeyance. The powers of the company as revised are these:—1st. To make a railway from the Banbridge, Lisburn, and Belfast Railway at Banbridge to a point distant about one furlong and eight chains from Ballyrone Bridge. 2nd. To make a branch railway from that point to Rathfriland. 3rd. To make a short siding at Banbridge for the purpose of connecting their line with the Banbridge and Scarva Junction Railway. The total length of their line, as now authorized, is about fifteen miles. In case the Downpatrick and Newry Company fail to make their line, there is an understanding that the Banbridge Extension Company will seek for additional powers to complete their scheme as originally proposed.

#### Public and Private Works.

Extensive works are to be executed at the churches of Ballinrobe, Co. Mayo; Stradbally, Co. Limerick, and Ballyclough, Co. Cork, according to plans by the architects to the Ecclesiastical Commissioners; and the church of Killenaule, County Tipperary, is also to be enlarged under same direction.

A new national bank-house and out-offices is to be built at Roscrea, according to plans of the company's architect, Mr. Calbeck, who has designed and superintended many neat and suitable structures for similar purposes throughout the provincial towns.

The present bridge over the River Boyne leading to the town from the railway, and which, from its narrow construction, proved a great impediment to the traffic, is at length to be taken down and a new stone structure, according to the drawings of Mr. J. Neville, C.E., Co. Surveyor, substituted thereon. A new church for Protestant worship is to be erected at the South Dublin Union Workhouse, for which Mr. Isaac Farrell is the architect.

Some masonry works are to be done at the workhouse of the Nenagh Union, and tenders are invited.

Gas works are to be erected in the town of Monaghan. Tenders to 12th inst.

A new mansion is to be erected in the county of Carlow, at Mount Wolsley, for Sir John R. Wolsley, Bt. The site selected is within a mile of the town of Tullow. The designs were prepared by Messrs. Lanyon and Lynn, of Belfast and Dublin, architects. The execution of the works has been entrusted to Mr. William Faircloth, of Carlow, with Mr. Wm. Gibson as clerk of works. The foundation-stone has just been laid by Lady Wolsley.

Alterations are to be made at the Clogher Union Workhouse.

The nave of the church at Narraghmore, County Kildare, has just been rebuilt and re-opened. Some few years since, the chancel was rebuilt by private munificence, and a vestry was added about the same time; but the nave was allowed to remain in a most forlorn condition until taken in hand by the present rector. The new nave is 57 feet by 12 feet, and 30 feet to ridge, with south porch, and western bell spirelet 60 feet high, surmounted by a gilded weathercock. The material employed is local stone with granite dressings. The style is Early English of the fourteenth century. There are three two-light windows on the south side, two on the north side, and two single lancets at the west end. The roof is of deal, stained and varnished, formed with foliated braces, plastered between the rafters, and covered with Welsh slate and terro-metallic ridge and crest. The seats are low and open, and the passages paved with Staffordshire tiles. The chancel is raised four steps, and the sanctuary an additional one. The builder was Mr. T. H. Carroll, of Dublin; and the architect, Mr. Withers. The total outlay has been about £1,200.

A Roman Catholic school house is about to be erected at Tipperary. It will be 90 feet by 35 feet. The cost is estimated at £1,065. Mr. Robert Boles is the contractor.

A new Gothic church is at present being built in the town of Headford, Co. Galway, by the Rev. P. Conway, P.P., from designs by Mr. Richard Pierce, Wexford. The plan comprises nave, transepts, sacristy, chancel, and apse, with southern side porch, and presents features of very commodious arrangement. There are no aisles, and from the position of the pulpit, at the north-east angle of the intersection of nave and transepts, the preacher has his audience full in view, and within easy reach of his voice. The transepts are connected with the nave by open archways, sustained by a pillar in the centre. By recessing an apse 8 feet deep for the high altar, the sanctuary is enlarged, and a space obtained for side altars; and the side chapels will be enclosed by open wood screens of Gothic tracery work. The nave is 90 feet long by 30 feet wide, and the transepts 60 feet by 30 feet, interior measurement, which is exclusive of the sacristy, porch, and apse. The side walls are 20 feet high, and from the floor to the ridge will be 52 feet. The windows of nave are tall trefoil-headed couplets, those of side altars triplets, and three tall lancets in each transept, the centre light rising high above the side ones. In the apse is a richly-traceried window of four lights, and in the western gable, immediately over the entrance doorway, is a decorated window of three lights. The windows will be filled with strong diamond lead lights (except where stained glass will be used), with proper provision for ventilation. The western gable is surmounted by a massive belfry, rising to the height of 75 feet, and constructed to receive a large bell. All the other gables will be surmounted by beautiful foliated stone crosses. The western doorway is flanked by two tall watertabled buttresses, in which are fixed two holy water stoups; and buttresses are also placed diagonally at the angles of apse and porch. The roof will be an "open" one, supported on seven strongly-constructed rib-trussed pieces of framing, resting on stout walls, and supported by stone corbels. The roof of apse will be boarded and panelled. All the woodwork will be richly stained and varnished. The floor of the body of the church will be tiled, and the sanctuary and sacristy boarded. At the western end of nave a space will be screened off, in which will be fixed, at the north side, a stairway to the organ gallery above, and at the south side a baptismal font. There will be the necessary sacristia for the altars. The walling is very substantial, built of rock-faced masonry. The cutstone work is of limestone. Thorough provision will be made for drainage, so as to keep the site of the church perfectly dry. The works are being rapidly carried on, and the expenditure will be about £2,000.

The church of Raymonterdoney, Co. Donegal, is to be enlarged by the Ecclesiastical Commissioners.

Sundry works are to be executed at the church of Clounmeen, Co. Cork, by same body.

The re-building of St. Doulogh's church, after the design of Messrs. Lanyon and Lynn, is advancing well under the contractor, Mr. Douglass. Last week Mr. Parker, of Oxford, visited the old and new work, and expressed his approval of the combination. Some remarkable arches have been revealed by the removal of the late ugly structure.

A large amount of building is going on both at Youghal and Queenstown. Several new houses have been finished this year at Youghal, and the same remark applies to Queenstown.

Baron Marochetti's bronze statue of the Prince Consort, destined for a memorial at Aberdeen, is ready for casting, and will be inaugurated next month.

## General Items.

The Harbour Commissioners of Derry have entered into a contract for joining the bridge quay to the present quay, and for laying down a tram line which would bring all their goods to the ships, whereby a great saving will be effected to their line.

According to an official report, Paris in 1859 contained 1,433 streets, boulevards, or avenues, 84 courts, 36 quays, and 141 squares or open places. By the extension of the limits of the city to the fortifications in 1860 there were added 1,230 streets, boulevards, or avenues, 146 courts, 13 quays, and 103 squares or open places.

The members of the Royal Academy are already getting up a memorial to the late Mr. Mulready. It was at first intended to erect a tablet on his tombstone in Kensal-green, and the subscription was to have been three guineas each; but the idea has taken larger scope, and it is determined to raise a statue to the veteran painter in the National Gallery. This will necessitate an increase in the amount of subscription from three to five guineas.

The annual examination of the Department will take place in London, Dublin, and Edinburgh, next November.

The telegraphic wire has become rather an important article of commerce. During the last ten years it has been exported to the following values:—1853, £72,584; 1854, £81,566; 1855, £163,737; 1856, £80,076; 1857, £302,246; 1858, £224,708; 1859, £742,306; 1860, £251,708; 1861, £214,441; and 1862, £321,044. We have thus in ten years an aggregate export of the value of £2,474,410.

We (*Irish Times*) hope yet to see upon the site of Harrymount a spacious Hall erected, worthy of Kingstown, and capable of being made remunerative. The Commissioners are acting prudently in taking time for deliberation and examination of the capabilities of the site, but we apprehend, now that the building-ground in Kingstown has become so valuable, they will hardly meet with a situation more desirable or convenient for a Town Hall.

The thirty-third meeting of the British Association was opened on Wednesday, 26th ult., at Newcastle-upon-Tyne, under promising circumstances. The president, Sir W. G. Armstrong, delivered an inaugural address, in which he dealt generally with many of the leading branches of science. Taking advantage of the nature of the staple traffic of the district in which the meeting was being held, the president enlarged at considerable length on the question of coal supply.

## Miscellaneous.

**HOUSES IN CHINA.**—In China a man is not allowed to build a house above his legitimate rank in society. He may acquire a fortune by his own exertions, but unless he holds some office, or is born to some rank, he has no liberty of architecture. Every matter relating to building is the subject of regulation by the police. The laws of the Empire detail and enforce, with the greatest precision, the mode of constructing a residence for a prince of the first, second, or third rank of a grandee or of a mandarin. According to the ancient law, the number and height of the apartments, the length and height of a building, are all regulated with precision, from the plain citizen to the mandarin, and from the mandarin up to the Emperor himself.

**DISCOVERY OF OLD COINS IN WESTMINSTER ABBEY.**—Another and a very curious case of the discovery of hidden treasure has come to light. Workmen are engaged in pulling down some old houses adjoining Westminster Abbey. The other day while so employed one of them found in the groin of an arch a number of rose-nobles of Edward IV's reign. The man appears to have sold them for £75, and shared the money with his fellow-workmen.

**INIS CEALTRA, OR THE ISLAND HOME OF ST. CAMIN,** with its lofty round tower and seven churches now comes in view. This renowned place is the scene of Mr. Watkins' grand oil painting, which has recently attracted so much notice in the Royal Hibernian Academy of Arts, Abbey-street, Dublin. This painting, which is six feet by four, is a perfect masterpiece of art. Indeed, to the critical visitors to the exhibition, Mr. Watkins' marked style rendered his picture known without any reference to the catalogue, for it would be very difficult for any one acquainted with the art to fail to recognize the hand of Watkins. Not only has he with wonderful accuracy given the best view of the island and the many ruins which stand upon it—the traces of the past—footprints, as it were, which the generations long departed have left on the sands as they vanished from this mortal shore; our only records now of the periods so distant and so dim, that but for some famous event, or imperishable name, they would be veiled for us in obscurity—but he has also, with rare poetic power and effect, imparted to the

canvas beautiful glimpses of the lake, as well as of the mountains which encircle it. The time chosen by Mr. Watkins for his sketch was evening, about sundown; and with what justice he has treated his subject only those who have seen the picture and are acquainted with the island can best judge. The writer has seen the one, and knows the other well, and when I say that this gifted artist has realized "Piscator's" idea of the scene—and he has more than realized it—I repeat that his effort must be, and is, a grand one. Here are "Piscator's impressions of the spot:—"It," meaning the time of his visit, "was at the golden sunset hour; the waters of the lake hushed, yet glowing like a beauteous bride beneath the gorgeous light (nowhere are the sunsets finer than here), and around were the remains of buildings ancient and venerable, stones sealed with the impress of antiquity, as if here she had fixed her abode and concentrated all her power of destruction to make it a dwelling worthy of her venerable and powerful name. There was no sign of life on the margin of the lake. All was profound silence, broken only by the shrill call of the king fisher, or the dip of the paddle of some homeward bound fishing boat. And then those mountain peaks—the towering Slieve Beragh—what inconceivable splendour do they not lend to the scene!"—*S. Chronicle*.

**PRINTING WITHOUT INK.**—A gentleman, a large capitalist, and one of the most successful inventors of the day, has succeeded in chemically treating the pulp during the process of manufacturing printing paper, in such a manner that when the paper is impressed upon the uninked types the chemical particles are crushed, and a perfect black impression is the result. The advantage sought to be obtained is the discarding of ink and rollers; and, by revolutionising printing machinery, and printing from a continuous roll of paper, it is calculated that the time occupied in impressing large quantities of paper will be nominal in comparison to the requirements of the present day. Cleanliness in the printing-office would thus become proverbial, and the time now wasted in making and distributing the rollers obviated. We have been assisting this gentleman in some parts of his experiment, and further information is withheld, at his own request, until letters patent shall be obtained.—*London Typ. Adv.*

**IRISH EXHIBITION OF 1864.**—The guarantee fund for the Exhibition of Irish Manufactures, to be held in Dublin next year, already amounts to £9,000. It is not probable that there will be the smallest loss on the enterprise, but the large amount of the sum testifies to the earnestness of those who are interested in the exhibition. The chairman, at the meeting held in the Royal Dublin Society House yesterday, truly remarked that there was not only a waste of water power but of human power in Ireland, and that it would be well we could recover some of our old manufactures, and stimulate the few which are still left to us. A sad fact was mentioned yesterday. Galway flannels were once celebrated for their excellent and durable quality. They were made altogether of wool. "Galway flannels" are now made in Lancashire, and have by no means the same character. What an advantage it would be to Galway if that manufacture could be restored to the town! We have lost the calico printing business from the neighbourhood of Dublin. Is there any hope of its restoration? There are several branches of industry in which Ireland excels, and chief of these is the linen manufacture. We had hoped, however, that Irish manufactures would have introduced some light cheap fabric of flax to serve as a substitute for cotton cloth. We have seen some beautiful specimens of an article of this description, but we regret to say they were manufactured in Manchester. Is there not time, however, to produce something of the same kind prior to the exhibition?—*Irish Times*.

**PUDDLING BY MACHINERY.**—A correspondent states that a puddling machine, invented by Mr. Henry Bennett, has been working for several weeks at the Stourbridge Ironworks in Shropshire. Its advantages are said to be very great, as the quality of the iron manufactured by it is much superior to the iron worked by manual labour. It likewise effects a saving of fuel.

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July, 1863.

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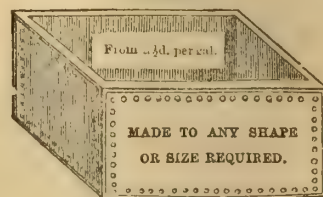
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# The Dublin Builder.

VOL. V.—No. 90.

## THE COMING SESSION OF 1863-64.

### THE READING OF PAPERS.

IN the course of another month we shall be on the threshold of the session of 1863-64, but it is not even now too soon to throw out a few suggestive hints respecting the proceedings and prospects of same, more especially as far as those societies are concerned which are identified with our own mission. Doubtless the majority of the members of the engineering and architectural professions, whose avocations permitted, have, for a time at least, during the prevalence of genial summer, exchanged the ordinary busy scene of the metropolis for temporary relaxation at the seaside or elsewhere, at home or abroad, and so were afforded leisure time for reflection and observation, which they may now turn to account for general benefit and instruction. We are told that there are "sermons in stones, and good in everything;" and as there are few localities in which something of interest may not be conjured up by an observing mind, we trust that the coming session will be fruitful of communications or papers respecting what may have been noted during the recess. Indeed, without occasional valuable papers, to elicit discussion, being read at such societies as the Institutes of Civil Engineers and Architects respectively, their purpose would be valueless; so, we would urge upon the members of each, who have the materials at command, and can collect them together intelligibly, to do so without delay, and not wait till the session is at hand.

Most probably the session of the Royal Institute of Architects will be inaugurated by the president's promised *conversazione*, at which it is hoped that His Excellency the Lord Lieutenant, and many distinguished personages, besides deputations from the English and Scotch societies, will be present. We should hope that this *conversazione*, however, will be more than a mere repetition of that held in the Royal Hibernian Academy a few months since; that it will embrace a president's address, and an exhibition of architectural models, prints, photographs, &c. &c.

The Institute of Civil Engineers has proved itself a valuable representative body, and we doubt not that it will be "up and stirring" early, and that the next volume of its transactions will be even more instructive and interesting than that recently issued, which represented its past labours most creditably. Its proceedings have certainly not been characterised by the inertness of its contemporary Institute of Architects, but as, from the revival movement of the latter body, some gleams of sunshine are apparent, we may be permitted to hope that its future history will contrast favourably with the past.

The Royal Dublin Society and the Royal Irish Academy will maintain their ancient fame; and from numerous scientific societies of less note much that is good may be expected.

## HOW COMPETING ARCHITECTS ARE TREATED!

### THE GRANGEGORMAN JOB!

SCARCELY a number of our journal sees the light, which does not contain some new and startling intelligence respecting the manner in which architects who exhaust themselves in preparing competition drawings are treated; and, no sooner has the memory of some one remarkable instance of injustice and breach of good faith died away, than another, perhaps even more flagrant than the preceding, is presented.

Public boards, generally speaking, have no appreciation of the time, the study, the anxiety, the manual

labour, and the expense attendant on the production of an architectural design. A few individuals thereof may possibly have the good taste to admire an attractively-produced set of drawings, but as a rule, there is little or no sympathy felt for the author or authors that have prepared them.

If it were otherwise, we should have none of the now frequent and just complaints by competitors, of *undue influence* being brought to bear against them—of *will o' the wisp* inducements being held out to the architectural profession to employ their skill and talents in the preparation of designs for some work which, if approved of, may result to their pecuniary advantage and to their professional pride. We should have no letters of "remonstrance," no protests against the perpetration of flagrant injustice, either in anticipation or after the harm had been done. But, as competitions are now managed, or rather mismanaged, not one out of every score is distinguished for veritable good faith, and impartiality and soundness of judgment in the decision.

Feeling that it is the duty of a journalist devoted to the class principally interested in such matters, independently to "show up" every act in connexion with architectural competitions, whereby injustice is inflicted on the profession generally or on one of its members, we desire to refer most specially to the last little affair on the *tapis* in this line; and to do so the more effectually, we shall begin at the beginning of the history.

For some years past, a considerable portion of Grangegorman Prison, in this city, was condemned for its unsuitability of arrangement and general construction; but the Board of Superintendence, having determined on effecting important alterations therein, instructed the city architect, Mr. Hugh Byrne, to prepare plans for the purpose. After some time elapsed, these plans were presented to the Board; but the latter, believing, doubtless, that the skill of many heads would produce suggestions more valuable than the skill of one however qualified could, decided on seeking plans in competition, and accordingly advertised that "they were prepared to give the following premiums for the best plans—viz., the best, £25; second best, £15; third best, £10. The successful plans and estimates to be the property of the Board, but the author of the best plan and estimate to be employed to prepare the specification and superintend the work, at a percentage to be approved of by the Board." Relying on "the good faith" of this announcement, some twelve gentlemen competed, amongst them were (as we learn) the city architect himself; his son; and Messrs. Carson, J. J. Lyons, W. Hague, W. R. Farrell, Mr. Snell, of London, and others less known. The 1st of August was the day limited for the plans to be sent in, and on the following Wednesday the first meeting of the Board to consider them took place, but nothing definite was arranged for a few succeeding Wednesdays, when three plans out of the lot were selected for final decision, the authors of same being respectively Mr. Carson, Mr. Lyons, and Mr. Patrick Byrne, jun. Some of the Board were in favour of one, others of another, and again others of the third-named.

Here is incontestible evidence that the Board at least admitted and believed that the three plans so selected were to their minds the three best! But it appears, that though the Board are permitted to advertise for designs and promise premiums, they are to be nonentities in the selection, and must not keep their promise should it be so ordained by a higher power—viz., the Inspectors-General of Prisons.

The selection was ignored by those gentlemen, who proclaimed that all the plans submitted were "defective."

The Board, however, to their credit, sought the advice of those experienced in the working of such establishments, as to the merits of these three designs, and obtained reports from Mr. Sinnott, the Governor, and Mrs. Rawlins, the Matron of the Prison; as also from Mr. Marquess, the Governor of Richmond Prison. What these documents set forth we, of course, cannot say, but after their receipt, and after various delays and waverings, the Board came to the determination, on the 8th inst., "to reject all the plans, as they were defective," and to announce a new and unlimited competition, considerably allowing thirteen days for the preparation of plans in conformity with the following elaborate instructions:—

First—Parties are to exercise their own judgment as to the place and position of the Building proposed to be erected, for which any alterations and additions may be made at the south side of the centre corridor leading from the principal staircase.

Second—Such building to contain 120 sleeping cells, and to be provided with means of proper ventilation and artificial heating, fittings for Gaslight, Bell-pulls, Signal-plates, Gongs, Door-traps, &c., Lavatories and Water-closets, with perfect sewerage and an ample supply of water, for which a Metal Cistern is to be provided, and to be erected in such a central position as to be made available at any time for any other portion of the prison.

Third—The Building should be so constructed as to afford the means of commanding, at one view, perfect supervision of the entire number of cells contained in it.

Fourth—Six yards for exercise to be provided.

Fifth—No basement story required.

Sixth—The River "Bradoque" runs under the Prison, and is deep enough for good sewerage to be constructed.

Seventh—Provision should be made for the employment of fifty women in separation, at Washing, Wringing, Mangling, Ironing, and Drying Clothes. The cells adjoining the City Laundry are suggested, as well as the Convict Laundry, to be fitted up with a single line of boxes for Washing and Wringing, and a similar provision will be required in the City Laundry Washing, Mangling, Ironing and Drying.

Eighth—The Schoolroom to be fitted up with divisions for such number of Prisoners as the room can contain.

Ninth—The galleries of Church and Chapel to be altered in such manner, as to afford to the Officers perfect supervision of the Prisoners attending Divine Worship.

Tenth—Suitable apartments adjoining the new Prison to be provided for the untried Prisoners to communicate with their friends; and a consultation room for Solicitors to see their Clients.

One of the competitors, Mr. Lyons (and as we presume so did all others alike), received the following polite intimation of the Board's considerate decision from their Secretary:—

"City Hall, Town Clerk's Office,  
"Dublin, Sept. 10th, 1863.

"SIR,—The Board of Superintendence rejected all the plans sent in for works in Grangegorman Prison, and advertised in this morning's papers for new plans.

"JOHN MARTIN, Secretary."

Now, had the Board a right "to reject all the plans sent in, because they were defective"? We say emphatically *not*. In the first place, it was not to be supposed that any one, two, or three of the plans procured in this competition were to be "models of perfection"—blameless as regards any of their features. We never yet knew—and we challenge proof to the contrary—of successful competition drawings being carried out in their integrity, or of a "model plan" being procured in first instance. Why, therefore, should this Board on the ground of "defectiveness," refuse to perform their promise, and award the premiums, especially as by their own acts they admitted that Carson's, Lyons', and Byrne's plans were the best out of twelve, let each respectively be best, second best, or third best, as the case may be.

They have acted unconstitutionally, unwisely, and unjustly, in arriving at such a decision. It may be asked, what were the Board to do where none of the plans came up to their standard? That question is easily answered; but previously to doing so, we must remark that we have not seen Mr. Carson's or Mr. Byrne's plans, and cannot, therefore, speak of their features, nor do we wish to parade the merits of Mr. Lyons, because he is the conductor of this journal, and the writer hereof.

There were two alternatives left to the Board, in adopting either of which they would have decided with very much better judgment (to say the least) than as they have done. They might have called on the authors of these three selected plans—each being secured a premium in any case—to compete between them again for first, second, and third places, and employ the author of the best modified plan to have the work carried out under his superintendence; or, they might have well reconsidered the three plans and selected the third, giving it the third premium of £10 and discarding it from further claims; then, call upon the authors of the other two plans, whose merits were presumed to be equal, to prepare conjointly a modified plan, sharing the premiums and the fees alike for the carrying out of the work. The advantage of the latter arrangement, whereby double professional skill would be secured for single fees must be obvious, and we apprehend that any one of the three gentlemen would rather have half a loaf than run the risk of having no bread. A respectful letter of remonstrance, and expressing opinions on the transaction in substance to the foregoing has been addressed by Mr. Lyons to the Board; but, why should a Board comprised of gentlemen of the highest commercial integrity and intelligence be placed in a position of remonstrance by a competitor for "error of judgment,"—for that is the only imputation we suggest, however reasonably we may feel disappointed at the result.

We come now to another, and a serious feature in this affair, whereby "undue influence" was sought to be exercised, not by the Board nor by any member of it, but on the Board, who, to resist same, probably thought that they were but exercising a wise discretion in annulling the competition and opening it up afresh. So long as Mr. Lyons' and Mr. Carson's plans were unprepared or unpaid for in some shape or form, they remained the undoubted property of those gentlemen, and not one of the features shown on either should be appropriated by the Board or by any one else. But it seems that the other gentleman of the three named had the advantage of access to them, and was instructed or requested or permitted to prepare an amended plan for submission to the Board on Wednesday last, before the final decision was arrived

at. To the high honour however of the Board be it recorded, that they *refused to look at such plan*, believing it most properly to be an injustice to the others, and then, and then only, was the idea of rejecting all entertained, and of seeking for new designs unlimitedly.

The act we refer to speaks for itself, and brings condemnation upon it by every right-thinking mind. What will be the *next* feature in this memorable competition? Will properly qualified gentlemen embark in another project, which, like its predecessor, may turn out a myth? May not the next set of plans submitted also prove "defective," and on that account be *all* rejected? Or will some favoured one have a clean walk over?

As men of honour, the Board are bound to decide on the *first* plans, because the competitors took their word for the awarding of the premiums to *some* of the plans *without reservation*, and for the employment of the author or authors of the *best* plans in carrying out the works, which, at a rough guess, may cost some £6,000 or £7,000, the fees on same, at 5 per cent., being from £300 to £350—probably more—a sum certainly worth struggling for as long as the banner of fair play should remain unfurled.

We may have occasion to recur to this subject, and even *more* specially, for on principle it is one in which the profession, as well as the immediate parties concerned, are particularly interested.

## Correspondence.

### THE PRINCE CONSORT MEMORIAL.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—I read in your last number an excellent suggestion relative to the application of the P. C. Memorial Fund, viz., in the erection of a clock tower; but it would appear necessary to restore the Albert Committee to life before *that* or any other suggestion can be attended to.

Since last January the body seems to have ceased to exist. The public journals, since that date, contain no record whatever of its proceedings—no meetings to consider a site or sites—no announcement that designs from architects or artists were needed—no appeal to the public for additional subscriptions; in short, nothing to indicate that any further progress was intended, or had been made by the right hon. and honourable gentlemen the members of the committee.

This inaction appears the more censurable when contrasted with the progress made on the other side of the channel in the erection of Albert memorials. In June the statue in the Horticultural Gardens, South Kensington, was inaugurated. The great national monument in Kensington Gardens, costing £120,000, is now in the contractor's hands. And so is the Edinburgh memorial; and even the small town of Abingdon, Berks, has been able to progress so far as to forward a photograph of their design for her Majesty's approval.

Is it creditable either to the loyalty or the public spirit of our P. C. Committee that, after the Irish public had done their part in contributing over £6,000, that the promoters of the memorial should apparently, at least, permit the matter to drop?

A CITIZEN.

### METROPOLITAN RAILWAY.

SIR,—As coming events cast their shadows before, so looms in the distance the certain advent of a metropolitan railway. In London, according to rumour, an embryo is hatching, and Dublin, perhaps, awaits the birth of a monstrosity like that of last year. I cannot conceive but there exists talent, capital, and enterprise in this city sufficient to originate and carry out a suitable metropolitan line, and the suggestion I have to make is, that the corporation (as less expensive than a parliamentary contest next session) should advertise for designs, and make a selection of the most desirable project. A company, doubtless, would be formed after the decision, and proceed with the undertaking.—Your obedient,

CIVIS.

### DUBLIN METROPOLITAN RAILWAY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—As I see, by an article in your paper lately, it is likely this metropolitan railway will be brought on again, and as I know you will willingly assist in anything that would preserve our very beautiful city from the disfigurement that was lately contemplated, I trust you will give a place to the following suggestions, which I think would do away with all the evils attendant on that bill. Let them run the railway from the King's-bridge terminus to the Kingstown, between walls sunk to the level of the bed of the river. By taking the breadth of the

present flagway, and advancing the quay-wall a certain distance into the river, sufficient space could be obtained for two lines of rails. A short turn to the right from Burgh-quay would bring the line to the Westland-row station. The line might be crossed at all the bridges by crossings level with the street, as the Dalkey is at Kingstown. By sinking a sewer under the railway, all the sewerage of the south side of the river might be carried down towards Ringsend. Short lines of railway from the termini Broadstone and Drogheda might be made to connect them with this line on some point on the quays. If this plan can be adopted, there would neither be impediment to the view nor to the free air from the Wicklow Mountains, which contributes so much to the health of Dublin. Besides, as there would be no expense for ground or house property, it would not cost the hundredth part of the line originally contemplated.—I remain very truly, &c.

J. L.

### ARTISTIC WORKS.

A VERY beautifully executed picture, representing a life-size head and bust of a man, apparently a mendicant, is on view at the window of Allen's lithographic and artist materials establishment in Westland-row, and is the work of Miss Allen, who may justly feel proud of her high attainments.

The several lines of the countenance and the hand are most naturally delineated, and the representation of the tattered garments is something marvellous; the entire tone and colouring being of a character very closely approaching in merit some of the most celebrated works of the ancient masters. We congratulate Miss Allen on having excelled in her art, at this early period of her career, and doubt not she will pursue it most profitably.

In the same window may also be seen a pretty interior of a cottage, with a female in sitting posture, and a spinning-wheel at a short distance from her. The conception of this little picture is very pretty, and the colouring effectively wrought. It is the work of another young artist, Miss Wilkinson, who also bids fair to rise to fame, and who, we understand, has recently opened a studio at 36, Great Brunswick-street.

### A SKETCH OF CORK.

CORK owes both its origin and its wealth to its magnificent harbour. Within the last few years the harbour of Cork, at Queenstown, has become the last and first place of call for the splendid steamers of the Cunard Company, and from the advantage of its position and its great natural advantages Cork will always be a stage in the communication between England and America. The harbour of Cork is seen to the greatest advantage from the water, though the main line of communication with the harbour for Atlantic voyagers will soon be by a railway tunnel beneath the city, and then by the very pretty railway that runs along the south side of the harbour and bay. The tunnel, which is to complete the railway communication between Dublin and the harbour of Cork, and to enable passengers and goods to be landed and despatched without any delay, is well advanced. The railway—which must have been formed with some difficulty, owing to the necessity for very heavy blastings in the rocks—is already at work. The city of Cork is beautifully situated in the hollow and on the sides of the valley through which the river Lee flows down into the harbour. It is well built of stone, with many wide streets and handsome buildings, and presents the appearance of activity and prosperity. It has most extensive breweries and distilleries, and all those branches of trade which depend on an abundant supply of grain and other agricultural produce. As the land rises very rapidly on both sides of the river, it is easy to obtain commanding views of the city. The view of the city from the Sunday Well-road is very fine; and there is a charming view up the River Lee from the neighbourhood of the Queen's College. But the harbour of Cork, with its beautiful shores, is the great charm of the place. It is a long deep bay, combining the scenery of a wide river with that of a large lake, and scarcely assuming the appearance of an arm of the sea until the last winding of the bay has been passed. It is studded with islands and bounded by bold shores, along which the rocks spring up amongst luxuriant woods and bright green meadows. There is no harbour in the three kingdoms equal to it in natural beauty, and it would be difficult to find one equal to it in natural advantages as a refuge and place of resort for shipping. In sailing down the bay the river scenery extends to Blackrock Castle. There the river expands, and assumes the character of a lake, which stretches westward. Both sides of the harbour are ornamented with numerous villas, many of them very handsome, and all

standing in beautiful positions, either on the rocks rising amidst trees or on slopes of green turf descending to the water's edge. As the bay continues to widen, a number of verdant islands are seen, one of which is Foaty Island, the seat of the Smith-Barrys, who are the representatives of the old Earls of Barrymore, and who have also a beautiful mansion at Marbury, in Cheshire. Below these islands the harbour forms some charming bays. At Passage it again assumes the appearance of a river a quarter of a mile wide. A sudden bend in the bay brings us to the harbour of Queenstown. This noble harbour, which is four miles in length by two in breadth, has afforded shelter to 600 ships at one time, and would contain still larger fleets. The three islands named Spike Island, Haulbowline, and Rocky Island belong to the government, and in the recent report on the military defences, it is proposed that strong military works shall be constructed upon one of them for the defence of this noble harbour and the shipping which frequents it in war as well as in peace.—*Liverpool Mercury*.

### BOOKS RECEIVED.

WE have to acknowledge receipt of Mr. Huggin's new work "The Course and Current of Architecture," together with a chart of architecture accompanying same, both of which shall have our best consideration in an early number. The author reminds us that our parcel was the first that crossed the channel to Ireland, a fact which renders the favour more special. We trust, however, that many more will find their way across henceforward.

### ALLIANCE NATIONAL LAND BUILDING SOCIETY.

A MEETING in connexion with the above society (the office of which is at No. 158, Strand, London) was held on the evening of the 10th inst., in the Temperance Hall, Marlborough-street, for the purpose of hearing a statement of the objects of the society from one of the directors, Mr. Joseph Horner, who appeared as a deputation.

MR. JAMES HAUGHTON presided.

The Chairman said that he had often felt it to be an anomaly that the working-classes, who provided necessities and enjoyments for those in another sphere, should be in possession of so small an amount of those comforts themselves. The working-classes in England were now co-operating a good deal for their own intellectual improvement, but there did not exist amongst them a similar amount of co-operation for the purpose of procuring for themselves all the physical comforts that they might enjoy. He had long been of opinion that there was no necessity for the indulgence which characterized them as a class, and that if they applied their energies properly to the purpose of attaining them, they might secure a large supply, not only of the comforts, but of the luxuries of life.

Mr. Horner explained that the society on whose behalf he appeared was founded for the purpose of advancing temperance and provident habits amongst the working-classes. Membership in the Alliance Society was found to promote these great objects. The society had several aims. One was the creating of a provident fund by monthly subscriptions of members desirous to invest their savings at compound interest. Further, the establishment of a loan fund for making advances to members on mortgage security, to be repaid by monthly instalments, extending over a period to be fixed by the borrowers, for the purpose of enabling them to erect or purchase houses, dwellings, buildings, land, or the real or leasehold estate. There is also a deposit savings' bank, in which members and the general public may invest their savings at a profitable rate of interest. The society was founded and depended for its success on the co-operative system. Members were to pay 2s. 6d. per month till the investment amounted to £25, when the investor became the owner of a share in the society. Members, through the facilities afforded by the loan fund, were enabled to purchase the leasehold or freehold of a house, the repayments of the loan being arranged for the convenience of the borrower. Mr. Horner stated that the society had worked most beneficially in England, and the directors were anxious that its operations should be extended to Ireland.

Mr. Mowatt also addressed the meeting, and said that a member could borrow the week after he joined; all the society looked to was the adequacy of the security offered by lease or building. The surveyor and solicitor to the company reported to the directors on these matters.

Dr. Ryan and Mr. M'Corry (bricklayer) also addressed the meeting.

Mr. Mowatt mentioned that it was likely a local board of directors would be formed in Dublin.

## LECTURE ON THE FINE ARTS, BY CANON POPE.

YESTERDAY evening the Very Rev. Canon Pope delivered a lecture on "The Art of Engraving." The Hall in Denmark-street was crowded on the occasion.

ALDERMAN DILLON occupied the chair.

The chairman in a few brief remarks introduced the lecturer of the evening.

The Very Rev. Canon Pope, who was warmly received, proceeded to say—

\* \* \* ingenuas didicisse fideliter, artes  
Emollit mores, nec sinit esse ferus.

Ovid.

"Each pleasing art gives softness to the mind,  
And by our studies are our lives refined."

## INTRODUCTORY OBSERVATIONS ON TASTE.

A taste for prints very generally pervades every stage of life, from youth to old age—pervades every grade of society, every country and clime, and is co-extensive with civilization; and the cultivation and progressive improvement of this taste promotes the highest degree of refinement. This taste differs very widely in different persons, and exists in various degrees in most men; and hence it happens that one class of prints is admired by some, quite a different one by others; and yet there seem to exist some settled principles in which the judgment of all concur. Amidst so great a diversity of grades of taste for prints, it is not easy to define with precision what it is: however, as its definition I shall say it is—that faculty of the mind which is affected by, and forms a judgment of the works of the imagination, as developed through impressions on paper by the elegant art of engraving. A superior taste for prints then supposes, not merely the exercise of the senses, but likewise the exercise of the imagination and of the judgment. This may be said of a taste for the production of all the fine arts in general as well as for prints. The organ of vision is the only sense conversant about prints, and this organ is very nearly of the same conformation in all men; and hence all men must, in the first instance, be affected by them with but very little difference. But the imaginations and judgments of most men differ very materially, and hence arise the diversities and various grades of taste for the different works of the fine arts. Without a certain amount of fancy or imagination there can be no taste for prints, paintings, works of sculpture, or other productions of art; for such productions propose to present a representation of the object portrayed; and the function of the imagination is to trace resemblances, and its enjoyment consists in the perfection of the resemblance it discovers between the imitation and the original. This, in principle, is the same in every person, but it varies very considerably in proportion to their natural degree of sensibility, and the more assiduous attention they have devoted to the art. The exercise of the judgment, also, is indispensable to taste, and its functions usually consist in discovering differences. The imagination is a pleasure-seeker—the judgment is a monitor; the one views favourably—the other critically. An erroneous taste very frequently originates in a deficiency of the faculty of judgment, either from a natural defect, or from a want of its well-directed exercise. A deficiency of judgment causes an erroneous taste—a deficiency of imagination causes a total want of taste. An erroneous taste may likewise arise from an excess of imagination, by figuring to itself some exaggerated idea of excellence which cannot possibly be realized, or may arise from a limited experience; for discernment and experience are both necessary for the formation of true taste. A true taste for prints, and for other works of art, may then be said to be a perception of what is agreeable to the organ of vision, united with what creates pleasure in the imagination, and sanctioned by the conclusions of the judgment. We may, therefore, deduce, that as an improvement in taste depends upon our increased facilities of contrasting, or our greater experience, all taste must necessarily be progressive. This we will the more readily acknowledge, when we recollect the lively sensations of pleasure with which we were affected in our earlier years by inferior works of art, which, when our judgments become more matured by familiarity with works of real excellence, we eventually regarded as worthless and contemptible. To improve our taste we require to hear, see, have a knowledge of, and to be familiar with, superior works of art. From this, also, I may conclude that all taste is indefinite—that is to say, it can never attain such perfection as to admit of no further advancement; and in proportion as the works of art with which we are familiar progress towards perfection, in the same degree does the critical character of the judgment increase in acuteness and discernment. I shall conclude these preliminary remarks by again observing, that to improve our taste for prints, as well as for every other branch of the elegant arts, we must mature our judgment, increase our knowledge and familiarity with works of real excellence, devote ourselves assiduously to that special department in which we aspire to superiority, and frequently employ ourselves in its exercise.

## CALCOGRAPHY AND THE WRITERS WHO HAVE TREATED OF IT.

The art of engraving upon copper is styled calco-graphy, and this term is derived from the Greek word *kalkos* signifying copper, and *grapho*, I inscribe. The early history as well as the origin and progress of the art of engraving is involved in the deepest obscurity—no writer has fully elucidated the subject, and it is very remarkable notwithstanding the influence which the art has exercised in the promotion of education, refinement, and a taste for the fine arts, how seldom the subject has been treated of by any British author, historian, or artist. Many French, German and Italian writers have treated very copiously of the art of engraving, of whom I shall mention a few—Le Comte Baron, Heineken, Hackart, Papillon, Pozzi, Brulliot, Weizel, Bosse, Laborde, Zani, Pagani, Barotti, Crispi, Fuessli. But with the exception of some brief articles in magazines and other periodicals, we have little else in the English language on the history, and origin, and various styles of the art of engraving in all its branches. Some small works have indeed been written on the subject, but they are either confined to particular departments of the art, or treat of the entire very superficially. A treatise has been written by the Rev. William Gilpin, M.A., who had been prebendary of Salisbury and Vicar of Boldre, in Newforest, near Leamington, and is entitled "An Essay on Prints." It is interesting, and possesses considerable merit, but dwells principally on observations on particular prints, and on the characters of noted masters, but saying nothing of the history of the art, and very little in explanation of the artist's mode of operating in producing the impressions. It was printed in London in the year 1792, a period when a taste and appreciation for prints in these countries attained an extraordinary height. Mr. Joseph Strutt and Mr. Michael Bryan have left us dictionaries supplying biographical notices of the celebrated engravers, but of the art itself, with the exception of some few preliminary notices, they do not treat. Mr. T. Evelyn has written a treatise, but it is exclusively confined to the history of engraving upon copper. Another very remarkable little work, but likewise confined merely to that branch of the art known as "etching upon copper," was written in Dublin in the year 1810, entitled "Critical and familiar notices on the art of Etching upon Copper." It contains much useful information—it was written in a very good style—its observations indicated research and taste—and its criticisms were judicious—it was illustrated with etchings—and it was neatly bound. The merit of the work itself, but still more the circumstances under which it was brought out, attached to it the greatest celebrity, and it is to the present day prized as a great literary curiosity. I have myself seen a copy of the book. The author was Mr. W. Huband, a man of considerable literary acquirements, and highly cultivated taste. He was the author—he wrote the book—he etched the engravings that illustrated the book—he printed the book, and he bound the entire edition of the book, and all with his own hands!—and in every department it was manipulated and executed in a highly workman-like manner; a triumph of genius, art, and labour I have never heard equalled; and that triumph, I feel proud to say, achieved by an Irishman and citizen of Dublin. The number of copies of the edition he printed and issued was very limited. In a letter to the celebrated Rev. T. F. Dibden, dated June, 1813, he states that "twenty-five copies only of the book were printed." He presented a copy to Miss Edgeworth, who appreciated the gift so highly that in return she presented him with a complete set of all her works, and of those of her father, R. Lovell Edgeworth. A gentleman in Dublin who was so fortunate as to possess a copy of this rare production was offered a pipe of port wine in exchange for it, but he declined to accept the offer. Rev. Mr. Dibden, who instituted inquiries regarding this curious book, amongst others, wrote to Rev. Daniel McNeill, who had been rector of Hackettstown, in the county Wicklow, soliciting information concerning it. This Rev. Mr. McNeill died in the year 1816. In a letter dated February 5, 1813, which he wrote in reply, and which may be seen in the "Bibliographical Decameron," he states—"I do not know Mr. Huband, but he is a very distinguished bookman, for I am told that he wrote a book on engraving, that he printed it with his own hands, and engraved the plates, so that he beats the curate of Cotleigh, in the county Devon, immortalized in Nichol's anecdotes. I have heard that a pipe of port wine was lately refused in this city for a copy of Mr. Huband's book." In a note by Rev. Mr. Dibden, in the "Bibliographical Decameron," he states—"Lord Spencer possesses the only copy of this curious performance (presented to him by the author) that I have seen in England." Mr. W. Huband presented another copy to the Dublin Society, for which, at a meeting of the society, a vote of thanks was passed and conveyed to him in a highly complimentary letter, dated December 6, 1810, and signed on behalf of the society, "John Barrett,

librarian." Another letter, dated Nov. 11, 1811, was written to him by the Vice-Provost of Trinity College, expressive of thankfulness for a presentation copy. Rev. Mr. Dibden treated at some length of the art of engraving in an article in his "Typographical Antiquities." Another very learned work replete with interest and information on the art of etching was written by a Frenchman of the name of Abraham Bosse. A French Jesuit made the early history of engraving the subject of a beautiful poem, written in a style most classical, and with great accuracy of metre and harmony of versification. It was printed in Paris in the year 1752, and is now prized as a literary gem, but is rarely to be found. One of the most valuable and interesting selection of works on engraving in these countries is to be found in the library of Trinity College. It is a collection that had been made by a Dutch family of great taste named Fagel, and was purchased from them many years ago by the University.

## INVENTION OF PRINTS FROM ENGRAVED PLATES.

Though both sacred and profane writers prove that the art of engraving derives its origin from a very distant period of antiquity, the art of taking impressions from engraved plates is generally attributed to Finiguerra; and Vassari, in his lives of the painters, seems to add the additional weight of his opinion to the general impression. Maso Finiguerra was an eminent goldsmith and much admired artist, who flourished in Florence in the 15th century, having been born in the year 1418, and acquired great celebrity in the art of what the Italians term working in "Niello." Niello was a species of inlaying or enamelling on plates of silver or gold, and was very much prized, and was employed in the decoration of plate, especially church plate, hilts of swords, as well as bracelets and ladies' ornamental appendages. All the devices were engraved with the burin or graver on the plate; a mixture of powdered silver and lead was then sifted over the surface, and the silver plate was held over the flaming fire; the flame, by means of a bellows, was then blown over this powdered niello mixture, and dissolved it to an attenuated liquid, which ran into and filled up every minute carving, cut, and interstice of the devices engraved on the plate. When cool, any projecting superfluities were all ground down with pumice-stone, and polished over with the entire surface, and the inlaying was perfected; and the niello being an injection of a darker colour, presented a most agreeable contrast with the bright polished surface of the silver plate. This art, which was formerly much practised all through Italy, has now fallen into almost entire desuetude. An example resembling this work, though not precisely similar, may be seen on the head of the crozier, forming a portion of the costly and sumptuous gift of church plate and episcopal ornaments, presented to His Grace the Most Reverend Dr. Dixon, through the princely liberality of Mr. Donegan, of Dame-street, and who was courteous enough to allow me to inspect it. It is very beautiful; and being unable to procure artists in this country to execute it, he sent it to Genoa, where the work was effected. The backs of gold watches are also decorated sometimes in a style resembling niello work. In the process an adhesive cement, composed of a solution of a mineral substance called "borax," is introduced into the carvings, which causes the ornamental substances to adhere and amalgamate with the gold. On one occasion, whilst employed at this art, preparatory to laying on the niello, Maso Finiguerra covered over the plate with a mixture of charcoal and oil; he wiped off the liquid from the surface of the plate, but it remained in the cavities of the carving. He then, in order to try the effect of his engraved devices, poured over the plate some liquid sulphur. When the sulphur dried up, and acquired a sufficient crust and consistency to form a solid mass, he took it off, and was astonished to find the perfect impression the dark liquid in the interstices imparted to the sulphur. He repeated the experiment with moistened paper, pressing it with a roller, and his delight was extreme on finding that it yielded a perfect print—and thus was the discovery effected. So simple a process, and one so surprising in its effects, could not long remain a secret; and artists in every part of Europe soon made experiments, and practised the art with various degrees of improvement, till it acquired its subsequent perfection. The cake of sulphur upon which Finiguerra took the impression of the engraving of the "Coronation of the Blessed Virgin," is now preserved in the British Museum, to which this most interesting relic of early art was bequeathed by Mr. Thomas Grenville. It was formerly the property of Signor Seratti, a Maltese gentleman, who sold it to Mr. Steward, from whom it was purchased by Mr. Grenville for the sum of £300.

The reverend lecturer then spoke at considerable length on the origin and antiquity of the art—accurately detailed its early history and progressive development, explained the process of wood engraving, chisoleuro, and etching, and gave a biographical

sketch of Albert Durer, who perfected the art of wood engraving, and to whom he attributed the invention of the beautiful art of etching upon copper. He introduced some interesting anecdotes in connexion with the art. He said the oldest print known to exist in our day is a print from a woodcut, which had been preserved for centuries, and inspected as a great curiosity, in the convent of Buxheim, near Meningen, in Suabia, representing St. Christopher. It represents St. Christopher crossing the sea with our infant Lord on his shoulders, who holds in his left hand a globe surmounted by a cross, and his right hand is raised as it were in the attitude of imparting a blessing. St. Christopher is holding a branching palm; beneath are the waters and fishes; on the shore he is supposed to be approaching, a hermit is represented standing before his cell, holding up a lamp, as it were to give light to guide their course to land. On the opposite shore is seen a man with a sack on his shoulders, ascending a very steep hill to a house on the summit, and on the extreme left are a man and horse conveying corn to a mill with a water-wheel. It is dated 1423, and at the foot of the print are inscribed in a very ancient style of characters the following verse:—

*Christoferi faciem die quacunq; tueris,  
Illa nempe die morte mala non morieris.*

Which may be thus translated:—

Each day that thou the likeness of St. Christopher shall see,  
That day no frightful form of death shall make an end of thee.

This very ancient and celebrated specimen of wood engraving was discovered by Heniken, in the chartreuse in Buxtreim. He alludes to it at considerable length in his writings on the art of engraving. In latter years this curious print has been conveyed from Suabia into England, having fallen into the possession of the noble family of Spencer, and is now preserved, in excellent condition, in the valuable library of Earl Spencer.

The lecturer then said, that as the subject of which he was treating included the art of engraving by acids, carving and burnishing, engraving on wood and copper, line or stroke engraving, etching, mezzotint, aquatinta, stipple or dot engraving, chiaroscuro, lithography, and chromo-lithography, and as the evening was far advanced he should discontinue then, and would resume the subject again on a future occasion. He sat down amidst prolonged cheering and universal manifestations of applause.

#### DEFICIENCY IN THE WATER SUPPLY OF BELFAST.

THE water-supply during the past summer in Belfast greatly decreased, and the inhabitants suffered from a scarcity which at length became alarming. The town is supplied from three reservoirs, in which the water, on the 1st of last month, stood at an average of 200 inches below the proper level, and two of them were shortly afterwards completely empty. The supply for manufacturing purposes was stopped, and the inhabitants were obliged to be very economical in the use of the limited quantity available for domestic requirements. A gentleman named Girdwood offered to come to the aid of the authorities by turning the water of his own mill-dam into the town basin for a consideration of £400 per annum; but he could not give any material relief until November, and other millowners threatened legal proceedings if their supply were interfered with. Whether the recent change of weather has to any extent mitigated this serious evil we have not yet heard.

#### THE SLAUGHTER HOUSES NUISANCE.

At a meeting of the corporation on the 7th inst., Alderman Carroll moved that the memorial with reference to the slaughter-house now in course of erection at Aldborough Barracks by government be referred to No. 2 Committee, with instructions to take immediate action upon it, and, if necessary, to counteract the erection of the building. He understood there were a number of tradesmen at present actually occupied in building these objectionable slaughter-houses, the existence of which would ruin property in that neighbourhood. A number of persons had invested all their means in the erection of houses there from which they derived comfortable incomes, but this slaughter-house nuisance would speedily destroy those incomes, and ruin numbers of families. He was greatly surprised that the government, who should be the protectors of the public health and interest, should be the promoters of such an objectionable scheme as this. The gentleman who built a range of houses opposite to which those slaughter-houses are being erected had received notice from all his tenants. They knew that their health would be endangered, that the atmosphere would be poisoned, and sickness created by these slaughter-houses. A license was required for slaughter-houses, and he had sufficient

confidence in the corporation and in Committee No. 2 to believe they would refuse a license in this case. The committee, he was aware of his own knowledge, had of late refused to license slaughter-houses within the city boundaries, knowing their injurious effect upon the public health. It was a strange thing that the government, knowing the power to license was vested by law in the corporation, should proceed to erect these slaughter-houses without any communication whatever with the corporation, the more so as it must have been evident that the value of the house property in almost the whole of two extensive wards would be destroyed. This was a matter that ought to be immediately attended to, and he therefore included in the resolution a direction that the committee should act promptly.

Mr. Martin seconded the motion, and stated that both No. 1 Committee and No. 2 Committee had already re-nstrated on the subject. The attention of No. 1 Committee was first called to it because of an interference with the footway, and in the course of their inquiries they learned that the sheds which were being built were for slaughter-houses. The War Department objected to the corporation instituting a market for the sale of cattle in Richardson's Fields, because it would be close to the barracks, and yet they came into a densely populated locality and created slaughter-houses on a low flat site wholly unsuited for such a purpose. Notwithstanding the remonstrances of the committees of the corporation, the War Department were persisting in the erection of the buildings. It would be the duty of the corporation to resist the proposed attempt to infringe their legal rights in reference to licensing. No. 1 Committee addressed a letter to the Lord Lieutenant, which Sir Thomas Larcom wrote to say would be immediately attended to. He (Mr. Martin) believed that the Lord Lieutenant was in communication with the War Department on the subject, and he hoped that department would reconsider their very injudicious determination.

Alderman Reynolds said they were obliged to cancel their contract with Mr. Richardson in reference to the cattle market because the War Department said the market would be prejudicial to the health of the men in an adjoining military building. The government were very solicitous about the health of the soldiers, but very indifferent about the health of the civilians. They ought not to persist in erecting this slaughter-house in a crowded neighbourhood, where the atmosphere would be poisoned, health injured, and property ruined.

Mr. Jameson happened to know, as a matter of fact, that two or three of the most respectable residents of the neighbourhood in question were already looking out for houses elsewhere, in order to leave the vicinity of the proposed slaughter-houses. A worse situation could not be chosen for slaughter-houses. The ground was low, and there was no drainage. He hoped this most objectionable project would receive the utmost opposition of the corporation.

Mr. Byrne said the matter had been under the consideration of the law committee, and their law agent had, on the part of the committee, forwarded to the heads of the army department in this country a protest against the establishment of those slaughter-houses, and had also forwarded a copy of the bye-laws showing the corporation's right to license slaughter-houses.

After some further discussion, the motion was put and carried unanimously.

#### ARSENIC IN PAPER-HANGINGS.

ARSENICAL green has for some time past been used for colouring prints, paper-hangings, &c. Recently, the effects of this colour upon the health of those who were employed in the application of it to ornamental papers induced the Ladies Sanitary Association to urge the Secretary of State to inquire into the facts of the case. Dr. Guy was thereupon appointed, and his report has just been published.

From this report we learn that the form in which the colouring matter is generally employed is that of a green powder, which is known as "emerald green" or "emerald;" but it is also called "Scheele's green," after its discoverer, or "Schweinfurt green," after a town in Franconia, where it was first manufactured on a large scale. It is imported in large quantities from abroad, and manufactured in still larger quantities in England, where not less than from 500 to 700 tons are said to be made annually. Its chemical composition is arsenious acid six parts, oxide of copper two, and acetic acid one—so that it is needless to say that it is a very active poison. The manufacture, when carried on in the open air, does not occasion much inconvenience to those employed in it. The men who make the powder suffer from boils and pimples or from a little itching in the nostrils and round the bends of the arms, and those who pack it are liable to itching and sneezing, but that is all. When the

work is done under cover more serious effects are produced. The workmen are then affected by blotches, rashes, and much itching. Those who drink suffer most; but if the work is discontinued, and more especially if cooling medicines are administered, the symptoms soon disappear.

Dr. Guy enters minutely into a description of the effects of this deleterious colour upon the health of those who are employed in its application to artificial flowers, the colouring of tartan for ball dresses, &c. He says the mineral colour is much used in the painting of shops, especially those of bakers, green-grocers, and confectioners. Sometimes the articles dealt in by those persons get stained with the paint, and may be consumed without its being observed. In the case of emerald green in the manufacture of paper-hangings a stronger size is employed, the quantity of dust floating in the air is smaller, and the effects produced upon the workmen are less marked. The colour, which is mixed sometimes neat and sometimes in combination with whitening in warm water and size, is quickly spread over the paper by means of large circular brushes, and men are able to continue at this occupation for six weeks or two months together, without suffering from more than a slight itching of the face and the symptoms of a common cold, accompanied occasionally by a rash on the face and at the bend of the arms and other joints. The injury worked by these papers after they are completed seems to be greater than that which is occasioned to the persons who are concerned in the manufacture. Not only do the occupants of rooms hung with them, but also the workmen who are employed to hang them, suffer from the effects of the poison. When the edges of the paper are cut off, the dust of the pigments is largely diffused through the air, and men cannot prudently work at hanging these green papers for more than two days at a time. They are affected by shortness of breath and the ordinary symptoms of a severe cold, followed in some cases by a rash. The removal of such papers from the walls is also attended with inconvenience, if not with danger. One man, who had unpapered only a single room, was ill during the whole of the night and next day, exactly as if he had had an attack of cholera, suffering from cramp, sickness, and pain in the stomach.

At the conclusion of this report Dr. Guy recommends that all paper-hangings which are coloured with emerald green should be stamped "arsenical paper." This suggestion, however, does not appear to us to get rid of the evil. The application of the poisonous colour is first dangerous to the health of those employed in the manufacture of the paper-hangings. Then when the paper is put up, the contact of the poison with the hands of the workmen is sufficient to cause headache, twitchings, and other symptoms. Having been put up, the poison frequently communicates its evil effects to the occupants of the room. Dr. Guy mentions two instances in which the sufferers, both of whom were young ladies, and both of whose illness lasted for a considerable time, were repeatedly taken from home for the benefit of change of air. When they were removed from the rooms the walls of which were covered with this poisonous paper, they rapidly recovered their health; but as soon as they returned to them the disease as rapidly recurred. The most prominent symptoms in these cases were vomiting, diarrhoea, spasms, cramp, dryness of the mouth and throat, a quick pulse, oppressed respiration, and a dry cough. In one of them, in which, however, *nux vomica* and other active remedies had been administered, the patient was affected by headache, twitchings, and "warnings of paralysis" on the left side. In both instances, the removal of the offending papers was followed by a speedy cure.

The only good we see in stamping paper-hangings with the words "arsenical paper" would be in cautioning purchasers in their selection of highly-coloured hangings. The panacea for this evil has, it appears, yet to be discovered. Meanwhile, Dr. Guy's report is likely to set our manufacturers and the public thinking. Arsenical green is not a natural green; the sooner, therefore, we employ a non-poisonous substance, which though not so brilliant will more closely imitate the beautiful green of nature, the better.

#### EARTHENWARE.

MR. J. C. STEVENSON read the following Paper on "Earthenware," on behalf of Mr. C. T. Maling, of Newcastle, on the 27th ult., before the British Association:—

The manufacture of white earthenware was introduced into this district by Mr. Warburton, at Carr's Hill Pottery, near Gateshead, about 1730 or 1740. . . . Those works were very successfully carried on for 70 years, when they gradually declined, and in 1817 were closed; a small portion of the building is still used as a Brown Ware

**Pottery.** The next manufactory was built by Mr. Byers, at Newbottle, in the county of Durham, about 1755, where Crown and white earthenware still continue to be made. In 1762, Messrs. C. Thompson and John Maling erected works at North Hylton, in the county of Durham; their successor, Mr. Robert Maling, in 1817, transferred his operations to the Tyne, where his descendants still continue the manufacture. St. Anthony's, Stepney Bank, and Ouseburn Old Potteries were commenced about the year 1780 or 1790. Messrs. A. Scott and Co., and Messrs. Samuel Moore and Co., erected potteries at Southwick, near Sunderland—the former in the year 1789, and the latter in 1803. The pottery carried on by Messrs. John Dawson and Co., at South Hylton, was built by them in 1800. The works of Messrs. John Carr and Sons, at North Shields, were erected in 1814. Messrs. Thomas Fell and Co. built St. Peter's Pottery in 1817. The establishment of Messrs. Skinner and Co., Stockton-on-Tees, dates from 1824. There are now about 25 potteries in this district, of which on the Tyne six manufacture white and printed ware; four, white printed and brown ware; and three, brown ware only—employing 1,200 people, and manufacturing, yearly, about 12,000 tons of white clay, and 3,000 tons of brown clay, and consuming in the process of manufacture about 34,000 tons of coals. On the Wear, there are two potteries manufacturing white and printed ware; two white printed and house ware; and two brown ware only—employing about 500 people, manufacturing yearly about 4,000 tons of white clay, 1,500 tons of brown clay, and consuming in the manufacture about 14,000 tons of coals. On the Tees there are four potteries, manufacturing white and printed ware, employing 500 people, manufacturing 5,000 tons of white clay, and consuming 13,000 tons of coals. And two at Norton, manufacturing brown ware, the particulars of their operations I have not been able to obtain. The potteries in this district being situated upon navigable rivers have great advantages over their inland competitors, Staffordshire and Yorkshire. The expenses on clay from sea-freight and inland carriage, average 13s. per ton to Staffordshire, and 5s. to this district; and in flints the advantage is still greater—in Staffordshire the average being 19s. per ton, against 4s. 6d. per ton here. Coals, although a little dearer here per ton, are so much superior in quality that 80 tons of Newcastle coals are equal to 100 tons of Yorkshire or Staffordshire. About 1858, Messrs. Skinner and Co., of Stockton-on-Tees, first applied Needham and Kite's patent filtering press, for expelling the surplus water from the slip, which had formerly been done by evaporation. This is a much cleaner and better process than the old system, and is now adopted by 30 or 40 potteries in England and Scotland. With the exception of three potteries in this district and at Glasgow, machinery has been very little applied to the manufacture of earthenware, and even at these works, not nearly to the extent to which it is capable of being profitably adopted. One manufactory on the Tyne, Ford Pottery, having the best machinery, supplies at least 80 per cent. of the jars used by confectioners for marmalade and jam, &c., in England and Scotland. The description of goods manufactured in this district is that used by the middle and working classes, no first-class goods being made here. The principal markets, in addition to the local trade, are the Danish, Norwegian, German, Mediterranean, and London, for exportation to the colonies. The trade to the United States, being so very small from here, the American war has affected this district less than any other.

#### NEW ROAD TO THE WESTERN SUBURBS.

THE following memorial is in course of extensive signature throughout the suburbs and city generally. It is addressed to the Right Hon. the Lord Mayor and the Corporation of the City of Dublin, and is the memorial of the inhabitants of the western suburbs and other citizens of Dublin:—

“**SHEWETH**—That your memorialists have suffered no little inconvenience and detriment in consequence of there being no suitable means of access to the city from the western suburbs, the present roads being long, circuitous, and some of them dangerous as public thoroughfares. That these suburbs of the city have been, and are becoming, more frequented and densely populated during the last few years. The numbers who have travelled by the Inchicore omnibus line alone during the last year were no less than 146,000 persons. That your memorialists believe that were there a suitable approach made, the industrial classes would more freely avail themselves of the advantages of this outlet; and, owing to the salubrity of the air, the cleanliness and healthiness of the locality, and its immediate proximity to the Phoenix Park, many might have the advantage of a suburban residence,

who are now shut out from the more fashionable localities of Kingstown, Rathmines, &c. That the large barracks, called Richmond Barracks, the County Court-house, and the railway town of Inchicore being situate in this locality, it would seem desirable, on public grounds, that such a suitable and direct thoroughfare should be constructed. That through the intervention of the authorities of the Royal Hospital, a new road has been partially constructed from the terminus of the Great Southern and Western Railway, but that this road unfortunately terminates in a narrow and dangerous pathway, going out under two bridges, by the Island-bridge Barracks, and thus rendering what might otherwise have proved a suitable thoroughfare, nearly useless for general purposes and the public good. That your memorialists believe that were this road continued in a more direct line, and carried on straight to the Circular-road, such a road would fully answer the purposes required, and prove an unspeakable boon to the citizens, the inhabitants of the county, and the public at large. That as your memorialists understand that there are no insuperable difficulties in the way of constructing this road, and presume that the authorities of the Royal Hospital would cordially co-operate with the Corporation in its construction, your memorialists pray that the necessary steps might be taken for carrying out this project to a successful issue, and memorialists will ever pray.”

#### PRIMEVAL DWELLINGS AND GRAVES IN THE ORKNEYS.

In the section of Geography and Ethnology of the British Association, at the Newcastle meeting, Mr. George Petrie read a paper on the aboriginal remains in the Orkneys. He said that no district in Scotland possessed so many of these remains. They were found in almost every island, and new discoveries were continually occurring. They frequently appeared as green tumuli of various sizes, and sometimes were unexpectedly met with beneath the surface, and without any external indication of their existence. The ante-Norwegian antiquities of Orkneys might be classified as—1st, dwellings and other buildings of primitive architecture; 2nd, the so-called Picts' houses, or Pights-houses; 3rd, barrows or grave-mounds, and ancient graves unconnected with barrows; 4th, miscellaneous antiquities, such as standing stones and cromlechs. The paper gave a general description of the first two of these classes. The dwellings were subterranean chambers or cells, and brochs or circular towers; while the character of the so-called Picts' houses the author believed to be sepulchral; and, if so, they might probably belong to the same race who erected the brochs, and it might be the standing stones also. The author exhibited various ground-plans and sections of the ancient buildings.

#### SLAKING OF QUICK-LIME.

DR. DAVY read a paper on the above subject, on Tuesday week, before the British Association. In some experiments which he had made on the slaking of lime—as its conversion into a hydrate is commonly called—he had noticed certain results new to him, and of which he gave a brief account. It is well known that as soon as water is added to, and absorbed by, well-burnt lime fresh from the kiln, an immediate union takes place, the mass becoming broken up and falling into powder, with the production of much heat and steam; but if the lime has been kept exposed to the air for two or three days, during which time it absorbs a small quantity of water, without at all disintegrating, the same rapid union is not witnessed, without the addition of water sufficient to form a hydrate. On the contrary, some minutes will elapse before the combination takes place, and the Doctor finds there is a similar retardation of action from other causes. The result of the experiments which had been made, he maintained, warranted the conclusion that lime is capable of uniting feebly with less water than is required to form the hydrate, that consisting of one proportion of each, the weaker compound containing probably two proportions of lime. Considering the high temperature produced in the act of union with water and lime, and the quantity of steam that may be generated, the idea could hardly fail to occur that the formation of the hydrate may be applied to some useful purpose, such as the blasting of rocks, and, if successful, might be especially useful in collieries as a substitute for gunpowder, which has so often occasioned, by the ignition of gas, terrible accidents and loss of life. The few trials he had instituted with a view to this application had not answered his expectations. His experiments, however, had been made on sandstone, and as coal was not nearly so resisting as that material, and, as its burning was easily effected, he expressed a hope that the experiments might be repeated in a colliery.

#### CENTRAL FIRE BRIGADE STATION.

THE following is from the report of the chairman of Waterworks Committee to the sub-committee on fire brigade, relative to the establishment of a central station for the captain and men, and to the effecting of a complete communication between that building and the City Hall, in case of fire:—

The works contracted for have been certified by your city architect, and are now in a condition to admit of your taking possession of the station, and placing it in an effective working condition. You are so fully impressed with the importance of having a station in this central position, and of having your brigade organized into district sections, that I need not urge these views as reasons for prompt action, knowing as I do that you all feel the necessity on these grounds as fully as I do. Assuming that you will determine at once to constitute “The Station,” I will place before you the result of my examination of the William-street house, and point out some of the requirements to which your attention ought to be immediately directed. The upper storey will conveniently accommodate from twelve to fourteen single men. Their accommodation on this storey will consist of ample dormitories, a convenient hall with racks for uniforms, and a small but comfortable sitting and reading-room for the men off duty, if you do not resolve to give this room for the use of the captain as a kitchen. In the under storey there is a good kitchen and men's room, which is fitted up with a close range for cooking, &c., and a good guard-room or general sitting-room for men on duty, with an intermediate hall. There is also a convenient lavatory, fitted up with troughs and water-pipes for the men's use. The guard-room is so situated that the policeman on duty, or any messenger conveying the intelligence that a fire has broken out, can have instant access to it; and the men, by means of a bell, can communicate to the other members of the brigade in the upper rooms. From this guard-room there is a direct passage to the stable and engine-room—all under the same roof. This arrangement will give the greatest facility for dispatch, and enable the William-street section of your brigade to turn out almost instantly on receipt of “the alarm.” The large room on the central or principal floor has been divided into three small but comfortable apartments for your superintendent, consisting of an office, a living apartment, and a bedroom. It is much to be regretted that the house does not afford accommodation in the basement storey for a separate kitchen for the superintendent, and no means exist for providing him with one save as pointed out above. Some arrangement should be made by means of which such requisite accommodation for your superior officer can be procured; and, unless you adopt the suggestion of giving him one of the upper rooms, he will be compelled to have his cooking effected in the men's room, which is obviously most objectionable. If you should hereafter determine to locate only eight men at this station, which would be quite sufficient for a double station, if there were other such stations, or if the other members of the brigade were located within easily accessible distance, you could allocate the room pointed out as a kitchen and servant's room for your officer, and still give a sitting-room to your men upstairs. Possibly, having regard to his position, the necessity for observing rigid discipline, and due respect for his authority, you will determine that the arrangement to give your officer a kitchen upstairs, and use the other rooms at present as dormitories only for the men, would be better than to appropriate one of the rooms for a sitting-room, especially as the men can use the guard-room as a sitting-room in the daytime when not on duty. The engine-room is capable of receiving two engines, and it is proposed to place in it your No. 3 hand-engine and your steam-engine so soon as the improved one will be received. It will also accommodate four horses, and though some alteration will be requisite to render this accommodation satisfactory, I am of opinion that, for the present, you may rely on its affording safe, if not perfect accommodation for the two engines, their horses, and appurtenances. I have now to call your attention to some requisites which you ought at once to order.

1st. A magnetic telegraph line between the station and the City Hall, in continuation of the present line from the Hall to the station in Winetavern-street, should be at once laid, and the proper instruments for communicating adjusted, so as to enable “the guard” at either station to communicate instantly with the guard station at the City Hall, and through it to the other station on receiving intelligence of the outbreak of a fire. This connexion should be so made as to enable all your stations to communicate with the City Hall, and, through the guard stationed there, with each other.

2nd. The small angle at the entrance to the Weight Master's store should be unroofed, and a

new roof or roof shed erected at the top of the building, which will protect the angular space from the weather. At this point a beam with pulley ought to be erected, with suitable adjustments for hanging the engine hose to dry. Possibly, it would be advisable to close the front of this angle all the way down, leaving apertures for air and light. It will be requisite either to erect a climbing mast or ladder for gaining access to the hose, or to open a connecting window or door from under the circular room over the Lord Mayor's Court. This latter, in a constructive point of view, would be, perhaps, the most convenient, as a safe platform, with cross poles for hose, could be erected, which would be far more accessible and convenient to the men.

You will also require to order—

That a lamp and sign-boards inscribed "Fire Station" be provided for the front angle of the station.

That three alarm bells be provided and placed *in situ*.

That the captain and some of the brigade be at once instructed in the use of the magnetic communicating instruments.

That an arrangement be at once made with a view to having horses always in attendance day and night in the stable of the station.

Though this report was intended to apply mainly to the William-street station, I would recommend that you at once look out for a temporary station on the north side of city, and that you instruct a sub-committee to procure a place which may be fitted up as a guard-room and engine-house at a small expense, as you will probably find it more convenient and, indeed, indispensable, not to fix all your stations permanently until you have definitely determined on the plan of water distribution within the city. The time has also arrived when you may with advantage ask the opinion of the council with respect to your by-laws for the control and management of the brigade, which have now been for some time in the hands of the members—JOHN GRAY, Chairman, Waterworks Committee.

#### PORCELAIN MANUFACTURE AT DULEEK.

ALL the materials necessary for the manufacture of all kinds of porcelain can be obtained within a distance of from three to four miles of the factory, to which they can be brought by water along Lough and the River Erne. The English factories have to import a large portion of their raw material from Norway. The Belleek materials are of the very best description and far superior to those used in the English factories; the beautiful specimens of eggshell china, the lightest ever made, which were exhibited in the late International Exhibition, by Messrs. Kerr, of Worcester, were made from Belleek materials. One of the most considerable items in the cost of production is altogether done away with at Belleek, that is the steam-power necessary for the grinding and mixing of the materials, &c.; it is there done, and much more effectively, by water-power. The labour will be cheaper when the natives of the place have learned the trade, for which those now employed show great aptitude. With all the above natural advantages and those arising from the very perfect manner in which the factory has been built from Mr. Armstrong's designs, the introduction of all the latest improvements into the construction of the machinery, kilns, &c., there is little doubt that the English manufacturers may be undersold even in England. With regard to the American trade, for which they are making a particular cup that will bear any amount of knocking about, they have also the advantage of position, as there will when the railway connecting Enniskillen with Sligo, and which passes through Belleek, by railway communication with Sligo, from whence they can ship their goods to America. It is to be hoped that from the success of this factory, and from the opening up of the country by the railway before mentioned, that other branches of manufacturing industry will be introduced into this district. It is peculiarly fitted for them by the abundance of water-power afforded by the river Erne—the facilities for traffic on Lough Erne, which affords uninterrupted water-carriage from Belleek to Belturbet, a distance of nearly forty miles, and from the abundance of raw material which the country about is capable of giving.

#### EGYPTIAN ANTIQUITIES.

On last Thursday evening a lecture was delivered on the above subject by George Porte, Esq., M.R.I.A., for the Carysfort Young Men's Christian Association, in the school-room of Carysfort Church, Blackrock, the Rev. F. H. Thomas, Rector, in the chair. The lecturer gave a concise sketch of the history of Egypt from the earliest times, adverting to the extreme

antiquity of its civilization, and passing in review the leading dynasties through which its sovereignty had passed before the Christian era, in the course of which he very satisfactorily identified several of the Royal names which have been traced on the monumental relics of the country with some of the Pharaohs of the Bible. He then passed on to the more immediate subject of his lecture, confining his attention for the present to the ancient temples of Egypt, but expressing a hope, at the same time, that on some future occasion he might be able to introduce us to the Pyramids in like manner. The details which followed were very beautifully illustrated, and rendered highly interesting and attractive by means of dissolving views, which gave an appearance of reality to the grand and massive piles exhibited, that no paintings could possibly present, producing, as they did, the very minutest tracings in the sculptures and hieroglyphics. These views were given by photographs taken in Egypt, and prepared for the lantern by Nigretti and Zambra. Having premised that we were not to expect traces of the beautiful, but rather of the majestic and sublime in the remains of Egyptian greatness, the able lecturer introduced us to several structures in detail, examining and describing, in the most instructive and agreeable manner, every particular calculated to excite interest or observation. The temples were exhibited in the chronological order, so as to mark the progressive development of Egyptian architecture and sculpture, from the rude rock-cut temples of Derr and Ipsambul, in Nubia, down to the noblest and most perfect specimens, as seen at Luxor and Ramak. In referring each of the structures to the probable age of its erection, the lecturer took occasion to demonstrate that the Armenian worship—represented by the rock-cut temples of Nubia—was the most ancient idolatry of the country, having originated probably about the time of Abraham; and suggested that the Ammon of the Egyptians was none other than Ham, the son of Noah, and ancestor of the African races. From a comparison of the geographical with the chronological order of the buildings under review, the learned lecturer argued that the tide of civilization descended the Nile from Nubia, and that from Nubia Lower Egypt derived its language, religion, and laws.

#### NATIONAL LANGUAGE AND NATIONAL ART.\*

As tending to show the intimate connexion between the language and the arts of a people, and how the state of the one will be, in some degree, an index to the state of the other, we quote the following:—"It is not a little remarkable that, with the taste for the classics in literature, a disrelish for the Gothic in architecture began to prevail. And as with respect to literature in a subsequent age, a pedantic or *aurate* style affecting Latin-derived word to the depreciation of purer English came into vogue. So in the fine arts there arose a desire to adopt the classical in preference to the Gothic; not, however, the pure taste of ancient Greece, but a heavy and fantastic style, incumbered with ornamentation of a debased and incongruous character. In both cases, I allude only to the abuse by exaggeration, of the style adverted to. As the severe and chaste Grecian architecture in its classic simplicity is to be admired, although not to the depreciation of the Gothic, as more especially suited to ecclesiastical edifices, so simple Anglo-Saxon words are to be valued, but not to the rejection of those that have been derived from Latin directly, or secondarily through the French; nor of those which have been borrowed either directly from the Greek, or from that comprehensive and expressive language through the Latin. Of late years the revival of Gothic architecture has been contemporaneous with the return by many writers to the simplicity of the Anglo-Saxon in style; and this, no doubt, has been an improvement. At the same time, as I think that it would be a mistake to adopt the mediæval style of architecture, to the entire rejection of the Grecian or Italian, perhaps better suited to domestic and secular as distinguished from ecclesiastical buildings; even so it would be objectionable to revert to the simple Anglo-Saxon in literature, to the exclusion of words derived from the classics. The first attempt at a revival of the Gothic in architecture in the last century was made by Horace Walpole. . . . At the same period, which appears to have been too early for the introduction of the Gothic, flourished that Goliath of literature, Dr. Samuel Johnson, who carried the adoption of Latin-derived words to such an excess as to render his style ponderous and turgid. It is also remarkable that in dress, in furniture, in equipage, and in manners, the formal and heavy style prevailed which characterised the architecture and literature of the day. On the other hand Swift resisted the new style of writing, and amongst English authors of the period he is the most remarkable for the use of words derived from

\* *Exotics*: or words derived from Latin roots. By Edward Newenham Hoare, M.A., Dean of Waterford, &c. Dublin: Hodges, Smith, & Co.

Saxon, almost to the entire exclusion of those borrowed from Latin, which was the more remarkable in Ireland, where the Anglo-Saxon is less in use. His theory was that no word should ever be allowed to become obsolete; and hence, he would have retained and preferred all that was of Anglo-Saxon origin. Other writers of the last century were distinguished for the use of words of classical origin, though not to the same extent with Dr. Johnson. For example, the historians Hume and Gibbon, also Pope, Steele, Addison, and Dryden. In our own day, with the recent revival of mediæval architecture, there has of late arisen a remarkable admiration of Saxon English. To this, as I have said, I am far from objecting, if only it be carried out in moderation and not adopted to the exclusion of words borrowed from the classical languages.

#### SANITARY STATE OF DUBLIN.

THE *Irish Farmers' Gazette*, re-echoing much that has already appeared in the DUBLIN BUILDER on this subject, says—"None who pass along the quays of Dublin, from King's-bridge downwards, at low water, can fail to observe the abominable odours which rise from the bed of the river, especially during hot weather; and if the visitor is at all curious in such matters, a walk through some of the back streets, such as Greek-st., Mary's-lane, Bull-lane, and many other crowded parts of the city, will speedily convince him that for pestilential stinks Dublin can vie with any other city in the kingdom. And when a closer examination is made, and courts and crowded tenements are explored, it will then become a matter of wonder how human beings can live from day to day in such localities. The corporation has undoubtedly done much to render the main sewerage of Dublin efficient, but those main sewers are of comparatively little value, from the want of proper drains leading from the houses and back-yards. An eminent medical correspondent of *Saunders' News-Letter* has very properly called attention to this matter, stating, that as a consequence of the want of house-drains in many parts of the city, 'the back-yards and premises of houses let in tenements, are in such a condition of filth with human soil, putrid water, and decomposing vegetable and animal matter, that although the sanitary officers of the police and corporation use their best efforts to abate the evil, no sooner have these places been cleaned out than the accumulation again commences, and so disease is extensively produced.' 'I know,' he goes on to state, 'that the deaths occurring from these causes are very numerous, not only from fever, but from scrofulous and other affections.' The corporation has the power to compel the owners of houses to construct house-drains; and we consider, therefore, that immediate steps should be taken to have such carried out, so that the health of the citizens, and those frequenting the city, may be protected. The state of some of the houses let in rooms, where there are no proper house-drains or back premises, is positively dreadful, and a disgrace to a Christian country. It is almost impossible, in fact, to describe these places, under the circumstances mentioned; and the result is that there are three times as many deaths where those 'life-destroying influences' are at work than there are 'in those parts of the city where sanitary matters are not neglected.' Were a sanitary commission appointed to visit those parts of the city to which we refer, its report would reveal a tale of horrors of which few have the faintest idea. Yet all this is caused, in a great degree, by the narrow-mindedness of house proprietors, who will not construct proper house-drains, and provide suitable conveniences for the use of their tenants; and it is, therefore, absolutely essential that unjustifiable cupidity of this kind shall be met and counteracted by the powers vested in the corporation, for the benefit of all concerned. But if such be the state of certain parts of Dublin, are the provincial towns in a better condition? Are the back lanes and courts of Belfast, Dundalk, Drogheda, Limerick, Cork, Armagh, &c., &c., in such a state of immaculate sweetness as to enable the municipal authorities of these towns to point with scorn at the filthy lanes and fever-producing tenements of Dublin? If not, we trust a spirit will be evoked with reference to this matter, among the inhabitants of these places, which will compel the authorities to take immediate steps for the reformation of the evil."

The Committee of Privy Council on Education, acting through the Science and Art Department, has circulated copies of a minute made at a recent meeting which declares that it is proposed to hold, in the spring of next year, at the South Kensington Museum, as complete a collection of the works of Mulready as it is possible to get together, and invites the assistance of proprietors of the artist's works in furtherance of the plan.

## RAILWAY NEWS.

**CLONMEL AND THURLES RAILWAY.**—For this line Mr. James Dillon, C.E., proposes as a route, first, to start from Clonmel station on Waterford and Limerick Railway, passing up through Wilderness Glen, and through townlands of Moortown and Caherclogh, a little to the west of Kilmore Flour Mill; then through Grangebeg, curving round the planted hill at the grove near the main road, so as to avoid a heavy cutting at that point, and passing within a few yards of the town of Fethard, either on the east or west side. The course of the line would continue due north up the valley of St. Johnstown (sometimes called Singinstown), passing close to the town of Killenaule, near the Old Brewery, and curving round either side of Kilbrannel-hill. From Ballynonty the line would run almost straight into the railway station at Thurles, *via* the village of Littleton. The length of this line would be about 26½ statute miles. Next he suggests an alternative line between Fethard and Ballynonty, through the valley of Buffanah or Graystown. Starting from Fethard, it would pass through the townlands of Ballybough, Rathavin, Rathcool, passing Rathcool Castle about half-a-mile to the west, through Carigeen, Knockangloss, Graystown, and curving round a little to the east or west of Graystown Castle, it would run along the flat ground at the base of Kilbrannel-hill, pass close to the forge at Ballynonty, and the remainder of the line into Thurles would be nearly the same as first proposed. It length would be about 27 statute miles. Also a third line, which, too, is an alternative line through the townlands of Shanbally and Baptistgrange, between Clonmel and Fethard.

**THE BUNDORAN RAILWAY.**—We understand that the works on the Bundoran Railway line, suspended for some time, will be immediately resumed; arrangements to that end having been just entered into with the eminent firm of Messrs. Brassey and Peto, so that we expect that the line, one-half of which is already made, will be completed before the lapse of many months. This and the Finn Valley line will prove sources of traffic to that of the Irish North Western Company.

The Finn Valley Railway, connecting the rising towns of Stranorlar and Ballybofey with Strabane, Derry, &c., and generally with the Irish North Western Railway stations, was opened on Monday under most encouraging circumstances. It is rarely that we (*Derry Sentinel*) have seen such perfection of arrangements at the opening of a new railway line. There were no make-shifts observable in the shape of temporary structures. Everything necessary for the traffic was ready—a fact not only creditable to the directors and officers of the company, but also for the best interests of the shareholders. Passing along the line we observed that the fencing was carefully made up, and the viaducts, and aqueducts, and the construction of the line generally were of the best description. The permanent way must be in fine order, as there was scarcely any oscillation of the train observable by the passengers, even when at its highest speed. The directors, we observe, have, at their own expense, and for railway purposes, fitted up telegraphic stations at Stranorlar, Castlefin, and Strabane, which are at present in full working order. No doubt the public, ere long, will be allowed to participate in the benefits thus secured for the line. The engines and rolling stock are supplied by the Irish North Western Company; the time occupied in the journey between Stranorlar and Strabane is fifty minutes.

## Public and Private Works.

Extensive works are to be executed at the churches of Stradbally, Co. Limerick, and Ballyclough, Co. Cork, under the directions of the Ecclesiastical Commissioners' Architects; also at the churches of Croagh and Loughill, County Limerick; and Mohill, Co. Leitrim.

The time for sending in tenders for the Belfast floating and Graving docks has been extended to the 5th proximo.

The Monaghan Gas Company have received tenders for the erection of gas works in the town.

The Board of Guardians of the Donaghmore Union are about contracting for several new alterations in the workhouse.

There is a project on foot for the continuation of the city gas pipes to Glasnevin, hitherto a dull, but now a comparatively rising suburb.

Complaints have appeared in the morning journals respecting the contracted dimensions of the Parish Church at Howth, which it is urged should be immediately enlarged to accommodate the increasing requirements of the locality.

Alterations and additions are to be made at the workhouse of the Rathdown Union.

A register office and strong closet are to be formed in the workhouse of the Athlone Union.

On Thursday week last the foundation stone of the edifice which is to replace the old chapel in the parish of Sneem, was laid by Lord Dunraven, in presence of the Most Rev. Bishop Moriarty, and a number of the clergy and the laity. Some time since the Earl of Dunraven, who has extensive estates in the county Limerick, purchased a small island in the Kenmare river called Garnish Island, and built a handsome residence thereon; and he has so improved and planted the island as to make it one of the most charming summer retreats in the county. His Lordship obtained plans from Mr. J. C. Hardwicke, an eminent architect of London, and at once put them into the hands of an equally competent man in his sphere, the late Mr. Murphy, of Bantry, contractor. Mr. Bland, the proprietor of the soil, made a free grant of the site, and in addition another site for a residence for the parish clerk. The church is designed in the Italian style, with low pitched roof, and circular headed windows. The dimensions are as follows, *viz.*, from chancel to nave 100 feet; breadth across transepts 75 feet; breadth of nave 35 feet. The walls are about 20 feet high; the roof is to be of open timber, stained, and varnished. In the north-east corner of the nave will be a handsome belfry 70 feet in height, surmounted by an open campanile in which a bell will be placed. The tower and the walls of the church will be faced with alternate rows of Bath stone and native red sandstone. The internal fittings are designed in a handsome and appropriate style. The church will accommodate from 500 to 1,000 people, and the total cost of its construction is estimated at about £3,000.

Mr. McCurdy, architect, has been instructed to prepare plans for the erection of a consumptive ward in connexion with the Hospital for Incurables, on Donnybrook-road. The Lord Mayor has subscribed £5 5s., and the Lady Mayoress £2 2s., towards the funds now being collected for the purpose.

The new Parish Church of Powerscourt, consecrated this date, is beautifully situated on an eminence above the village of Enniskerry, commanding at once a most magnificent view of the Sugarloaf Mountain, the surrounding country, and "the Scalp." The façade presents a good deal of chaste workmanship. Much of the beauty is, however, destroyed by the disproportionate character of the belfry, which is much too large for the rest of the building. The interior of the building is exceedingly plain, with the exception of a few stained glass windows. At the entrance there is a beautiful baptismal font, and the pews are commodious, and well arranged. The vestry is stated by the *Irish Times* to be as badly arranged as it could possibly be; and our contemporary hopes, for the character of the country, that it was no Irish architect who turned such a plan out of his hand. It says, "Really we are at a loss to know upon what common sense or scientific principle the belfry should be converted into a vestry, or the vestry into a belfry, as has been done in this instance. Certainly it cannot have been for the minister's comfort that the bellman was brought up to pull the rope by his side while he is preparing for the most solemn service of the sanctuary, and the idea of its being in any way edifying to the bellman himself is highly improbable; in some things, however, we think it right to state that there is a most decided improvement on the former old-fashioned style of church arrangement—there are beautiful and appropriate texts of Scripture entwined on the fresco painting surmounting the windows. It is, however, much to be regretted that the original plan of the building was not carried into execution, as there would have been ample accommodation in it, not only for the parishioners but also for the strangers residing in the neighbourhood. We should say at most, the present building will not hold over three hundred and fifty persons, and it is easily seen that this, for a large and Protestant parish like Powerscourt, is quite inadequate: this evil will, however, be partly remedied by a Chapel of Ease which Lord Powers has kindly consented to build in another part of the parish.

It is proposed to erect a new Franciscan Church in Killarney, and land therefor, comprising two statute acres, near Fairhill, has been purchased.

## General Items.

There has been a great increase in the number and value of steam engines exported. From an official document just issued it appears that in nine months, ending the 31st July last, the value was £920,776.

Three model lodging-houses, recently erected on speculation near Norland-square, Notting-hill, at the cost of about £1,500, are making a steady return of £5 a week.

Frederick Darley, Esq., of 26, Lr. Fitzwilliam-street, late architect to the Commissioners of National Education, and one of the oldest and most eminent practising architects in Ireland, has been appointed one of the Ecclesiastical Commissioners. We heartily congratulate Mr. Darley on his appointment, which is only a just recognition of lengthened public services, rare ability, and extreme private worth.

The number of visitors during 1862 to the International Exhibition was slightly in excess of that of the first Exhibition, being 6,211,103 in 1862 as compared with 6,039,199 in 1851. On one day of 1862, however, was the maximum of 1851 reached. At the first exhibition there were several days in which more than 100,000 visitors entered, but in 1862 the highest number was under 68,000.

The Very Rev. Dean Graves (President of the Royal Irish Academy), the Rev. Samuel Butcher, D.D. (Regius Professor of Divinity, Dublin), Prof. D. F. McCarthy, Dublin, and the Very Rev. Dean Ramsay, of Edinburgh, have been added during the current week to the National Shakespeare Committee.

Friday, the 25th instant, is fixed for the inauguration ceremony of opening the New Iron Bridge over the Foyle at Derry, and His Excellency the Lord Lieutenant has accepted the invitation requesting him to officiate on the occasion, which will, of course, be one of unusual brilliancy.

The directors of the Dublin and Kingstown Steam-packet Company held a most satisfactory meeting last Friday in their Kingstown Office, when about 1,000 shares towards the purchase of a second steamer were subscribed for, and tenders were received from some eminent shipbuilders in England and Scotland, and also, we are glad to hear, from a Dublin firm. It is pleasing to see native industry looking up.

The Social Science Congress will hold its seventh annual meeting at Edinburgh, on the 7th of October. The president, Lord Brougham, will open the meeting with an address. The six following days will be devoted to the different departments in rotation: the proceedings to begin with an address from the president of each section. The addresses will be delivered in the Free Church Assembly Hall; the business will be transacted in the Law Courts and Free Assembly Hall. The concluding general meeting will be held in the Church of Scotland Assembly Hall, on October 14. A working man's meeting will be held in the Corn Exchange, under the presidency of Lord Brougham, on the evening of the 9th, and *conversazioni* on the evenings of the 8th, 9th, and 12th respectively, in the University, Museum, and Hall of the College of Surgeons, and in the National Gallery. The dinner will take place, on the 13th, in the Music Hall. The Scottish Academy of Arts has promised to make as large a collection of the works of Scotch artists as is practicable, to be shown free in the galleries of the Academy during the continuance of the Congress.

The scheme for holding an exhibition of stained-glass in London, has taken a concrete and practical form. The Science and Art Department invited the leading firms engaged in the production of stained-glass to meet at South Kensington, and explained to their representatives the nature of the plan and its means of carrying it out. The Department proposes to hold the exhibition in a gallery in the west wing of the South Kensington Museum, which contains fifteen windows, each 11 feet high by 4 feet 9 inches wide, and could, if necessary, apply the windows of a gallery adjoining that in question to the same purpose. The manufacturers present unanimously accepted the offer, and agreed that the period of the exhibition should be regulated by that of the Royal Academy. Messrs. T. Gambier Parry and R. Burchett were appointed an executive committee on behalf of the exhibitors, to conduct the necessary arrangements in concert with the Department.

The Fine Arts have acquired such extension in France, that in spite of the vastness of the Palais des Beaux Arts in the Rue Bonaparte, it has been necessary to construct an annexe, the façade of which is in the Quai Malaquais, opposite to the Seine. This annexe is nearly completed. When it is stated that this building is but a dependence of the school, an idea will be formed of the character of the architecture. M. Duban is the architect. Exuberant decoration would not have been suitable. In fact, the annexe is but a vestibule of the Palace, and it would not have been proper to divert attention by an affectation of ornament. The vestibule participates in the severe and simple character of the façade. You would think you were entering a Roman palace before the age of Augustus. A few steps lead to a landing-place, where you come to a double flight leading to the upper floor. There the landing-place opens, and a new gallery, with a glass roof, leads to the regular gallery of the Exhibition of the school. Workmen are now busily engaged in the decoration, which participates in the simplicity of the edifice.

## Miscellaneous.

**THE DUBLIN WATERWORKS.**—The new steam crane on the Victoria Wharf, Kingstown, for the hoisting of the conduit pipes for these works, was fully adjusted yesterday. It can hoist, slew itself, and pump water into the boiler, all by steam. As we stated some time ago it is capable of lifting fifteen tons.

**ALLIANCE NATIONAL LAND, BUILDING AND INVESTMENT SOCIETY.**—Amongst the most advantageous of co-operative organizations in England are Building Societies, with the practical working of which Irishmen are not familiar as they ought to be. There is no more profitable mode of investing savings than in a building society, and the only point with an Englishman is to make his choice between different societies. The above is reckoned amongst the best of this class of societies.

**LOCKE'S TOMB.**—The church of high Laver, the little village near Ongar, in Essex is undergoing some sort of restoration. Locke's tomb, which is its chief human distinction, is out of repair, and the rector desires to have it restored, if possible, in harmony with the sacred edifice.—*Athenæum*.

**THE BRAY GAS WORKS.**—It is stated that £4,200 was the sum asked by the Gas Company for their works at Bray, and that the Hibernian Company of Dublin are willing to give that amount, together with the expenses incurred since negotiations for sale were entered into a few months ago.

**M. SOLEIL'S TENEBROSCOPE.**—It is well known to scientific men, although the general public do not sufficiently appreciate the fact, that light in itself is invisible unless the eye be so placed as to receive the rays as they approach it, or unless some object be placed in its course, from whose surface the light may be reflected to the eye, which will generally thus give notice of the presence of that object. Thus, if the strong beam of sunlight be admitted into a darkened chamber through a small opening and received on some blackened surface placed against the opposite wall, the entire chamber will remain in perfect darkness, and all the objects in it invisible, except in as far as small moles floating in the air mark the course of the sunbeam by reflecting portions of its light. Upon projecting a fluid or small dust across the course of the beam its presence also becomes perceptible. The instrument exhibited consisted of a tube with an opening at one end to be looked into, the other end closed, the inside well blackened, and a wide opening across the tube to admit strong light to pass only across. On looking in, all is perfectly dark, but a small trigger raises at pleasure a small ivory ball into the course of the rays, and its presence instantly reveals the existence of the crossing beam reflecting a portion of its light.—*Athenæum*.

**REVOLVING SHUTTERS.**—Mr. S. W. Francis has obtained a patent for improvements in revolving shutters. These Improvements consist in so constructing the laths or plates of revolving shutters that such shutters may revolve in either direction round the roller to which they are attached; and for this purpose the patentee forms a groove in the bottom or lower edge of each lath or plate, and along the entire length of each lath or plate of which the shutter is composed (except the bottom lath of each shutter), and he constructs the upper edge of such lath or plate thinner than the lower edge thereof to fit into the groove in the lower edge of the lath or plate immediately above it. He then unites the several laths or plates of which the shutter is composed by means of belts, webs, chains, cords, or wires, passed through holes or mortises in the breadth of each lath or plate in the usual manner.

**REBUILDING OF ROCKINGHAM HOUSE.**—**BOYLE, SEPT. 8.**—A great deal of satisfaction is felt throughout this neighbourhood at the determination come to of rebuilding Rockingham House, the first steps of which undertaking have commenced. Mingled with this satisfaction is no small share of regret that the execution of this important affair has not devolved on the trustees, who, from their well known desire to benefit in every possible manner the town and neighbourhood, would doubtless have made this large expenditure more productive to the tradesmen resident in the locality than a London contractor can be expected to do, who, of course, brings his staff from his various departments elsewhere, notwithstanding which fact a vast amount of employment will be available for both mechanics and labourers in this quarter for some time to come.—*From Correspondent of Irish Times*.

**THE DROGHEDA WATERWORKS COMPANY.**—The members of the corporation, at their meeting on Monday, voted a sum of £400 a-year to the new company, but with such conditions as must sufficiently protect the public on the one hand, and not in any way hamper the action of the directors on the other.—*Drogheda Reporter*.

**PEMBROKE TOWNSHIP.**—A meeting of the Pembroke Township Commissioners was held at their offices, Ball's-bridge, on yesterday, for the purpose of electing a Surveyor to the Township, in accordance with the Act of Parliament. There being seventeen candidates for the appointment, the four following gentlemen were elected as eligible:—R. H. Frith, Esq., County Surveyor; R. A. Grey, Esq., County Surveyor; H. Johnston, Esq., Surveyor to the Rathmines Township; and F. P. Barnes, Esq., C.E. A ballot having been taken, Mr. Barnes was elected.

**BLACKROCK TOWNSHIP.**—An adjourned meeting of the Commissioners was held on yesterday, for the purpose of appointing a secretary. The three candidates selected at a former meeting of the body were Messrs. Butler, Hackett, and Williamson. The first named gentleman was, after close polling, declared elected by a majority of one.

**THE BUILDING TRADE.**—It is said that the present want of uniformity in the mode of working in the building trade, is to form the subject of a conference of the workmen. The conference is to discuss the following among other propositions, viz.: 1. That the mode of working shall be by the hour, at the rate of 7d. per hour, but that ten hours shall be recognized as a working day, and that every hour worked beyond ten should be paid for at the rate of time and a-half, the hour of leaving off on Saturday to be one o'clock. 2. That nine hours should be considered a working day throughout the week, at the rate of 5s. 6d. per day, with the extra payment for overtime. 3. That the ten hours constitute a working day for the first five days of the week, at the rate of 6s. per day, with the extra payment for overtime, leaving off work at twelve o'clock on the Saturday, for which 3s. shall be paid. 4. That overtime be discouraged; but that where necessary, it shall be paid for time and a-half, and that the extra payment be given to men in all branches of the trade. The adoption of either of the above propositions would make the average regular week's wages about 33s. It is also proposed that the resolutions adopted should be submitted to a conference of the employers for their consideration, and that a deputation from the men should attend the conference to explain their objects; the resolutions finally agreed upon to come into operation with the commencement of the ensuing spring season. The men expressly state they desire to take no undue advantage of the present brisk state of the trade, or to interfere with the existing contracts.

DUBLIN BUILDER OFFICE,  
42, Mabbot-street.

It is respectfully requested that amounts of accounts for Advertisements may be paid to Mr. PETER ROE, soon as convenient after same being furnished.

Subscriptions to this Journal are in all cases payable in advance.  
July, 1863.

NOTICE TO PUBLISHERS AND AUTHORS. —Books for review in the DUBLIN BUILDER should be sent direct (and free) to the Editor's residence, 26, LOWER GARDINER-STREET.

## Building Materials.

### CAEN AND AUBIGNY STONE.

**FOUCARD, BROTHERS** (late P. FOUCARD),  
STONE MERCHANTS AND QUARRYMEN. Cargoes shipped to order from Caen to any port. Contracts taken for any quantities.

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# The Dublin Builder.

VOL. V.—No. 91.

## THE WATER SUPPLY OF WEXFORD.

 COUPLE of months since an advertisement appeared in the DUBLIN BUILDER, calling for plans for an improved supply of water to the town of Wexford, and on Monday last a special meeting of the corporate body was convened to discuss the suggestions which in reply thereto had been received.

Messrs. Easton & Amos, the eminent engineers of London, and extensively engaged in Ireland, furnished a most comprehensive and able report, by which it appears that "the present water supply of Wexford is worse than almost any town respecting which these authors of such vast experience had been consulted—being derived almost entirely from springs in a drift conducted through drains to open reservoirs." As natural consequences, in the one case, of a dry season, the springs become low, and in the other, of frost, the reservoirs are either wholly or partially inactive, it being nothing uncommon that there is at times "not sufficient supply for more than one-eighth the population."

This is a most lamentable state of affairs, and furnishes grounds for surprise that the inhabitants of so important and populous a town should, up to the present, have passively remained in a jeopardized state concerning that most indispensable of all necessities—"water;" but active measures now adopted—though even at the eleventh hour—by the local corporation, will, we trust, remedy it, and form subject for congratulation.

Returning to the document abovenamed, we find further that the main pipes, with one exception, are of three-inch bore, which the veriest tyro in hydraulics knows to be quite inadequate—that there is "a complicated system of stop-cocks"—that the pipes are frequently emptied and exposed to the action of both air and water—that they are corroded, and that their smallness prevents any proper provision against fire.

Is it not to be wondered at that either, during a lengthened drought or frost, the whole town of Wexford did not perish from thirst, or that even while in the enjoyment of supply, the inhabitants were not poisoned by drinking water conveyed to their habitations through CORRODED pipes, which everybody knows do contaminate the fluid to an extent to poison?

The supply reservoir is situated on the hill near St. Peter's College, and the entire of the springs on said hill are not even turned into it; nor, supposing they were, would they afford a sufficient supply for "one-fourth the population," not to speak of the quantity required for manufacturing purposes by various concerns in the locality. From another source, however, viz., Shilmalier Commons, a supply is obtainable; but Messrs. Easton & Amos have discovered fresh difficulties here, for owing to the ground through which the streams pass "being very turbid after moderately heavy rain," and the level of water in a settling reservoir there being so nearly that of the town reservoir, as to necessitate a supply pipe of ten inches in diameter; nevertheless, money—the moderate sum of £9,000—would surmount these, and enable the construction of a reservoir to contain 1,000,000 gallons at Kelly's Mill, and two filters, with all necessary pipes and adjuncts, together with purchase of mill, Act of Parliament, &c.

A cheaper plan than the foregoing, and accompanied with greater confidence, is recommended by Messrs. Easton & Amos, whereby the supply would be taken from "streams running down to Ardcanriska Bridge, about 3½ miles from the town," the water being of good quality, and conducted from storage reservoirs at the mountain of Forth, through an 8-in.

cast-iron pipe (coated with Dr. Angus Smith's patent solution for preventing corrosion), to the top of Slaney-street, and thence to the present reservoir, which should be repaired. The estimate for the necessary works, to secure a supply of 150,000 gallons daily, is £6,260, which is further increased to £7,773, by allowance for contingencies, purchase of lands, expenses, &c.

Mr. Smith, C.E., of Belfast, also submitted a plan, by which he proposed to take the supply from the Hayestown slopes, advocating its advantages of "altitude, proximity, and facility for future extension, and maintaining that from that source a daily supply of 656,660 gallons, or better than six times the required quantity, would be obtained, at a cost of £1,966, exclusive of legal expenses, &c., which would bring the amount to about £4,000.

In the discussion which followed the examination of these plans, some contrary opinions by the council members were elicited: one (Mr. Walker) maintained that there was no stream where Mr. Smith said there was one, and proposed to take his supply; whereas another (Mr. Pitt) "had found a stream there," and insisted that in the estimate "there was everything to justify" the calculation of a good supply. The Mayor denounced one item (? "ex uno disce omnes") of £2 10s., for purchase of land at annual value, as "loose and absurd;" Mr. Waddy was in favour of Mr. Smith coming and testing his plan, before the council arrived at a decision; and Dr. Coghlan opposed its consideration altogether, alleging that the author "had been teaching them, at large expenditure of time and trouble, to cook a fowl which had not been caught." Mr. Murphy doubted Mr. Amos' plan, for he found by measurement of the actual gallon, that he had exceeded the reality in the ratio of 70 to 50. After a time it was arranged that Mr. Smith should be required to come to Wexford, and explain his plans to the council, who undertook to pay him £25, to cover his plans, specifications, and travelling expenses.

We are much gratified that the council adopted towards Mr. Smith this courteous mode of proceeding, and not condemn him without a hearing; for we feel quite satisfied that that gentleman is eminently qualified to deal with the subject in question, and will prove it to the entire satisfaction of the Wexford Town Council when he comes to meet them personally. It may be that his plan will not find favour because—economy being the order of the day, we presume—there are certain provisions in it for works of not so permanent a character as Mr. Amos'; but he owes a duty to his own professional reputation to avail himself of the opportunity so properly afforded him of proving its practicability.

An anonymous author guaranteeing a minimum of 100,000 gallons per diem, from a source of pure and constant supply at a cost of £1,400 also submitted a plan which is under consideration.

We shall await the issue of a question fraught with such importance to the good people of Wexford with much interest, and probably revert to the features in the plans.

## THE DUBLIN RAILWAYS' JUNCTION SCHEME.

As sure as the Session of the British Parliament for 1864 shall dawn, so sure shall the shell be broken on some modified scheme, now in process of incubation, for the central junction of all the railway arteries branching from the Irish Metropolis.

That there does not now, nor for a long time will there, exist the least necessity for such an end, we have maintained since first the project was broached; but as men of great reputed common sense, intelligence, and commercial capacity will have it otherwise, why should we not leave them in the undisturbed enjoyment of their hobby, and if it must be *un fait accompli*, only direct our attention to the consideration of the best means for developing it to the advantage of the community generally, and with the least possible detriment to the artistic ensemble of our city? Mr. Barry, C.E., an eminent and ingenious member of his profession, was employed by the promoters during last session to prepare a plan by which

a through traffic between England and Ireland, or any portion of the latter with another, might, with greater ease and facility than hitherto, be effected; but *his* design, though having all the advantage of novelty (being the first in the field), was without, however, any reflection on his professional qualifications, found to contain so many features damnable to the artistic appearance of the city, that an extensive feeling of alarm rapidly spread amongst the citizens; and after a prolonged conflict, in which the issue at times seemed doubtful enough, the bill was *thrown out*. But, nothing daunted, the promoters again return to their work now—a junction they *must* have, and soon as possible. How is it to be effected, quoth they, so as to combat prejudices, and bring the project to a successful issue? A modification of course! Expunge the objectionable—the nonartistic—features; dispense with bridges over *principal* thoroughfares, and substitute tunnelling, altering all levels accordingly. Let us take Barry's, Lefanu's, Barton's, and Turner's respective suggestions, and make "a model plan" out of them. The citizens, at their aggregate meeting, with their Lord Mayor as spokesman, have expressed their disposition to conform to their proposals for the junction of the various lines, provided the streets be not "cut up" with viaducts for "the snorting iron horse to cross them, and disfigure the beauty of their public buildings, in which all justly feel a national pride." These are some of the calculations of the promoters for the attainment of their object; and truthful they are most likely to prove, as we predict.

To the eminent professional names above recorded in connexion with this "grand" scheme, has yet to be added that of Mr. G. W. Hemans, whose abilities (we understand) have been also enlisted, and which—but without instituting invidious comparisons—we doubt not will be most profitably employed. Considering that Mr. Barry's first plan was regarded as obnoxious in many respects—that Mr. Barton's would not be at all entertained—that Mr. Lefanu has quitted the uncertainties of professional life for an official appointment, and is, *de facto*, *hors de combat* in this matter; it seems very probable, indeed, that on Mr. Hemans only (or chiefly, at least) will depend the development of this scheme, be it what it may. On his judgment and good taste we place implicit confidence, well knowing that no wanton sacrifice of the ornamentation of our city will be made, while, nevertheless, the object in question will be attained in a pre-eminently skilful manner. Probably, we shall be in a position ere long to discuss the features of Mr. Hemans' proposed line, and meantime we wish the promoters of this, what appears to us, most unnecessary project no further ill, than that since they are determined to have it and invest in it, they may succeed in making it *pay* (though we doubt it gravely), provided that no damage to, or disfigurement of, this beautiful city be perpetrated.

## COLONIAL INSURANCE OFFICES, SACKVILLE-STREET.

AMONGST the new buildings springing up in all parts of the city of Dublin, one of the most beautiful, as a public office, is that now almost completed for the offices of the Colonial Insurance Company, 63, Upper Sackville-street. It has been erected from designs furnished by Mr. Wm. G. Murray, architect, and the construction of the works has been confided to Messrs. Beardwood and Son, builders, Westland-row. The general effect of the exterior is pleasing, and is in the Italian (? Byzantine) style of architecture. The walls, which are four storeys high, are built of red brick, and pierced for eleven windows and a doorway. The windows are arched with Scotch stone, exquisitely carved in various designs, and supported by clusters of pillars, the capitals of which are studies in sculpture. A magnificent moulding, running the entire length of the building above the windows of the first floor, bears admirable carvings of fruit, flowers, and birds. They are finished and grouped with the greatest taste and care, and lose nothing by the closest inspection. The stone carvings are the production of Irishmen, and hardly anything superior in their class could be produced by the artificers of any other country. The hall, which is most elegant and appropriate, is furnished with an admirably designed small panelled door, finished in the mediæval style. The flooring is of encaustic tiles, and from a highly decorated centre in the ceiling a beautifully

finished lamp, of antique pattern, in brass, is suspended. The office is one of the most perfect things in its way; a man would sooner work hard in it than take his ease in one of the dismal places called offices of a bygone period. The huge plate-glass windows are supplied with ventilators, and blinds\* for regulating or excluding the light. The counter is composed of highly-polished Irish oak, surrounded by carvings in wood. The front of the counter represents a series of arches, supported by columns of rosewood, with sycamore capitals. The portion of the office required for the clerks' desks is protected by admirably executed wood screen-work surrounding squares of dulled glass bearing suitable designs. The doors leading from the hall and to the secretary's room are of solid mahogany, highly polished, and furnished with silver-plated handles. The chimney-piece is of Caen stone, bold and simply constructed in the mediæval style, as is also the grate, which is surrounded by diapered tiling. The furniture is *en suite*, and, taking it all in all, this office is the most perfect that we have yet seen. The secretary's room, which is situated to the rear, is finished in the same style as the office, and is furnished with the greatest elegance in antique oak work. The boardroom on the first floor, though not entirely finished, is a splendid apartment, and the private rooms required for the secretary, are put out of hands in admirable style. The stairway, which is well constructed, is finished with highly polished balustrades and finely designed bronze banisters. The basement storey, which is built of Dalkey granite, is set apart for a fire-proof strong room, entered by massive double iron doors. The grates and chimney-pieces have been supplied by Messrs. Hodges & Co., Westmoreland-street; the gas-fittings by Messrs. Daniel & Co., Mary-street; and the furniture by Messrs. W. Fry & Co., Westmoreland-street. The building, of which we have given the above brief sketch, and which reflects so much honour on its designer, its builders, the skilled artisans engaged for its decoration, and on the spirited company who caused it to be erected, was commenced in the month of March, 1861, and finished at a cost, including furniture and fittings, of £3,400. Doubtless, the example shown by the Colonial Insurance Company will be followed by other public bodies, and by the aid of native skilled labour, Dublin will be one of the most beautiful of the capitals of Europe.—*Irish Times*.

#### A NEW BUILDING SOCIETY FOR DUBLIN.

THIS is no novel enterprise; building societies have been projected over and over again in this city, but never came to anything of really useful purpose; nevertheless, we must not throw cold water on a fresh scheme because its predecessors have failed. The principle has succeeded well elsewhere, securing a remunerative return for capital; and why should it not here also? London owes its great suburban extent mainly to the operations of building societies. There, a party desires to have a house of his own, but lacks the wherewith to buy one or to build: he applies to a district building society; becomes a member on payment of a deposit, with undertaking to contribute a certain sum monthly. The society have periodical ballots for rights of choice, and when his turn comes he finds himself installed in a snug domicile, there remaining as long as he continues his payments regularly; and every shilling invested brings him nearer and nearer to its exclusive ownership. What an inducement for frugality is hereby afforded! The humble artisan, even with thirty or thirty-five shillings per week, may, by a slight denial of the luxuries of *beer*, or *spirits*, or *tobacco*, become a property holder, and transmit to his family a house to shelter them, and subject only to a small ground rent. Instances where such an object has been attained, through the medium of building societies, are legion in the British Metropolis alone, not to speak of the operations proportionately active in the various provincial cities and towns in the sister country. We should be very pleased to find such operations put in practice here, and they only want a fair practical beginning to render them understood and appreciated. Some people, who profess to be wiseacres, say—"The Irish are apathetic; they do not *want* to understand anything promoted for their benefit; they will not encourage it; and if it be started it will prove a failure." The element of truth, though, perhaps, slightly present in this line of reasoning as regards *certain* persons, is, however, vastly in the minority of the falsehood as regards *others*; for there are ample numbers of intelligent, laudably ambitious, and frugal people, even amongst the working classes, to maintain a building society in this city in a highly-efficient position, and we hope soon to find that statement proved to a demonstration.

\* We presume that the "blinds" referred to are the patent steel shutters fixed by Messrs. Clarke and Co., of London, for whom Mr. J. J. Lyons, of 26, Lower Gardiner-street, is the agent.

Of a different character to that we have briefly sketched is the one now projected under the title of "the City and County of Dublin Building Company" (limited and joint stock), with a capital of £50,000 in 10,000 shares of £5 each. Its proposed *modus operandi* is to erect, in various localities in the city and suburbs, classes of houses with rents varying from £25 to £40 per annum (upon the gross receipts from which the promoters reckon for a nett return of from 7 to 8 per cent.); also to speculate in the purchase of land, which, by reclamation, drainage, sewerage, &c., might be sold at a profit. The company *may* sell their houses if they like, and they *may* accept fines from their tenants so as to give them "an interest" in the property. We fully coincide with the promoters that there certainly is a *want* about Dublin of dwellings for citizens whose incomes average from £150 to £300 per annum, who desire a medium house between a five story in a principal thoroughfare or a two story in a back street, but we do not quite see how they can *guarantee* a percentage. There are very many house property owners in Dublin and suburbs not receiving 2 per cent. interest—after deductions—on the original capital invested; while again other premises do not yield one year within another what pays the head rent and taxes. Assuming that the remunerative percentage calculated upon by this company should prove correct as regards *one* locality, may it not be very fallacious in *another*? If so, to counterbalance the latter there should be a much higher margin of profit on the former to secure 8 per cent. as an average; and we entertain grave doubts that the *best* sites that can be selected will after *all* deductions yield *more* than 8 per cent.

But these are considerations more properly for those who purpose investing their money in the speculation, than for us who only discuss its prospects in theory. A vast deal, doubtless, will depend on the judicious selection of sites, on the accommodation afforded by the respective classes of houses to be erected, and on the generally economical disbursement of the funds; and it *may* prove that even greater returns than those calculated upon will be realized. Need we say, that for the sake of progress, and so long as the company's operations are in a right direction, we hope it will prove so.

The prospectus promises a board of directors and officers, "embracing names which will ensure public confidence"—a very necessary ingredient admittedly.

Clontarf being one of the localities selected for the company's operations (should they ever commence), we may take leave to throw out a suggestion for the purchase of the now waste swamp between Ballybough and Annesley bridges, and its reclamation for building or other purposes.

#### HOLYWOOD AND BANGOR RAILWAY.

ON Friday, the 25th ult., the ceremony of laying the foundation stone of the Crawfordsburn viaduct on the Holywood and Bangor Railway took place in the presence of a large assemblage.

The construction of the viaduct has rapidly progressed, and it is now in an advanced state, though its "foundation-stone," or rather what is conventionally termed the "foundation-stone," was only laid yesterday. The viaduct is to consist of five arches, each of fifty feet span. It will be about eighty feet above the river which runs under one of the arches. It is situated in a glen, and is embosomed in trees. The spot is one of the most picturesque in the charming demesne of Crawfordsburn. The scenery all around is romantic, and the gently sloping grounds beyond the sequestered little glen stretch down to the very edge of the water. Indeed, it seems almost a pity to obtrude anything artificial on the "softly beautiful" charms of the rich and varied landscape. But there is a poetry in labour and in the hum of life as well as in the solitude and grandeur of the most sublime scenery. After all, the prosaic doctrines of the utilitarian school have resulted in wonders as worthy of admiration as not a few of "the beauties of nature."

The line joins the Holywood Railway at the Holywood station, and runs from that through a tract of the slob of the lough, thence through the lands of Ballymenoch and the beautiful demesne of Cultra. Then the line will traverse the demesnes of Craigavad and Craigdaragh, thence through Crawfordsburn along what may be termed the headlands, until it reaches Catherine Place in Bangor. This indicates a length of about 7½, or nearly eight miles.—*Newry Telegraph*.

We believe it has been determined on to proceed with the construction of the Dundalk and Greenore line without further loss of time, the English North Western Company being prepared to find the necessary capital.

#### THE LATE PROFESSOR COCKRELL, R.A., ARCHITECT.

THIS venerable member of the architectural profession died on the 17th ult., at his residence, 13, Chester-terrace, Regent's Park, London, in the 76th year of his age. He graduated in his father's office, and after being assistant to the late Sir R. Smirke, he enjoyed an extensive practice throughout a lengthened career. Mr. Cockrell devoted a considerable proportion of his life to travel, research, and literary labours, the highly valuable results of which he gave in his periodical lectures as Professor of Architecture at the Royal Academy, and in several standard works. He held the appointments of surveyor to St. Paul's Cathedral, to the India House; was architect of St. George's Hall, Liverpool (after the death of its designer, Mr. H. L. Elmes), ex-President of the Institute of British Architects, and received the Royal Gold Medal of distinction, and was member and honorary member of a whole host of art and literary institutes. His remains are interred in the crypt of St. Paul's, the pall-bearers at the funeral being Professor Donaldson, President of the Institute, Mr. Owen Jones (of Alhambra renown), Mr. Penrose, and Mr. Nelson—Messrs. Sydney Smirke, Knight, E. Landseer, and Calder Marshall, four Royal Academicians, with numerous professionals, being likewise present.

#### CROM CASTLE.

THIS fine baronial mansion, the seat of the Earl of Erne, and recently visited by His Excellency the Lord Lieutenant, is a modern structure, having been built some thirty years ago, when the former castle was burned to the ground. The apartments are large and spacious, affording every requisite for a nobleman's family. Attached to the castle is a very fine conservatory, which contains a great variety of rare hot-house plants, ferns, &c. The flower garden in front of the castle is neatly kept. The spot on which the old castle formerly stood has been converted into a flower garden, and is well adapted for a promenade, to which it is converted by the noble proprietor's family. The island of Innishirk is connected with Crom by means of a large and commodious bridge. Like the many islands with which Lough Erne is dotted, Innishirk is studded with trees, giving it an imposing appearance. On it is a large garden, about four acres in extent, which is carefully kept and neatly arranged. Here are to be found vineries, pine-pits, peach-houses, stove and green houses, melon and cucumber houses, not to be surpassed by those attached to the residence of many noblemen in Ireland. Immediately opposite this island, divided by a branch of the lake, is Derravore Church, and on another adjacent island, called Corlatt, are male and female schools. The present proprietor of Crom Castle is said to be a most liberal and indulgent landlord; his tenantry have their farms at a moderate rate, and are thereby enabled to maintain themselves comfortably. The Earl of Erne is himself an extensive farmer, having several hundred acres under cultivation, between tillage and pasture. His farmstead is a very excellent one, and in the winter season contains upwards of one hundred head of cattle.

#### Correspondence.

##### CARLISLE BRIDGE COMPETITION.

THE following letter was addressed to a contemporary:—

SIR,—Sometimes I go to Ireland. The last time I was there I made very particular inquiries as to the Carlisle Bridge Competition, and the knowing gentlemen there laughed at me. It appears to be the hobby of a certain alderman of Dublin, and that only. There is not one penny applicable for such a purpose so far as I could discover. The town will give no funds, and no one in Dublin ever had an idea the affair could be carried out. I asked them,—"How could you be so dishonourable as to advertise, and cause so many gentlemen to spend large sums of money?" The answer was,—"Oh, sure, we thought the government would help us." "But why help you for a bridge in Dublin any more than one in any other town?" "Now does not Ireland pay £60,000 a-year taxes to England? and isn't it fair they should build us a new bridge?" Here is the beginning and the end of this Irish affair; and some sixty or seventy gentlemen have been made fools of. The best thing would be to get their drawings back and and pocket the affront; or to club together and commence an action against those who issued the advertisement, and caused them to expend their time and money. If common law would not do, chancery might compel something to be done.

AN ENGINEER.

PRESENTATION TO HENRY MACMANUS,  
ESQ., ROYAL DUBLIN SOCIETY.

YESTERDAY evening a meeting of the male and female pupils of the schools of the Royal Dublin Society was held in the Theatre of the Society, Kildare-street, for the purpose of presenting their late teacher and head-master with a testimonial of respect on the occasion of his retiring from the management of the schools.

The chair was occupied by Joseph R. Kirk, Esq.

The chairman said—You are all aware that we meet together this evening for the purpose of testifying to Mr. Macmanus, by a small mark of regard, our respect for him as a teacher. Mr. Macmanus has spent twenty years in connexion with the Government Schools of Art in this and other departments, and new retirees on a pension, inadequate to his merits, but which we cannot control. During his tenure here three thousand pupils have passed under his care—a large number, considering the study was the Fine Arts—all of whom testify to the interest he has at all times taken to promote their best interests; and this attention has been devoted even to those who were his rivals in the arts. This testimonial is not given as a reward for labour or excellence, but as a mark of sincere friendship; and although Mr. Macmanus retires from the control of those schools, yet as a member of this society, we are sure to receive the benefit of his experience; and as his (the chairman's) expression was so well conveyed in the unanimous resolution passed at the last meeting of the council of this society that he would read it, remarking that such an expression coming from the working body of the society was of the highest value to his friend, and he was sure it spoke the sentiments of the whole body.

"That the Council of the Royal Dublin Society desire to return Mr. Macmanus their best thanks for the zeal and efficiency with which he has discharged his duties as Head Master of the School of Art during the period of fourteen years. Signed, Phineas Riall, chairman. By order, William E. Steele, M.D., assistant-secretary."

Mr. Mayne, asst.-secretary, then read the address, and presented Mr. Macmanus with a purse of sovereigns and silver palette, mounted and engraved, manufactured by Mr. E. A. Ryan, 15, Leinster-street. The palette was described some time since in the DUBLIN BUILDER.

Mr. Macmanus having read his formal reply, then addressed the meeting:—

"Ladies and gentlemen, pupils of the Dublin School of Art—In addressing you as your teacher for the last time, permit me to glance at the most salient points of my labour during the twenty years I was master in the Government School of Art; this I shall do in the fewest possible words. I feel I owe you such a statement for your kindness this day in acknowledging those services of mine, some of which were anterior to the birth of some of you by many years. Many circumstances requiring quite a history concurred to depress the arts and manufactures of this country. Amongst others the effects of the legislative union with Great Britain, the increasing facility of travelling through the aid of steam, the rapid improvements in machinery, and the irresistible force of centralization, fostered by a peace of forty years, making London the source of every profitable pursuit both in the arts and manufactures. The reaction consequent upon this state of things resulted in improved and more rapid reproduction of marketable wares, but not in the artistic element supplied for a century past—mainly, by the draughtsmen from the Dublin Society Schools. But a more general and extensive acquaintance with the Fine Arts and their commercial importance was demanded in order to enable the British manufacturer to compete with his more refined continental rival in the market. Our manufacturers became clamorous for a larger supply of the art element in their goods. A state inquiry was made, and it was found draughtsmen alone to any amount were insufficient for the purposes required—that a knowledge of design was wanted, and the Government at the suggestion of Mr. Ewart, M.P., forthwith started a School of Design in London. Now the real struggle in art begins. Old systems were exploded as non-progressive, limited, and useless. A thorough knowledge of design alone would answer the requirements of the public—even the Fine Arts underwent a change at this period from the rough sketchy style of Fuseli, to the exquisite painstaking and finish of the Irishman, M'Cready. But sterling art knowledge is of slow growth, even when people know how to set about it, which seems not to have been the case when the Government School commenced. Ornamentation and figure drawing required something more than the hand of a draughtsman—they require the head with considerable scientific knowledge. In seeking, however, for the best and proper mode, the Government—sometimes right and sometimes wrong, as faction or interest governed—has at length arrived at the present efficient organized system, which promises to progress satisfactorily for the future. But we are still in that transition state when the clashing of opinions pro-

pounded by earnest men is sure to result in the proper course. As a rule the good achieved by a short process is ephemeral, and local at best. Twenty years ago I joined this art movement, and have been employed to help to carry it out to its present advanced state. I was then 30 years of age, a member of the R.H.A., and had worked my way in London (the market of Irishmen) with fair success. The names of such artists as Dyce, Herbert, Horsley, Townsend, and Redgrave were lending their matured knowledge to foster and sustain this new institution. In fact the difficulty was to find artists acquainted with even the elements of design, to supply the growing demand for schools of design throughout the country. It was very flattering to me at this time to be chosen to direct the London School for a few months, during the absence of the director on a continental mission in relation to these schools, and on his return I was considered to have proved my ability to conduct a similar school in Glasgow, to which place I was sent to organize the present school in that great commercial and manufacturing city. During my stay there many changes occurred in the head school in London, which, however, had no effect on the system. I continued to pursue, having from the first sent up to London annually, amongst other specimens of the pupil works, some in practical geometry and perspective, at that time not an acceptable feature, the question of its usefulness being then disputed. I have, however, continued it ever since, and it is now adopted as a staple part of general art education. So I claim the honour of having effected this improvement. When the excitement which disturbed Ireland in 1848 was allayed, the Lord Lieutenant showed a strong wish to let this country participate in the advantages of a proper art education in common with England and Scotland, and his wishes were met by the Government giving Ireland three schools—Dublin, Belfast, and Cork. The two latter died out when the attempt was made to make them self-supporting. But the Dublin School resisted this pressure, the weight of which fell upon me, who sustained it up to the present with all the energy such a weight would permit. Instead of four assistants I have, since 1854, been working with but one, and until the unfair and inadequate task became too apparent to be creditable to any party, my health, meantime, having materially suffered from the exertion, and I retire tomorrow, giving place to a younger and more numerous staff of teachers, wishing them every success, remarking, however, that the financial arrangements of the school about to be inaugurated differs from that which regulated the school under my management. Whatever has been said for or against Schools of Art, it is quite certain they have done the good it was expected they would do when first called into existence; they are, therefore, a success. Two great international exhibitions, at an interval of 11 years, were got up, mainly to show their progress and effect upon art manufactures, resulting in satisfaction, with a well-founded hope of further progress with higher aims. To make this manifest we have only to look at our art manufactures before 1840, which were decidedly bad both in taste and execution. But now, as far as they go, they take as high a position in the market as any country in the world. I feel I have contributed to this state of improvement, for my ability, such as it is, was employed in organizing a more advanced form of art education. Thus, the pressure of circumstances formed a career in art for me, which the country has availed itself of during the past twenty years, and which your testimonial acknowledges this day that my labour was not useless or in vain. The question, What is design? betrays an ignorance of its importance, and the thoughtless have attacked these schools for not producing great men; but schools do not produce greatness—circumstances will do this, acting upon a cultivated intellect; and while the schools are blamed for what they cannot do, they seldom get credit for the good they have done. Immediately before this became a School of Design, the arts in Ireland had sunk as low as they possibly could—even in ornamentation they might be said to be annihilated. The Royal Hibernian Academy, struggling to sustain its annual exhibition, failed to do so; and when opened to show, presented chiefly English or Continental works as the principal part of the collection. The country could not sustain more than one portrait painter of eminence, and few miniature painters of a high class. As to landscape it never appeared but as a feeble reminiscence of Hobbins, Claude, Gaspar Poussin, or some clever master of the old foreign schools, rarely reminding one of nature, the archetype of landscape. The sale of a picture at that time was a rarity, of £5 in as many years, while the exertions of an Art Union had not created a single artist, nor brought one into worthy notice. Originating in the School of Design, the country has seen arise during the last ten years a class of landscape art that may be fairly called native, the painters of which rely upon their acquaintance with nature more than even the slightest knowledge of old pictures. Their works

are creditable to all concerned—the school where these men were taught, the academy where they are annually exhibited, and the intelligence that purchases them with prices from £30, £40, to £100. This school, then, has not only created artists of a kind hitherto unknown here, but it has made a market equally unknown before. In this school were trained masters, some dozen of whom are making from £100 to £400 per annum, conducting similar schools, under Government control, throughout the kingdom, besides private teachers, male and female, who derive an honourable and independent livelihood from cultivating in the public a correct knowledge of the fine arts and manufactures; so the day may arrive when we can talk of our great artists with a better grace than we do at present, for we are constantly boasting of such men as Mulready, MacIise, Elmore, Danby, and Burton, as doing us honour, when we have no other claim to their fame than what the accident of birth warrants. Pictures by these men we have none, except some early works of the latter, never having assisted them in their struggles for life or fame. Some of them were not even educated in this country. We are proud of Hogan, and we let him die in want. Who has bought a work of McDowell or of Lawler? Where can we find the patron of Bhenes or Carew? After thirty years of success in London, Mr. Foley is the idol of native patronage. However idly we may boast of these men, we have in their existence living proof we are a people not utterly without genius. I conclude by returning to my subject, and to pronounce this school a success. To multiply instances would be unnecessary; but, with your leave, I shall quote an observation, which has just come to hand, to show how Irish talent is appreciated by a first-class manufacturer. Amongst other things, the letter says—"Some twelve years ago I paid a visit to the Merchants' School of Design and to that at Marlborough House, in search of a person capable of designing patterns for an important work I was engaged in producing; but I did not succeed in getting the person I wanted, having the required taste in design and ability in execution. I was recommended to you, and to my satisfaction you introduced your talented pupil, Miss —, to me. In her I found all the skill and all the talent I had been in search of; and rejoiced not a little, I assure you, to find that your school was the one in which the best designer of lace patterns I ever saw was educated."

Mr. Kirk having vacated the chair, and Mr. Woodhouse having been called thereto,

Mr. E. H. Ryan moved a vote of the marked special thanks of the meeting to Mr. Kirk. He acknowledged his indebtedness to the schools for his success in life, and offered his warmest tribute of thanks to Mr. Macmanus, to whose affability and friendship he was indebted on many occasions of difficulty and competition for success. He regretted the Dublin schools should have lost the services of such a perfect teacher as he believed Mr. Macmanus to be; but Mr. Macmanus was a great deal more. He watched his pupil in the workshop and superintended his labour where art was applied to the purposes of every-day life. Such he always found Mr. Macmanus during the fifteen years he conducted the designing and artistic departments of the late eminent firm where he was employed; and, in commencing business on his own account, he calculated on receiving Mr. Macmanus's counsel, and as a merchant and manufacturer he regretted his removal very much.

The meeting soon after separated.

## THE GRAVING DOCK IN GALWAY.

THE prospectus of the proposed graving dock company has been issued, and the first meeting of the directors of the Galway Graving Dock Company (Limited) was held on last Saturday. The directors are men of proved ability, in whose earnestness and integrity the public will have every confidence. The Marquis of Clanricarde is chairman, and Denis Kirwan, Esq., of Castlehacket, vice-chairman. The entire capital requisite for the construction of this important work is £30,000; and, as the public are aware, one-third the amount has been subscribed in the city and county of Galway alone. There is no other graving dock on the west coast of Ireland, and, consequently, few vessels trading in this direction will leave the port without being overhauled in the new dock. Numerous trades not now in operation in Galway will spring into operation the moment this accommodation is provided, so that the public of Galway and all interested in the success of our city and the progress of the west of Ireland must take a deep interest in the success of the new company. From the very commencement the directors of the Atlantic Company will pay nearly five per cent. on the proposed outlay for the docking of their own vessels. This return is certain, and will be continuous; for a graving dock once constructed, and the other improvements contemplated in our bay effected, the packet station becomes a permanent institution.

## THE GRANGEGORMAN PRISON COMPETITION.

UP to yesterday nothing *final* (as we are given to understand) was decided upon in the *second* competition for the extensive improvements to be effected in this prison. A selection, however, of a couple of plans, which seem to be the most desirable for adoption, has been made, with a view to ultimate decision; but it remains to be seen whether the Board or the Inspectors-General may not adjudge these also "defective," and decline to award the premiums, as they did on the previous occasion. We have already stated our views pretty plainly on this affair altogether; but we abstain from adding further until the next announcement—which may be immediately expected—shall have been made. Should it so prove that the designs of the gentlemen in favour in the *first* competition should also prove successful in the *second*, the circumstance will be a coincidence reflecting all the more on their energy and ability; for, to say the least, the character of the *first* decision was not encouraging to enter the lists a *second* time. Of course we take for granted (or we hope) that the Board will, in forming their decision now as to the *best* plan (if any such there be), pay due regard to "the instructions to competitors," for if these be transgressed in any one particular by the author of the plan adjudged to be the *best*, there will be a manifest breach of good faith towards the competitors generally. The result is looked for with some curiosity.

## THE ROUND TOWERS OF IRELAND.

MR. O'NEILL, in a recently published and most valuable work on the Fine Arts of Ancient Ireland reviewed in this journal, has devoted a considerable portion thereof to the interesting and often discussed question of the origin and use of the Round Towers, a portion of which we reproduce, feeling assured that the learned research of the author on so nationally interesting a subject, will be highly appreciated by our readers:—

"The singular character of the Round Towers, the veil of mystery which still hangs over them, and the many conflicting theories which have been devised for the purpose of explaining their origin and use, render them a very interesting subject in connexion with Irish civilization. We will give an account of the chief characteristics of these structures, and the principal suggestions as to the time when, and the purpose for which they were erected.

"The woodcut represents the Tower at Kilkenny, and gives an idea of what an Irish tower is. This tower is one hundred feet from the base course to the top of the parapet wall; its outer diameter is fifteen feet at the bottom, and eleven feet two inches at the top. The wall, immediately above the foundation course, is about three and a-half feet thick, and nearly a foot thinner at the top of the tower. Externally the tower is remarkably well built, the stones being generally in courses, well dressed, and most carefully spawled; each course may average about nine inches in height.



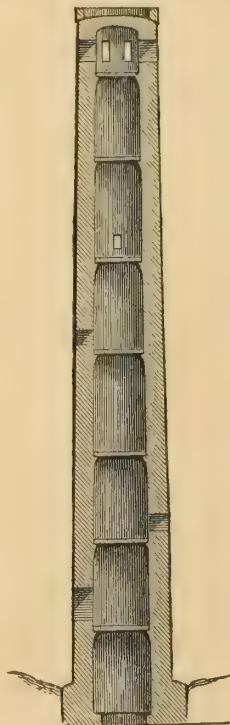
"This tower has been lately cleaned out, and floors have been put in, so that, by means of these and ladders, access can be had to the top. A hole was formerly broken through, and some of the dressing-stones of an upper window knocked out, by which the roof can be clambered on. The extensive view from thence will well repay the labour of the ascent, as, in addition to its own height, the tower is placed on a considerable elevation.

"There is an entrance doorway, the sill of which is nine feet two inches above the foundation course; this doorway is of cut stone, as are all openings in the building. The doorway is semicircular headed, the arch being formed of three stones. It is singular that the lines of the key-stone do not run true to the centre of the arch; they run to points, one seven inches, the other five inches from the centre; a considerable deviation, as the radius of the arch is only eleven inches; the deviation is evident outside, the stones run the entire thickness of the wall, and this irregularity in the lines of junction is still better seen inside, in consequence of the joints being better protected from the weather. The doorway is of granite; its height is four feet nine inches; it is two feet wide below, and barely one foot ten inches wide at the spring of the arch.

"The aspect of the doorway is south-east, and the thickness of the wall at the sill three feet two inches.

"The doorway of the tower on Devenish Island, near Enniskillen, has a semicircular head, formed—like the Kilkenny one—of three stones, which extend the entire thickness of the wall, three feet four inches. The lines of junction of the arch stones deviate from the centre very much, like those of the Kilkenny doorway. These are the only instances we have seen of this singular irregularity. The Devenish doorway is five feet three inches high, two feet one inch wide below, and close on two feet wide above; it is, therefore, a little larger than the Kilkenny one. The material is a hard sandstone, admirably worked. The aspect of the doorway is north-east. The door-sill is eight feet six inches up from the base course.

"Inside the Kilkenny tower, at eight inches below the door-sill, there is a bearing course, which projects four inches, and runs round the tower; on this a floor is laid. There are six similar bearing



courses, with floors laid, above the one at the doorway, the intervals between the bearing courses being, as they ascend, 13 feet, 13 ft. 1 in., 13 ft. 9½ in., 14 ft. 8 in., 13 ft. 1 in., and 13 ft. 6 in.

"The inner diameter at the doorway is eight feet, and the diameter at the top floor is six feet three inches.

"There is no opening for light to the first floor except the doorway; there had been a door hung there of old; there is a modern one there now. The doorway is dressed to a flat face on the inside, for the door to lie against.

"The four floors next above the doorway are lighted by square-headed openings; their sides slope a little; each is about a foot above the floor; their height varies from two feet six inches to two feet, and their width below from one foot two inches to one foot. They are a couple of inches narrower above than below. The fifth floor has no opening for light. The top room has six windows: these are of cut stone, like the others; they are square-headed, three feet one and a-half inch high, barely one foot six inches in width below, and one foot four inches wide at top.

"The tower is very well preserved, and admirably worked. It is so even externally that, when viewed from the top, it looks nearly as even as a gun-barrel. Inside it is rough, the circular form is not

well preserved, the sides bulge out unevenly, and several stones have been left projecting at different places, as if through mere negligence; these stand out from two to seven inches, there seems no order in their placing. The top room is an exception to these remarks respecting the inside; it is carefully finished. The doorway and the four small openings above the doorway are of granite; the six openings to the top floor and the rest of the tower are limestone; both kinds of stone are got in the locality.

"The inside diameter of the tower at the ceiling is only five feet nine inches; the ceiling is six feet four inches up from the floors, and is a very low curve of scarcely eight inches rise in the centre. The ceiling is a regular built arch. The roof is formed of large flags. There are holes in the walls to allow the water to drain to the outside: the roof is water-tight. The parapet wall, now very irregular, appears to have been originally very low; it is about fourteen inches thick. None of the openings look exactly to the cardinal points. This tower is very nearly seven diameters in height; it leans towards the north; the line at that side is quite vertical.

"There are the remains of a round tower a Drumcliff. This is on the road side, about five hundred feet due west of the church and churchyard of Drumcliff.

"This tower is now only about twenty-five feet high; it has been lately reduced to its present dilapidated state by a road contractor, who thought it would be a convenient source to supply his wants. He even used gunpowder to hasten the demolition. There are rents from top to bottom, which attest the violence of the means this Macadam of Sligo adopted. Fortunately, he was stayed before he had quite completed the destruction of the tower: what he has left we now proceed to describe.



"The situation is near the sea, the position rather flat; high hills are within a couple of miles inland. The tower, when at its full height, must have been a conspicuous object for miles in the directions of north, south, and west.

"It is built of a dark red sandstone, with a few limestones intermixed; the stones are generally twelve or sixteen inches long, rough, apparently undressed, spawled; they present a tolerably even face on the outside; the inside is more irregular. Both sorts of stone belong to the locality.

"The base course is about two feet above the level of the roadway. It is formed of very large stones, and projects about nine inches.

"The doorway is six feet four inches above the base course. It is five feet two inches high, one foot nine inches wide below, and an inch or two narrower above; the head is formed of a single straight stone. The doorway is very much injured; it looks east-south-east.

"On the inside the tower is filled with stones and rubbish to within a couple of feet of the door-sill. The wall is three feet six inches thick at the doorway.

"The inner diameter of the tower at the door level is nine feet three inches; the outer circumference at the base is fifty-two feet. Only about twenty-five feet of the height of the tower now remain, but it most probably was originally nearly one hundred feet high. There is an offset for bearing a floor at about fifteen feet up, and an opening for light a little above the offset. This opening is of the same form and about the same size as the corresponding one in the Kilkenny tower.

"Many of the towers terminate in a conical roof of stone. These roofs have a high pitch, and are so suitable a covering for this kind of building that one is almost surprised every tower was not so covered; but such does not appear to have been the case. Many of the towers have their upper parts destroyed, like that at Drumcliff, so that we cannot tell how they were terminated; but others of them are open at the top. Some have low roofs, like the Kilkenny tower, and the one at Kilmallock, has a conical roof, which is concealed by a battlemented parapet.

"The general character of the towers can be understood from the preceding accounts: they vary in size, but not much. Their general height, when complete, is about ninety-five feet; general diameter at base, fifteen or sixteen feet. They are always single in a locality, with one exception; at Clon-

macnoise there are two; one is very ancient and very small, being only fifty-six feet high to the top of the cone, and scarcely thirteen feet diameter at the base, but this small tower is exceptional in many respects. The second tower at Clonmacnoise is only about sixty feet high, though the walls are four feet thick at the base, and the outer diameter at the base is about eighteen feet six inches, so that this second Clonmacnoise tower is an exceptional one also, in its greater diameter, thicker walls, and being but a little above three diameters high, the usual proportions being five to six diameters.

"Of these singular structures there are, perhaps, above fifty yet remaining in Ireland. We have ourselves visited and carefully examined nearly forty of them, and we know of several more. Little, except the foundations, remain of some, while others are still perfect. We have seen lists of above a hundred round towers in Ireland, but these lists include towers that have been totally destroyed. There are two or three round towers in Scotland, two in the Isle of Man, some in India, and we have heard that there are buildings in France which resemble the Irish round towers.

"Much skill has been shown in the Irish towers. The workmanship in general is very good: notwithstanding their slender form, they possess great lasting power. This arises from their being not only well built, but also from their circular form, as thereby they present the least possible surface of resistance to storms: their circular form also gives them the strength of the arch against lateral pressure: their strength is increased by their getting narrow upwards.

"The slope given to the sides of the doors and windows is for the sake of appearance; the sloped lines harmonize with the slope of the tower; upright lines would not have looked so well. This fact shows a cultivated taste in the constructors of these towers."

#### THEORIES RESPECTING THEM.

"An amount of zeal and warmth have been displayed on the subject of the origin and use of the round towers, that would be perfectly incomprehensible to an 'outsider,' who might think in his innocence that a mere speculative subject, of no practical utility, and in which men of education and habits of analysis are engaged, would be examined with philosophical calmness, and settled, if it could be settled at all, with good humour; but the Irish round tower question has proved one thing, if nothing more, namely, that some of the gentlemen who embarked in it are not 'pidgeon-livered'; they don't 'lack gall.' The amount of discussion which this subject has elicited is surprising, while the zeal of some, and over-warmth of others have served to amuse, if not to astonish those who, like ourselves, are mere spectators.

"As respects the theories, there has been a considerable variety. First, as to their origin. They were built by the Danes, say some: they were erected by the Pagan Irish, say several others: they were erected by the Christian Irish, says the last theorist, the celebrated antiquarian, Dr. Petrie.

"Again, as to the uses for which they were erected, the variety is still more charming, if there be anything charming in such a medley of conflicting opinions.

"The above mentioned writer's profound essay furnishes the following list of theories respecting the uses for which these strange buildings were erected:—

- "1. That the Phœnicians erected them for fire temples.
- "2. That the Druids used them as places from which to proclaim the Druidical festivals.
- "3. That they were for astronomical purposes.
- "4. That they were Phallic emblems. (This is O'Brien's theory.)
- "5. That they were for good people, like Simon Stylites, to shut themselves up in
- "6. That they were for bad people to be shut up in, till, by doing penance, they became good.
- "7. That they were for belfries.
- "8. That they were keeps, or monastic castles, to keep the clergy and their treasures in; and lastly,
- "9. That they were beacons, or watch-towers.

"And, as if nine were not enough, some wicked wag has had the cruelty to inflict a tenth theory, namely, that these towers were built by the Ancients for the purpose of puzzling the Moderns; and, alas! this has proved to be the truest theory of all; for, with all this variety the antiquarian knot is still untied; the Irish riddle is still unsolved; the moderns are puzzled.

"In 1827, the Royal Irish Academy gave a prize for an Essay in which it was maintained that the towers were fire temples; and, in 1828, the same society gave another prize for another Essay,

in which the fire temple theory was also maintained.

"But the Academy, apparently not satisfied with this theory, offered another prize, making it conditional that the 'uncertainty in which the origin and use of the towers are involved be satisfactorily removed.' That prize was gained by Dr. Petrie—then George Petrie, Esq.—in 1832, just thirty years ago. The Royal Irish Academy, the most learned body in Ireland, deposed, by adjudging the prize, that the 'uncertainty' had been satisfactorily removed; an opinion in which, we regret to say, the public have not acquiesced.

"It was not till the thirteenth year after the prize had been adjudged that the Essay was published; it then appeared in quarto, and also as a closely printed imperial octavo of near five hundred pages, and containing two hundred and fifty-six illustrations. That so long an Essay was ever read before the Academy will be naturally questioned by some, but it seems that it was not originally so long; the many years that elapsed between the reading and the publishing of the Essay enabled the learned author to extend, and, no doubt, mature his production, so that the public have the advantage of the well-considered arguments of this distinguished antiquarian on the subject of the Irish round towers.

"Only a part, however, of this advantage has been enjoyed. The Essay is said to have consisted originally of about fifty pages, but it has been so much enlarged that the author states a second volume is needed to contain some important proofs and facts; but the Academy has accepted the imperfect portion which has been published as a discharge of his undertaking with them, and, as thirty years have elapsed since the prize was conferred, we may naturally suppose that the second volume will never be published.

"That the learned author has not been incapacitated either by want of means, of health, or of leisure, renders his reticence the more surprising. The Royal Irish Academy paid him nine hundred pounds sterling on behalf of the Essay, no bad encouragement; there was also a good pension procured for him; and he has also had the advantage of the octavo edition of the Essay. That he has enjoyed an easy position for many years is a gratifying fact; but it is a source of regret that he has not employed his dignified leisure in completing his work.

"Under the circumstances we have stated, it appears to us that the Academy has a simple duty to perform. Were it a private association, it would be at liberty to use its funds as it thought proper; but, as a public body, receiving a grant from the public purse, to be dispensed for the public benefit, the Academy, we most respectfully suggest, is bound to send forth the whole of the Essay: the public money has been paid for it, and the public are entitled to that for which they have paid. But we question if the Academy has even the manuscript of the unpublished part of the Essay; if it has, and the Academy decline to publish, the manuscript might be open for inspection, as other manuscripts are, and thus an opportunity be afforded of weighing the whole of the facts and reasonings which the Academy has pronounced to be 'satisfactory,' and of which so large a portion has been withheld for these thirty years. If it has not got the remainder of the Essay, the learned and talented author would, no doubt, give it to them when called on to do so, which should be done without further delay.

"The theories which Dr. Petrie has advanced are:—

"I. That the towers are of Christian and ecclesiastical origin, and were erected at various periods between the fifth and thirteenth centuries.

"II. That they were designed to answer, at least, a twofold use, namely, to serve as belfries, and as keeps, or places of strength, in which the sacred utensils, books, relics and other valuables were deposited, and into which the ecclesiastics to whom they belonged could retire for security in case of sudden predatory attack.

"III. That they were, probably, also used when occasion required, as beacons or watch-towers.—(page 2.)

"In the Doctor's opinion, to establish his views is a very easy matter. He tells us, in his preface, that only a 'very thin veil involved the origin of her round towers in mystery.' Of course, if the Doctor can lift this veil, the mystery is gone. What the Doctor terms 'an erroneous conclusion as to the indefinite antiquity and use of the round towers' will be properly corrected, and the Irish people will be taught not to indulge in 'the most visionary notions of the ancient civilization and importance of their country.' He fondly hopes the learned will adopt his theories; but 'the majority of the middle classes,' being tainted with 'opinions as to the indefinite antiquity and Pagan uses' of the towers, he has not such fond hopes of. A better reason for the learned author's anticipated failure is to be found in the numerous mistakes he has made, both

as respects facts and reasoning, mistakes so important that we are surprised any man, either of the learned or middle classes, could be expected to adopt the Doctor's theories."

#### ROMAN VILLAS NEAR BATH.

MR. SCARTH says there were certain particulars in these villas worthy of notice. The regularity of their form. They were either built round a court, and formed three sides of a square, or else were oblong, often with a projecting portion at right angles to the main body of the building. They were all provided with a *hypocaust* and baths, and had tessellated pavements of elegant workmanship. They were accompanied with outbuildings, and enclosed in an area of some extent by a boundary wall. Interments are found within this boundary, and are of two kinds, cremation and inhumation. They were supplied with earthenware utensils of every description, and with glass, both for the windows and for domestic use. Coins are found in the greatest abundance, and to the latest period of the Roman occupation. The situations are well chosen, and the villas are for the most part represented at the present day by elegant modern country houses, in the same locality and near the same site. They were always well supplied with water, and the wells are of excellent construction. It would be a very interesting work to collate the patterns of the various pavements that have been laid open; out of the many that have been destroyed we have still some designs of great interest. Thus, in the villas around Bath, we have Orpheus or Apollo playing on the lyre, we have the record of a charioteer, we have animals and birds of different kinds, as well as sea monsters lately found in Bath; we have the figure of an elephant on the pavement at Watley, near Frome, and the curious figures in the Pitney pavement with certain emblems in their hands, which have never been satisfactorily interpreted. All this gives us a great idea of the art and refinement of that period. The villas around Bath, however, do not seem to have equalled in dimensions those laid open in other parts of England, or at Woodchester or Bignor, nor the elegant remains which exist at Lydney, in Gloucestershire, the plan of which shows something of luxury, and are described by Pliny in his Laurentine villa. It is to be regretted that the remains found at Lydney have never been published, though accurate drawings have been made of them, and all the articles discovered there are carefully preserved by the owner of the property. These were exhibited at the meeting of the Archaeological Institute at Gloucester, A.D. 1860.

#### THE PROGRESS OF DERRY.

In the course of the Mayor's address to the Lord Lieutenant on the occasion of his excellency's recent visit to the city of Derry to inaugurate the opening of the new and magnificent bridge across the Foyle, we find the following significant paragraph relative to the general improvement of that highly important and picturesque city.

"We can, with pleasure, assure your excellency that, through the enterprise and exertions of our civic and commercial community, our city is not behind in this progressive movement. The noble structure, the opening where of has induced your present visit—our new line of quay, at times studded with thickly arranged forests of masts—our expansive lough and picturesque river, continuously ploughed by vessels of all dimensions—the lines of rail running east, west, and south from our city—our many public, municipal, and sanitary works—and the streets of recently erected warehouses, manufactories, and dwellings—all bear testimony to Derry's share in the general improvement. Should the progressive and enterprising spirit which has hitherto actuated our citizens meet with the encouragements and facilities it deserves, we doubt not your excellency shall, on some future occasion, when we hope you will again visit us, be able, from personal observation, to perceive a further progression towards that state of civic completeness and commercial status, which chartered privileges and geographical position entitle the city of Derry to occupy."

#### O'CONNELL STATUE COMMITTEE.

THE committee met on the 23rd ult. at the Council Chamber, City Hall, Mr. JAMES WHELAN, T.C., in the chair. The following notice of motion was put on the minutes:—"That a special and extraordinary meeting of the committee be summoned for the 7th October, to consider the propriety of determining the probable estimate of the contributions to the O'Connell Monument, and, under that estimate, decide upon the general form and character of the intended testimonial, and take immediate steps towards the actual erection of the national monument." After the transaction of the usual routine business, the meeting adjourned to Wednesday, the 30th ult.

## SELF-CULTURE.\*

SELF-CULTURE may be divided into three distinct ranges or spheres, and has to be applied—firstly, to the intellectual powers; secondly, to the power of acquisition—the power of aggregating what is without to our minds; and, thirdly, to the cultivation of the moral powers. These three powers are distinct. The first—the cultivation of the intellectual powers—has little or no aid from without. That is a work from within. Each man must cultivate his own intellect, his power of judgment, his power of acting through the operation upon the operations of his own mind. The second, the power of acquisition, is of a mixed character. It is the power of bringing into our minds and under the judgment of the intellect that which is prepared by others, and which we do not ourselves make, and which is not within us. It is mixed: there is the double operation, the acting upon materials which we have not naturally within our reach through the means of the faculties within us. The third power, again, is of a mixed character—that moral portion of our being which, while it has to be cultivated also within, yet has its action without, because from that come forth duties and obligations which reach those that are without ourselves; so that one is purely inward; the second is partly exterior through its objects; the third is partly exterior through its aims. Beginning with the intellectual powers, they are subject to a triple subdivision. There is, first, the power of thought, and what immediately depends upon it; and then comes the imagination and the memory. Upon the two latter points my remarks will be very short, because the principles which I am about to lay down are embodied in the first point, on which I wish fully to open my mind. I did not intend to go into any metaphysical definitions or explanations of the power of thought, believing that I could make my meaning more clear by comparison and by illustration. I will take the sense of sight as the one parallel to thought in the mind, and trace its operation. The eye is never satiated, never satisfied with seeing. Whatever the multiplicity of objects, they hold no place, but are continually changing. If we walk into the country alone by a pleasant path there is not an instant in which we do not see something—the trees, the cottages, the distant mountains: as we move the head and inclined it in a different angle, as we move the pupil of the eye, every possible change takes place in our bodily relation to the outward objects presented to the vision; and yet all these objects are connected, and there is not a moment without some picture being presented to the eye. Exactly so with thought. We are never a moment without thinking. Even while reading a book there is a train of thought passing through the mind, over which it exercises no control. One thought succeeds another, more linked, more united by the power of association than the objects that meet the eye. That corresponds exactly to the action of the eye. It would be exceedingly difficult to render an account of the thoughts passing through the mind during the day. But there is another power,—the power of arresting thought; and there commences the self-command necessary for "self-culture." A man might pass a whole day never distinctly distinguishing any object with his eye; but, by exercising a certain degree of mental power, he might stop, and examine some object, and fix it upon his memory. With respect to the eye, that would be observation; to the mind, it would be reflection. When thoughts are passing through a man's mind he might consider some one of them rather singular, and reflect upon it, and thus arrest the current of thought, and fix upon something distant which would occupy his mind in future years, and lead to something useful and practical. That is the second step. But there is a third, and a higher and more important one. A man might not be satisfied with a passing view of an object, but desire to know something more about it. For instance, in looking for the first time at the ruins at Netley Abbey, he sees all that could be seen in passing by. That is observation. It occurred to his mind that, if ever he passed that way again, he would make an examination into its architecture, and try to make out its history, having previously gathered such information as he might be able to do from books treating on the subject. That would be a very different degree of observation from either of the first, and might be called contemplation. That would be seeing in the highest sense. Exactly the same thing took place with regard to the mind. A man might say, "I wish to cultivate my powers of thought. I am not satisfied with dwelling for a few minutes on a thought which invites my attention. Here is a great question on which a thoughtful and earnest man cannot remain satisfied in

ignorance, and I will study it." For this purpose he would collect the necessary materials, and exercise the varied powers of his mind, and memory, and reasoning, until he came to a solemn and well-matured decision how he ought to think and act. That is the course of thought,—the operation of the mind corresponding exactly with the third operation of the sense of sight; and this analogy brought forward all the processes of which thought is capable.

## NEW TOWNSHIP OF DALKEY.

A MEETING of ratepayers was held on the 22nd ult. at the Queen's Hotel, Dalkey, in accordance with the directions of the Lord Lieutenant, for the purpose of electing twelve commissioners for this newly-formed township, under the Towns' Improvement (Ireland) Act of 1854. At nine o'clock, A.M., James Milo Burke, Esq., J.P., was called upon to preside, and the election began in the usual form. The papers being examined, the following gentlemen were declared to have been duly elected:—

Denis Florence M'Carthy, Esq., Summerville House; Edward Harrison, Esq., Castle-street; Hugh O'Rorke, Esq., Breffni-terrace; John K. Stewart, Esq., Dalkey; Gerard Tyrrell, Esq., Dalkey; Thomas Connolly, Esq., Castle-street; Patrick MacNevin, Esq., Island View; Henry Parkinson, Esq., Dalkey; James R. Parkinson, Esq., M.D., Tudor House; James Milo Burke, Esq., Queenstown Lodge, Dalkey; John H. Burke, Esq., Dalkey; and Hercules M'Donnell, Esq., Sorrento Cottage.

The chairman said, with reference to the lighting of the township, that lamps would be erected where the mains were already laid down from the boundary of Kingstown, on the Ulverton-road, Castle-street, Main-street, &c., and be ready for lighting by the 1st of October. No time would be lost in carrying out the improvement in the whole district comprised within the boundaries.

Mr. Tyrrell, in proposing a vote of thanks to the chairman, said that he deserved the gratitude of the people of Dalkey for the great pains and anxiety he had taken in their welfare, and for the perseverance and energy he had used in the face of all opposition, in bringing the matter to its present successful issue.

Mr. Stewart seconded the proposition.

On Monday last the Commissioners held their first meeting for the transacting of business of a preliminary character.

## OPENING OF THE NEW IRON BRIDGE AT DERRY.

ON the 25th ult., at twelve o'clock, the inaugural ceremony of opening the new iron bridge over the river Foyle by his Excellency the Lord Lieutenant took place under the most auspicious circumstances, and was accompanied by every demonstration of popular rejoicing by the citizens of Derry. The erection of this magnificent and noble structure is one of those public improvements which give identity to the Maiden City, and the opening ceremonial will form an important epoch in the history of her onward progress. The undertaking was commenced about two years ago, but a good deal of the work was condemned by the engineer, John Hawkshaw, Esq., P.R.S., C.E., London, by whom the designs were furnished, the machinery employed being imperfect, and had to be removed at the expense of the contractors, Messrs. Joseph Butler and Co., Stanningsley, Leeds. This caused a delay of a considerable time. The pneumatic method of constructing the foundation of bridges was then brought into requisition by Mr. Hughes, and this was the most important part of the undertaking. The work was commenced about the month of May, 1862, and completed on the 15th September, 1863, to the entire satisfaction of the bridge engineer, the entire structure having been subjected by him to the most severe test, so that its stability in every point is beyond all question. The length of this handsome bridge from end to end is nine spans of 132 feet each. The width of the upper roadway, which will be used for ordinary traffic, is 30 feet, and the lower platform is 24 feet wide. The tramway on the lower floor is to be connected with the quays and railways on each side of the river, which will tend much to facilitate the increasing trade of the city. The bridge is supported by nine piers, built in the river. The centre one is thirty feet in diameter, and supports the swing bridge and the machinery for turning it. This affords provision for allowing merchant vessels of the largest tonnage to pass easily through the spans which are opened on either side, the time occupied in the operation being only five minutes, which is performed by three men, although the weight of this swing bridge exceeds one hundred and thirty tons. The other piers consist of two

cast-iron cylinders, each eleven feet in diameter, sunk in the deepest part, thirty-six feet below the bed of the river, where the water at spring tides is thirty feet deep. The materials used in the construction of the principal portion of the structure consist of about 1,400 tons of cast-iron, 1,300 tons of wrought-iron, 60,000 oak paving blocks, and 5,000 feet of creosoted timber. On entering the bridge by the north-west end, one cannot fail to be impressed by the effect produced by its immense length, its symmetrical proportions, and its massive strength. Entrance is obtained by foot passengers by registered turn-stiles, which check the number of pedestrians passing each way, and all persons going over the bridge must proceed on one side and return by the opposite footpath. On looking over the side rails one realizes the immense height of the noble structure, and the difficulties to be surmounted in its erection. The height, at low water, exceeds 38 feet. The entire fabric is bound together by strong iron girders. The footpaths are formed of asphalt, and are quite smooth on the surface. Their width is five and a half feet. The water channels between the footpaths and the carriageway itself are nine inches each in breadth, and the breadth of the roadway measures twenty feet. The roadway is paved with square blocks of wood firmly riveted together. These are built in such a manner as to prevent the possibility of horses stumbling. The arrangements for lighting the bridge are of the most perfect kind, one-half of the lamps being supplied from the city side, and the other from the Waterside gas works. These eighteen handsome globular-formed lamps, with brass mounting, form not the least attractive and ornamental portion of the bridge. At the base of each lamp is a shield, on which there is represented, in high relief, the City Arms. The entire fabric is a standing evidence of the creditable way in which the parties principally concerned have successfully carried out their undertaking, namely—John Hawkshaw, Esq., P.R.S., C.E., London; John Hughes, Esq., member of the Institution of Civil Engineers, Derry, and Messrs. Butler and Co., Stanningsley, Leeds, contractors. The total cost of the iron portion of the bridge will not exceed the original estimate—about £32,000—and the approaches, with the abutments on each side, will involve an additional expenditure of £20,000.

## BRIDGE FOUNTAINS.

A PAPER by Mr. T. Page, on this subject was read by Mr. J. F. Spencer, at recent meeting of British Association. The object of the author was to show the system pursued by him without the heavy cost of cofferdams. The system adopted by the author consists in the use of cylinders of iron filled with brickwork or concrete. The foundation, he said, might be described as a part of a structure, which resisted the weight of the superstructure; and it was evident that the higher the horizontal plane of the resisting mass was, the less was the weight of the superstructure upon it, and the better adapted as a foundation to resist its pressure. He then described the system he had pursued in the construction of four bridges over the Thames, and also of the pier at Greenock. He considered important that the foundation of each pier should be one undivided structure; that it should not be broken into separate parts, as it was in cases where cylinders were used; and that besides the resistance due to the horizontal area of the foundation, it should embrace the additional resistance afforded by the friction due to the vertical surface of the pile; and this, short of founding on rock itself, would present the most solid resisting mass that could be found. The system afforded great facility and rapidity of construction, and its application to harbours of refuge was a subject of great interest and importance at the present time, both for expedition in completing the works and for economy.

NEW STORES AT OMAGH FLAX MARKET.—The Ulster Railway Company are about to erect a range of stores at the goods' station adjoining the flax market, for the accommodation of flax buyers. The frontage of the stores lies along the market yard, while the platform at the railway runs along their rear so that the flax will be put into the stores in one side, and removed to the railway conveyance at the other. The contractor for the execution of this work, which has lately been commenced, is Mr. Francis M'Gaghey, of this town.—*Tyrone Constitution*.

REVIVAL OF MANUFACTURES IN KILKENNY.—Arrangements are in course of being carried out for the establishment of a woollen manufactory on a most important scale, by a company now being formed. The premises intended to be applied to this purpose are the Ormonde Mills, and new machinery and all modern appliances are to be put in requisition.

\* From a lecture by Cardinal Wiseman, at the Hartly Institution, Southampton.

## Public and Private Works.

A new church is about being erected for Killeedy Parish, diocese of Limerick, to consist of a nave, 40 feet by 20 in the clear, with chancel, vestry, and porch, and a neat belfry at the west end. The drawings have been prepared by Mr. W. Fogerty, architect; and a considerable sum having been raised by subscription, the Ecclesiastical Commissioners have given a grant, and entered into a contract with Mr. P. Scanlon, of Bruff, for the erection of the nave, leaving the porch, chancel, &c., till further funds are available. Amount of present contract about £450.

**THE CHURCH AT PILTOWN.**—This structure, which is nearly complete, owes its beauty and size to the noble proprietor, the Earl of Bessborough. The cost, exclusive of the heating apparatus, is £1,650. The Ecclesiastical Commissioners have contributed £600. The amount raised by subscriptions was £150, and Lord Bessborough has contributed the balance.—*Waterford Mail*.

The new Church of the Immaculate Heart of Mary, on the City-quay, was, on the 24th ult., solemnly dedicated to its sacred purpose, by the Most Rev. Dr. Cullen, in the presence of a very large congregation. The building, as has been already stated in the DUBLIN BUILDER, was erected by the Rev. Mr. McCann, North Anne-street, out of his own private means, and is in the Gothic style, with simple and commodious arrangements, without any attempt at architectural effect, which, indeed, could not be accomplished, owing to the situation of the building. It is lighted by two large and handsome windows at either end, and by a number of smaller windows at the sides, the window over the front door having in the centre a plate of stained glass representing the Crucifixion. Over the altar, which is also chaste and simple in character, is a handsome painting of the Crucifixion.

Two plans of sheds for the quay at Galway have been prepared by Mr. Roberts, C.E., and forwarded to the Board of Works. Permanent sheds could be erected for £300, while less durable wooden sheds are estimated to cost £130.

Seven tenders were on the 23rd inst. laid upon the table of the Kingstown Commissioners from contractors for the carrying out of the necessary buildings and improvements in connexion with the new registrar's office, &c. A good deal of discussion ensued as to the propriety of receiving some of those which had named a gross sum, instead of giving details, in accordance with the requirements of the notices issued for tenders. It was at length decided to give the contract to Mr. Douglas, the present contractor for enclosing, levelling, and draining the new cemetery, whose estimate was the lowest (£234), on condition that he should change the form of his tender, which was in a bulk sum, and supply a detailed form.

The whole of the stained glass required to fill the windows of the west end and north aisle of Glasgow Cathedral has been placed. M. Aimmuller, a Bavarian historical painter of note, has furnished the designs for these. Those in the north aisle represent incidents in the life of Job. In the first he is seen undergoing his troubles; in the second, rejoicing in his prosperity, and surrounded by friends and servants. The windows in the west end are on each side of the doorway, and represent by "compositions," on the one side Prayer and Thanksgiving, and on the other, Early Training and Education. Six other windows for this cathedral are in progress, to be completed before the end of the year. Five windows of the clerestory are subscribed for.

The foundation stone at the Crawfordsburn viaduct on the Hollywood and Bangor railway was laid on Friday, amid great *ecelat*. The viaduct will be a very important engineering work, consisting of five arches, each of fifty feet span.

A new National Bankhouse is being built at Roscren, Co. Tipperary. W. F. Caldbeck, architect; T. Scanlan, builder.

## General Items.

It is said that the proposed Exhibition of the Works of Scottish Artists at the forthcoming meeting of the Social Science Association at Edinburgh, will be a very magnificent collection.

The Austrian Academy of Fine Arts announces that an exhibition of pictures will take place in Vienna next year, opening the 15th of April and closing the 31st of May.

Since the Foyle Commissioners were incorporated in the year 1854 they have expended upwards of £135,000 in constructing new quays, graving dock, &c., and are now engaged in dredging the Flats, a shallow part of the river, which, when completed, the largest merchant ships will be able to reach the quays of Derry.

"The Dark Houses of London" is the title of a forthcoming volume by G. Rasch, the author of

"Garibaldi, the sword of Italy." It is to be a pendant to the "Dark Houses of Berlin," and will contain sketches of Bedlam, Newgate, Millbank, the Tower-prisons, &c.

The Ruess Marivaux, Favart, and the Boieldieu, which surround the Opera Comique, Paris, have just had the pavement replaced by asphalt, in order to deaden the noise of carriages. The same plan is being carried into execution in front of the church of St. Paul, in the Rue St. Antoine, and is to be also adopted near several other public buildings.

Lisnaskea should be a market-town of no small importance. The Earl of Erne has not been unmindful of its palpable advantages. Handsome and commodious buildings have been erected at his lordship's expense, for public purposes. The large stone-work structure which presents its front to our view on entering this town, is the Town Hall. On the left again we have the Corn Market, the arrangements of which are made on the most improved system; and at the further end of the town is the Butter Market. All these are handsome and substantial stone buildings, constructed solely at the expense of the Earl of Erne. Another building, the presence of which is, indeed, not much required in this locality—a police barracks—has also been built by his lordship, and is a neat and commodious edifice. But while encouraging and developing the resources of the town in a commercial point of view, the Earl has not forgotten the mental culture of the inhabitants; and in order to give the younger as well as the elder portion of the townsfolk a taste for reading and literature, he has established a reading-room, where, for a trifling subscription, the leading newspapers and periodicals of the day can be seen. A loan fund has also been established, the capital of which now amounts to somewhere about £7,000. There is now in course of completion an admirably arranged coffee-house, where persons attending the market can have bread and coffee at a moderate charge. While the Earl of Erne has displayed such a lively interest in the prosperity of Lisnaskea, his amiable Countess has not been neglectful of the welfare of the fairer portion of its inhabitants—at least in those matters which fall within her legitimate province. A school has been built, in which the girls are instructed in the manufacture of Valenciennes lace; and as an instance of the success which has attended its production here, it may be stated that samples were exhibited at the International Exhibition last year, and were universally admired as comparing favourably with Brussels and Limerick laces. The Countess, at her own expense, besides paying the salary of a mistress of the girls' school, supports an infant school. The town, on the whole, may be said to be one of the most thriving and promising towns of its size in the North of Ireland; and so long as it enjoys the fostering and wholesome care of the present Earl and Countess of Erne, its advancement in every respect is positively insured.

From the Luxemburg Gallery of Modern Art the works of Horace Vernet and Ary Scheffer are now being removed; the decease of both painters having rendered their works admissible to the Louvre, where their finest productions in the hands of the French Government are to be placed.

A Roman amphitheatre has just been discovered in the ancient town of Concordia, about a mile distant from Portogruaro, in the province of Venice. Its extent has not yet been ascertained, but the walls have been found to be 4 feet in thickness. At a depth of ten metres from the surface of the soil, a helmet, all of gold, has been found, with the inscription, "Legio X—XXIII—Cæsare imperante;" also a beautiful pedestal cast in bronze, and 7 feet high, with the inscription, "Amulio Tito Corcoridensi honoris causa. Anno X Cæsare imperante;" and a sword adorned with precious stones, so heavy that a man cannot raise it with both hands. This sword probably belonged to the statue which stood on the pedestal, but which has not yet been found.

## Miscellaneous.

**LIGHT AND ECONOMIC BRIDGES.**—Among the mechanical inventions exhibited at the Royal Cornwall Polytechnic Society's rooms, at Falmouth, are the models of the cheap bridges invented by Mr. Angelo Sedley, of London, as to which a series of tests were made upon the day previous to the closing of the International Exhibition. The model was 17 feet 6 inches clear span, and its total weight was 25 lb. The extreme width was 3 inches, and the extreme height 4½ inches; whilst thin veneer and tape, fastened together with glue, were the materials used in its construction. The result showed that the bread-ing strain of a bridge 1,050 feet span (the scale indicated by the model tested) on Mr. Sedley's system was twenty times its own weight, whereas in the experiments made before the Menai tubes were built, on the small models of the same, the breaking weight

for a span only two-fifths of the above was twelve times the weight of the model operated on. A bridge upon this principle is being built for a park at Staplehurst upon a small scale, 40 feet span, and another in Wharfedale of 180 feet span. A wooden foot or bridle road bridge, 50 feet clear span, 4 feet wide, and equal to a load of 20 tons, can be constructed, it is said, for £50, and that the bridges are delivered at any railway station in London, of 30 feet span and 4 feet wide, in wood, for £30, and of the same dimensions in iron for £50.

**STRANORLAR.**—Perhaps in no spot in Ireland says correspondent of *Irish Times*, has greater changes been effected within a short period than in the locality in which Lord Lifford has taken up his residence. Any one who visited that neighbourhood twenty-five years ago will recollect the bleak and barren aspect which it presented, and the lawless and turbulent character of the people. Having determined to reside on his estate, he at once set about erecting a suitable house. The site chosen by his lordship was at the base of a huge mountain, in an isolated and lonely spot, remarkable only for its bold scenery. Here he built a splendid and commodious mansion, with suitable out-offices attached; what had formerly been an immense tract of bog is now reclaimed, and the barren hills of the surrounding mountains are covered with trees. Thus, by untiring energy and perseverance, a wilderness has been converted into a rich and verdant plain, affording all the necessities for human existence and enjoyment. The grounds around Meen Glas Castle are well kept, and everything about the place indicates much taste. Meen Glas Church, which has been recently built by his lordship, is a very neat structure. It is built of whin-stone, occupying a prominent position on the side of a hill, and can be seen from a considerable distance. Schools have also been provided for the children on the estate. Standing near the flagstaff, on the hill overlooking Meen Glas Castle, a magnificent view is obtained of the surrounding country. On all sides immense mountains lift their heads, and stretch along the horizon as far as the eye can reach, presenting a spectacle of majesty and grandeur not often surpassed.

**GRAND JURY PRESENTMENTS (IRELAND).**—A parliamentary paper gives the amount of the accounts of presentments made by the several counties, cities, and towns in Ireland for the year 1862 as £1,088,828. Of this sum £18,885 was on account of re-presentments. The nett amount of money levied by presentment last year was £1,069,943. The presentments for the county of Dublin amounted to £40,534, and for the county of the city to £37,246. The highest presentment in the list is that for the county of Cork, £77,769; and the next is that for the county of Antrim, £64,265. The lowest is that for the county of Carlow, £13,124. The presentments for King's County are £18,157, of which £10,190 is for repair of roads, bridges, &c. The presentment for Meath is £26,127; and for Wicklow, £23,755.

**ST. DOULOUGH'S NEW CHURCH.**—The builder, Mr. Douglas, hopes, we understand, to have the roof of this edifice on next month. The porch is up, and the keystone of the arch there was inserted on Saturday last. To the old and new church, shortly to be seen united in a perfect state, the neighbouring baptistry, abstracted through past neglect from the ecclesiastical establishment, will present a sad contrast. A wild tree springs from the top of the well, and is likely soon to frustrate the prophecy of immortality once inscribed inside the walls by one of the Fagans of Feltrim.

**WATERFORD HARBOUR BOARD.**—The report of the Ford and Dry Dock Committee recommends that a Government loan of £30,000 be sought, for the purpose of effectually and speedily deepening the Ford Channel to thirteen feet at low water of ordinary spring tides.

**KILKENNY JUNCTION RAILWAY.**—Three-fourths of the line from this city to Abbeyfeix is now finished. Mr. Hemans, chief engineer, was over the line a few days since with some of the directors, and approved very highly of the proceedings of the contractor, Mr. Oughterson.

**AN EXHIBITION OF CLOCKS.**—The town of Chaux-de-Fonds (Switzerland) took advantage of the Federal Rifle Match recently held there to open an exhibition of clocks and watches, manufactured in the canton of Neuchâtel. The number of exhibitors was 205, and of articles exhibited 4,054, representing a value of about 276,280f. The visitors amounted to about 10,000, and the receipts for admission yielded a nett sum of about 6,000f, which has been handed over to the municipal council to be employed in founding a school for teaching simultaneously the theory and practice of clock and watch making.

**THE DROGHEDA WATERWORKS.**—Mr. T. Barham Foster, C.E., engineer of the projected company was to have visited Drogheda on the 28th ult., for the purpose of completing the surveys previous to the preparation of the bill to go before parliament. The draft of the bill, it is expected, will be ready to be laid before the corporation at their next quarterly meeting.

**DECORATIVE ART.**—In the extensive concerns of Messrs. Ryan, Brothers, wine and spirit merchants, 93 and 94, Great Britain-street, recently re-opened for the transaction of business, are to be seen some admirable specimens of art decoration. The several details are most harmoniously blended, producing an excellent general effect. The ceiling is one of the best of its kind that we have seen for a long time, and the screen behind the counter is furnished with highly-polished mirrors, and is most elaborately and tastefully finished. The counter, which is covered with slabs of white Italian marble, is put out of hands in excellent style. The furniture, gas fittings, and general arrangements are very effective. The decorations have been executed by Messrs. Barff & Co., Potter's-alley.—*Freeman*.

**INJURIOUS ACTION OF LEAD PIPES ON WATER.**—The importance of discovering a really efficient means of preventing the injurious action of lead pipes on water is universally acknowledged, and the experiments of Dr. Grace Calvert have proved beyond question that no proposition hitherto brought forward has been calculated to remedy the evil complained of. A discovery, however, has now been made, through which the water supplied by leaden pipes may be obtained by the consumer as pure as from the original source. Dr. H. Schwartz, of Breslau, has discovered a means by which the portion of the lead forming the interior surface of the pipe may be converted into an insoluble sulphide; the natural consequence being that the water passing through will be as free from contamination as if glass were used. The means by which Dr. Schwartz effects this conversion are extremely simple. He simply passes a strong solution of the sulphide of an alkali through the pipe to be acted upon, and the process is completed. This solution, which is either a sulphide of potassium or of sodium, is used at a temperature of about 212 deg. Fahr., and is allowed to act upon the metal for from 10 to 15 minutes. It is stated that, in practice, the boiling solution of caustic soda and sulphur is found to answer every purpose.—*Mining Journal*.

**BLASTING OF ROCKS IN THE MENAI STRAITS.**—The two large masses of rock in the Menai Straits, known as the Cow and Calf Rocks, and which have so long impeded the navigation of the Straits, are now about being removed. Several masses have been blasted and taken up under the direction of Mr. W. B. Hicks, of Falmouth, who, with a number of other divers, is making rapid progress with their removal.

**THE STUDIOS OF OUR BRITISH ARTISTS.**—Mr. John Ballantyne, R.S.A., has for a considerable time past been engaged in painting a series of pictures of the studios of an number of our leading British artists. Among those already completed and in progress are the studios of Roberts, Phillip, Stanfield, MacIse, Frith, Elmore, Creswick, Millais, &c. In each studio Mr. Ballantyne has introduced some incident or figure characteristic of the proprietor, and when completed the series will form an invaluable record of the habits and tastes of the leading British artists of the present day, as indicated by their studios—the shrines of their genius. The entire series has been acquired by an enterprising publisher, and it is not unlikely that the whole—including the studios of some of our Scottish artists—will be exhibited and published at no distant date.

**IRON STREETS.**—A project has been broached in New York for paving the streets with iron and conducting the traffic by steam carriages moving on these iron floors. It is urged that the saving to clothing, furniture, and goods from damage by dust and mud would be enormous; that the resistance on clean iron floors would be small, the wear on carriages slight, and the noise but trifling in comparison with what it is at present. Shoes, it is represented, would wear much longer on iron side-walks than on stone.

**THE IRON TRADE.**—There are at present 125 furnaces in blast, producing about 21,500 tons weekly. The total deliveries continue steadily in excess of the make, and will be this week fully 25,000 tons. Consequently the stocks are about 35,000 tons less than they were four months ago. The malleable ironworks, foundries, and shipbuilding-yards on the Clyde were never so actively employed and so full of orders. So great is the demand for iron for shipment and local

consumption, that ironmasters have raised their prices 2s. to 3s. per ton. The makers, at their meeting on Wednesday, resolved to resist giving the advance of 1s. per day demanded by the miners; apprehensions therefore exist that a general strike will be the result.—*Mining Journal*.

**A PARADISE OF A PRINTING-OFFICE.**—The *Boston Olive Branch*, on which females are employed as compositors, states:—"Our rooms are well carpeted, and the girls do not come till nine or ten o'clock in the morning, retiring in good season, seldom making even seven or eight hours a day. Smart compositors can in that time earn £1 15s. a week. We have also one female clerk out of three we employ. Added to this, one desk has been occupied by a female editor as our assistant, at a salary of £250. She has spent seven hours a day in the office for five days a week. We generally have in our office an organ or pianoforte, and we have music at meal hours."

**CLONMEL AND THURLES RAILWAY.**—The plans and surveys of this line are being proceeded with rapidly, and the prospectus, with an accompanying map of the line of traverse, setting forth the different townlands through which it is intended the railway shall pass, will issue in a few days.

#### TENDERS.

For a new furniture and carpet department to the warehouse of Messrs. Cannock, Tait & Co., Limerick; Mr. W. Fogarty, architect. Amounts exclusive of plate glass, revolving shutters, and fixtures.

Scanlon .. .. .	£1,680
J. Ryan & Son .. .. .	1,589
Malone & Cavanagh (accepted) .. .. .	1,570

DUBLIN BUILDER OFFICE,  
42, Mabbot-street

It is respectfully requested that amounts of accounts for Advertisements may be paid to Mr. PETER ROE, soon as convenient after same being furnished.

Subscriptions to this Journal are in all cases payable in advance.

Stamps will be taken for small amounts.

## BENSON'S WATCHES AND CLOCKS.

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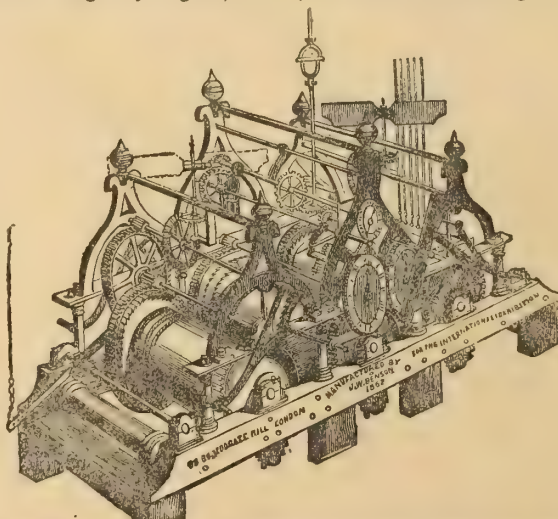
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## BENSON'S ARGENTINE SILVER.

The *Morning Herald*, October 23rd, speaking of the Plate in the Exhibition, says, "Mr. BENSON, who has a Medal for Plate, exhibits some beautiful things"

The Argentine is a composition possessing all the beauty and richness of colour of Silver with its durability, at a mere fraction of its cost. It is a compound of various metals with a heavy deposit of pure Silver, forming one hard, compact, white body. When the Argentine and the real Silver are placed side by side, the most skillful judge cannot distinguish between them, while its durability is so great that after many years' wear it remains unaltered. During the last seventeen years it has been so well received by the public that its manufacture has been extended to all those articles usually made in Silver, viz.:—Spoons, Forks, Dinner, Tea, and

Coffee Services, Waiters, Bread, and Cake Baskets, Candelabra, Dishes of all kinds, Epergnes, Claret Jugs, &c.; and which can be seen at the various Establishments of J. W. BENSON, whose new Show Rooms contain an immense assortment. A Prize Medal was awarded to J. W. BENSON for excellence of manufacture of Argentine and Electro Plate. A Sample Spoon will be sent post-free on receipt of the Kingdom on receipt of Thirty Stamps, and an elaborately illustrated Catalogue, containing Three Hundred Engravings and Price-list of Argentine and Solid Silver Plate, will be sent post-free on receipt of Six Stamps.

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# The Dublin Builder.

VOL. V.—No. 92.

## THE SITE AND CHARACTER OF THE O'CONNELL MONUMENT.

**N**OW that the sum realized by subscription for this too long talked of project has swelled to something of importance, it becomes quite time to consider how it (about £5,400) and any additional amount yet to be obtained in a similar manner, is to be expended in its development. For the site, an evident general partiality exists towards the adoption of the space at the foot of Sackville-street next Carlisle-bridge, at present occupied by gas-lamps and a paved crossing, which prove convenient for pedestrians both by day and by night; and the proposition is, moreover, favoured by the Corporation having expressed their willingness to grant it for the purpose. In point of conspicuousness and central position, there can be, to our mind, no question as to its desirability before, perhaps, all others at present available; but then, other considerations, arising from the character of the intended monument, immediately present themselves, at least to those who are capable of taking an artistic view of the question. These latter are chiefly whether the monument should be of a columnar form, a colossal statue on a pedestal, or some other construction more comprehensive; but which, whatever it may be, should harmonize with the surrounding objects, and contribute increased beauty to the vista of this truly magnificent metropolitan highway. So far, we have better right to be ashamed of, than to boast of, our public monuments; and as we are on the threshold of another great national undertaking in that regard, we should pause before a final step be taken to erect this, and maturely consider both the position it should occupy and the form into which it should be moulded. Some of the promoters seem to desire a structure which in height shall not suffer by comparison with the Nelson Column; but, as we always regarded both the site and character of that monument as a great drawback to the beauty of the street, rather than an acquisition, we sincerely hope that it may be avoided as an example in any one respect. Another tall column, or indeed any tall construction at the end next Carlisle-bridge, would complete the deformity of that otherwise noble structure, and look a monstrosity. If the site in question be adopted, either a single colossal statue on a low pedestal, or a group allegorical of the chief incidents in the life of the great deceased, would unquestionably be the fittest. The former would, however, cost very much less than the probable or even the actual available funds, but we strongly incline to the expenditure of the whole on some grand sculptural work of moderate height, and forming an ornamental and imposing feature, rather than on a column of extraordinary dimensions.

The Very Rev. Canon Pope, a most zealous member of the committee, and eminently qualified by his high artistic attainments and excellent taste, to guide this project to a successful consummation, has addressed a series of valuable suggestions on this subject to his *confrères* and the general contributors, which demand attentive consideration. For our own part, we confess to a total prejudice against columnar monuments on any site—but especially on a flat one, with buildings in close proximity at either side; for an isolated column, without the dependencies which architecture has provided for it, is quite awkward; and let it be proportioned ever so gracefully, has an *outré* and inconsistent appearance. Will any rational person insist that there is anything whatever artistic in the prodigious Doric column, resting on a great broad-based pedestal, which carries the figure of Nelson nearly high enough to be in the clouds? Were the £6,000 formerly expended thereon em-

ployed in securing a structure one-third its height, and displaying a graceful combination of architecture and sculpture, as suggested, the appearance of the whole street would be greatly enhanced, instead of being deformed, as at present, by a great lofty impediment to the vista from one end to the other. The same remark applies to the interception of the view from the Drogheda Terminus at Amiens-street to Capel-street, fully a mile in length, but by the Nelson Column intervening, cut into two halves.

The committee are now about to seek for designs, and propose to offer premiums of £50, £30, and £20 respectively for the three best. Many are of opinion that these inducements are too paltry to elicit talented suggestions, and with them we certainly coincide, if it is expected that models, which are very expensive to produce, are to be furnished. Might not this committee do as others have done under similar circumstances, and seek, in the first instance, for sketches only, from which, when obtained, they might select a few, and call upon the authors to submit models in a limited competition, ensuring a certain sum to each competitor, whether he be the successful party or not? This, we apprehend, would prove mutually satisfactory, and ensure a variety of first-class designs. We are quite convinced, however, that in this monument the designs should not be left exclusively to sculptors—as now seems to be the intention—but that architects and sculptors should go hand in hand, each contributions to the production of an artistic and harmonious *toute ensemble*. The committee have a responsible task to perform, let us hope that they will do it well, and insure, at last, one public monument of creditable character.

## THE SANITARY CONDITION OF BELFAST.

STARTLING revelations affecting the health and longevity of the inhabitants of Belfast, have lately been made. It seems that the general burial ground accommodation is most insufficient; that in one instance especially, according to the Sanitary Inspector's report (the Friar's Bush), every available spot is fully occupied, human bodies being sometimes placed immediately beneath the surface of the ground; that the graves are saturated with decomposed remains, the soil giving off very noxious exhalations, while the water, charged with putrid matter, is suffered to flow over the surface, and to pollute the atmosphere! What a state of things! But further, it appears that interments still take place, although there is not sufficient soil to absorb any more animal matter!

In one—the older—section of the "Shankill" ground, also, we are told that "when interments occur, partially decomposed remains must frequently be disturbed." Such is its overcrowded state, that even the newer section is badly drained, but is becoming surrounded by buildings. Happy prospect for the future residents thereof!

The inhabitants of the Malone district, a favorite and fashionable suburb, including clergymen, doctors, and university professors, in a memorial to the Town Council, represent that "typhoid and gastric fever now prevail there to a greater extent than in any other suburb, or even in the heart of the town itself," notwithstanding its elevated position, and this they attribute to the existence of the burial ground of Friar's Bush, which was overcrowded twenty years ago, but even since that time not less than twenty thousand corpses have been deposited in it.

To consider this memorial, the Mayor convened a special meeting of the Town Council for yesterday, at which, after some discussion, the following resolution was unanimously adopted:—

"That a representation be made to the Lord Lieutenant in council, under the 5th section of 19 & 20 Vic., chap. 98, to the effect that, for the protection of the public health, it is expedient that an order be made that all existing burial grounds within the borough of Belfast be forthwith discontinued, subject to such exceptions or restrictions as may be considered reasonable, reserving the right of burial in private grounds in which only a certain number of interments have taken place within a certain space."

It was also resolved:—

"That it is expedient to provide a new burial ground for Belfast, and that it be referred to the Improvement Committee to inquire and report as to the best site available for the purpose."

May we hope that the promptest possible measures may be taken to remedy this fearful state of things?

## HOTEL COMPANIES.

IN Ireland hotel companies have attracted attention but far less than in England. However, some progress has been made. A new hotel on a splendid scale is to be erected in Kingstown, upon a site overlooking the harbour, and in connection with the Royal Hotel, the company having secured the services of its experienced proprietor, Mr. William Hayes, as manager of the new establishment. It has also been determined to form a company for the erection of a new hotel at Foxrock, a charming and rapidly rising locality between the Stillorgan and Carrickmines stations on the Dublin and Wicklow Railway, within easy distance of Kingstown and Bray. Messrs. Bentley, the owners of this estate, relying for success upon the natural attractions of Foxrock, have expended a considerable amount of capital in its improvement. A comparatively wild district has been changed into cultivated fields studded with villa residences, occupied by some of our most respected citizens, which already give an aspect of country life to the neighbourhood. For the many visitors and temporary sojourners it was found necessary to provide hotel accommodation. But a hotel of modern dimensions, which answered at first, was found inadequate when, during the bright and genial weather of last summer, large numbers were attracted to this beautiful and healthful locality, where the railway company established a station for public accommodation, and ample facilities were provided for communication between Foxrock and Kingstown. Under these circumstances, it has been determined to form, under the limited liability act, a company for the erection of a spacious hotel, surrounded by pleasure grounds tastefully laid out, where, amongst other attractions, it is intended to adopt a tariff of charges on the most reasonable scale. In this neighbourhood much has already been done, but there is yet room for great improvement to supply in Foxrock a want that has long been felt for agreeable and healthful recreation in the vicinity of a great city. The new hotel company system has been rapid in operation in England, but hitherto it has been very slow in Ireland. However, there are some signs of activity, and after a little time we may expect to see hotels established in certain localities where circumstances would warrant such an enterprise. We would deprecate anything in the shape of mere speculation; but we can see no reason to apprehend any rashness in the matter. For years past there has not been in trade or in shares any speculative mania in this country, and we trust it will long continue free from such infatuation.—*Dublin Evening Post*.

## TIMBER.

AT Messrs. John Martin and Son's sale on the 1st inst., owing to the unfavourable state of the weather, the attendance was not as large as usual. The following were amongst the lots sold:—

72 tons crown Danzig (fresh), 70s. to 72s. 6d.
101 tons fresh Memel timber, 57s. 6d. to 60s.
20 tons old Memel, 55s.
62 tons large and fresh red pine, 70s. to 72s. 6d.
13 tons yellow pine, 52s. 6d.
40 tons Sundswall, 47s. 6d.
14 Memel wainscot logs, 6s. 6d. per foot.
A lot of spars, 25 to 35 feet long, 6s. 3d. each.
15 fathoms red pine lathwood, £4 15s.
785 pieces Memel plank, £18 10s. to £22.
2,170 pieces pine plank, 1st and 2nd quality, £21 10s. to £31.
360 pieces Quebec spruce deals, 1st quality, £18.
720 do. 2nd quality, £13 15s.
600 do. 3rd quality, £13 7s. 6d.
6,760 pieces St. John's spruce deals, £11 15s. to £13 17s. 6d.
475 pieces lower port deals, £12 10s.
120 pieces damaged, £9.

## ROYAL DUBLIN SOCIETY—SCHOOL OF ART.

The following students of the School of Art, obtained local medals at the annual examination of the works of the students, held by the Government Acting-Inspector, on the 7th instant:—Arthur Flanery, outline from the flat; Louisa Lardner, do.; Arthur Flanery, outline from the round; Emily S. Ryder, shading from the flat; Anne H. Odium, do.; Charlotte E. Benson, shading from the round; Anthony Basseire, outline of the figure from the flat; Thomas McNeill, anatomical study of the human figure; Josephine Fulton, outline of flowers from nature; Clara Bayley, painting from flat examples; Sophia M. Trevor, studies of historic styles; Henrietta T. Coall, painting ornament from the flat in color; Matilda Binney, shading from the flat; Francis Walker, shading the human figure from the round; Marcella E. Prindiville, studies of historic styles. The following obtained honourable mention:—Isabella Carey, shading from the flat; Elizabeth Fulton, painting ornament from the flat in color. The works of the following being the most meritorious, have been selected to be forwarded to London for national competition:—Matilda Binney, shading from the flat; Francis Walker, shading from the human figure from the round; Marcella E. Prindiville, studies of historic styles.

## THE WATER SUPPLY OF WEXFORD.

QUITE in accordance with our anticipations, Mr. Smith, C.E., has fully proved to the satisfaction of the Corporate Council of Wexford the feasibility, at least, of his plan for the supply of a proper quantity and quality of water to the town. The following is a summary of the proceedings of an adjourned meeting, on Monday, the 5th inst., to attend which the Council, in a courteous spirit that does them the highest credit, invited Mr. Smith to come from Belfast, and agreed to give him a sum of £25 for his plan and expenses:—

Mr. Smith, on being introduced, said—Mr. Mayor and Gentleman, in your advertisement, published in the DUBLIN BUILDER, you stated that a supply of not less than 100,000 gallons of water per day was required, but you give no information how that supply was to be delivered. I take it that the supply should be effected by means of a high pressure, and for that purpose an elevation of two hundred feet would be necessary, if, as you purpose, fire-plugs be also supplied. I have proposed to supply 100,000 gallons daily, and selected a place called Hayestown from whence to draw that supply. I propose to have the water caught or impounded in a basin immediately near to Kellett's Cross, in a place about two hundred and thirty feet above sea level, and to bring from this reservoir, by a series of pipes, this water to Summer Hill, partly in iron and partly in earthen ones. The basin which is to supply this reservoir has catchment capacity of about six hundred acres, and on the stream which now flows from it are two mills. The area is the best in my judgment for the supply you require, and fully equal to it, for it has the best flood now; and from it I propose, as marked on my plan, to supply a compensation reservoir for the mills, for which, of course, the owners can have no difficulty in making a fair arrangement with you. If that did not suffice you might go higher up—into the Deer Park—and there you have another stream. Since I came to town I visited the locality I at first selected, and I see no difficulty in carrying out the plan I at first proposed. A service reservoir is to be constructed deep, so that no animalculæ would be drawn off, and from the catchment area there can be no doubt but that the supply will be fully equal to all the requirements of your town.

Dr. Coghlan begged to complain still that there was yet no proof of a sufficient supply of water in the locality Mr. Smith pointed out, and said that it would be well if Mr. Smith would give them the data on which he grounds his conviction of a supply. Some say all the water there in the stream would pass through an inch pipe. Is the water there?

Mr. P. Murphy—If you go on the rainfall there is more than a supply. All depends on the catchment of rain, and if that is effected it is quite ample. Alderman Vicary—Is it enough?

Mr. Murphy—It is.

Mr. Smith—I hold in my hand methods of supplying, by hydraulic engines, water in cases far more difficult than any to be contended with here. I shall read them for you.

Mr. Prendergast—I, for one, will not be satisfied that the source of supply named is sufficient. If so, show it.

Alderman John Walsh—Does Mr. Smith, of his own knowledge, know of any town of same size being supplied from such an area? If so, let him speak.

Mr. Smith—I do not, of my own knowledge. But let me read for you. (Reads in proof.)

Dr. Coghlan—Let me ask in the present case how can any engineer supply from Hayestown the water required for Wexford, and supply the mills also? If the water which falls there be but enough for the town, how is compensation to be made to the mills by another reservoir? If the water is to be supplied by drainage, I say adopt Mr. Stockings' plan. The place from whence he proposes to draw has no absorbing bottom. The water falling at Hayestown, and absorbed into the soil, is no longer available there, but might be carried through a water carrying stratum under the bed of the Slaney, and found at the other side of the river.

Mr. Murphy—I can see no objection to Mr. Smith's plan regarding Hayestown, and, if adopted, I think it will more than supply what is required.

Mr. Walker—Even admitting that there is water there, Mr. Smith's plan of syphons is a very complicated one. How are they to be arranged? and until I am satisfied that such has been done, I will not be disposed in its favour.

Mr. Smith—I can give as an instance of their successful working, a large reservoir on the same system made for Mr. William Foster, of Ballymena, which has met the approval of Professor Thompson.

Mr. Pitt—On this day week I only spoke of the matter in a business way, and had not made up my mind quite on the matter, but I now do not fear to

let it go before the public that I do entirely approve of Mr. Smith's plan. I have heard his explanation, and I am satisfied his system will work well. Objections have been raised to the capability of the Hayestown stream. It was said to be not larger than your thumb, and other equally absurd comparisons were made. Now, to meet these reckless assertions, I am prepared to say that I saw it run 80,000 gallons. I saw that thumb stream yesterday running over Mr. Leared's mill-dam. As I said before, be not in a hurry to decide. Consider well and weigh Mr. Smith's plan, and do not hastily reject it to adopt another and a far more expensive one. He tells you to husband the excess, and reserve it. If you form a reservoir of four acres, and twelve feet deep, you will have at all seasons enough and more for your wants. If Mr. Smith's plan is good in your estimation, adopt it—if it is bad, reject it.

The Mayor—In case the meeting adopt Mr. Smith's plan, is he prepared to go before Parliament and show he can carry out what he proposes?

Mr. Smith—What I propose I am prepared to carry out, and object not to prove it anywhere.

Mr. Prendergast said that it was boldly asserted that whilst the plan of Mr. Smith could be carried out for between three and four thousand pounds, that of Easton and Amos could not be done for less than £10,000. Time for consideration on the faith of this statement being correct was given, and the people were doubtless frightened from their propriety that any sane men would be found so regardless of the public weal as to advocate a scheme by which a burden of £6,000 would uselessly be imposed on them. Now, Sir, I have taken out for the information of the Council and the ratepayers of the Borough, the following, from which it will be seen that the actual difference between both estimates is £2,913 1s., instead of £6,000, and that this is caused by the difference in the expense of the pipes. In making this calculation I have taken it for granted that the same description of pipes which would be suitable to conduct the water from the reservoir contemplated by Mr. Smith below the Cleland crossroads to Summerhill, would answer to carry it from the reservoir proposed by Easton and Amos at Ballygoman—the pressure from the latter not being greater, nor the ground through which it is to be conveyed, I take it, though much longer, more uneven:—

## ESTIMATE OF MR. SMITH TO BRING WATER TO SUMMER-HILL CROSS.

First Reservoir	...	...	£525	0	0
Pitching	...	...	33	12	0
Second Reservoir	...	...	247	15	0
Pitching	...	...	14	8	0
Masonry	...	...	20	2	0
1,500 yards 4 inch metal pipe, at 4s. 9d.	...	...	356	5	0
per yard	...	...	234	10	0
670 yards 6 inch do., at 7s. per yard	...	...	8	0	0
Valves	...	...	12	12	0
Two Pumps	...	...	36	0	0
Regulator	...	...	218	15	0
1,250 yards earthenware pipes, at 3s. 6d.	...	...	250	0	0
per yard	...	...	60	0	0
Purchase of Land	...	...			
Rights to lay pipes, &c.,	...	...			
Total,			£2,016	19	0

Including £50, mistake made in calculation of purchase of land by Mr. Smith.

## ESTIMATE OF MESSRS. EASTON AND AMOS, TO BRING WATER TO SLANEY-STREET.

Reservoir	...	...	£550	0	0
6,900 yards 8 inch metal pipe at 11s. per yard	...	...	4,180	0	0
Purchase of land	...	...	200	0	0
Total,			£4,930	0	0
Difference in cost of pipes proposed to be used by Mr. Smith, and those specified by Messrs. Easton and Amos, viz.:					
Between 1,500 yards of 4 inch pipe, at 4s. 9d. per yard	...	...	468	15	0
Between 670 yards 6 inch at 7s., and 8 inch at 11s. per yard	...	...	124	0	0
Between 4,730 yards earthenware pipes, at 3s. 6d. per yard, and 8 inch pipes at 11s. per yard	...	...	1,773	15	0
Total,			£2,376	10	0

Taken from £4,930 would leave Easton's estimate ... .. £2,553 10 0

If earthenware pipes were used in the different places at which there would be little pressure, and that the Corporation was satisfied with them, I am convinced that the saving which would be effected would reduce the estimate of Easton and Amos below that of Mr. Smith—£1,000 for Parliamentary expenses; £1,180 for pipes through town; £300 for

repairing present reservoir; £313 for contingencies; £50 for cocks—total, £2,843—are not included in Mr. Smith's estimate, but are in that of Easton and Amos. But, sir, taking it for granted that 8-inch metal pipes would be used, and I need not say how far superior for effectiveness and durability they would be to those specified by Mr. Smith, the estimate of Easton and Amos would be only £2,913 more than that of Mr. Smith, and you get rid of the syphons, pumps, &c., which, no matter how perfect they may be in their working, are liable to get out of repair, and will require almost daily inspection and attention to keep them in order, and, as a consequence, a considerable annual outlay. You get by Easton's plans pure water, control over several streams without any payment, as there are no rights to be interfered with, and, unquestionably, much cheaper than it can be procured by the scheme which you have before you, belonging to Mr. Smith.

Alderman John Walsh had heard all the gentlemen who had spoken. He was well pleased, but if the supply is to depend on the rainfall, it will be for the Corporation to decide what district they will select.

Mr. J. S. Waddy asked Mr. Smith was he not prepared to carry out his proposal.

Mr. Smith said he was.

Mr. Waddy suggested that a third party should be called in before they decide.

Mr. P. O'Connor suggested the propriety of submitting the plans to Mr. Farrell.

Mr. Walker proposed that the plans and estimates be again examined by a committee; that a careful comparison be made as to the cost of the competing schemes, and that they make a report on Monday next; and that the County Surveyor be requested to give his opinion on the merits of each plan.

Mr. Richard Sinnott seconded the motion, which passed unanimously.

**BUILDING SOCIETIES AND BUILDING COMPANIES.**—The *Drogheda Reporter* writing on the advantages of building societies refers to the distinctive features of building societies and companies, and points out the different position which each occupies and seeks to develop. It says:—The difference between a company and a society in this, as in every other instance, is that a company is formed of capitalists who embark in some project in which their money is all invested, and from which it cannot be withdrawn, as in a railway, or steamboat company, or an insurance company. A society, on the other hand, is a co-operative union of men for mutual benefit, where savings from each are used for the advantage of all in rotation, if required. A building company is formed of men who takes shares and invest their money in building houses, to be let to others at a profit, so as to secure a dividend on the money invested, if possible; and if no dividend is made, the investment becomes valueless. A building society is formed of those who invest their money, not to speculate in building houses, but to lend it out to each other to build or purchase their own houses or land, and so become, each one in turn if they choose, free from rent after a few years, and the owners of property if they desire it. There is no speculation whatever in the latter. A profit is sure to the investor, while the borrower is fairly dealt with. This system of co-operation has helped to make English and Scotch workmen what they are at present. Mr. William Chambers, in one of his Social Science tracts on "Building Societies," shows that in many English and Scotch towns, and particularly in Birmingham, the operatives who earn from 12s. to 25s. and 30s. a week all live in their own houses, which they secured by means of union with building societies. These latter, and not "companies," are what exist throughout England and Scotland. By means of building societies the English operatives come to possess their own houses for the ground rent. This is the system of co-operation which is required in Dublin and other cities and towns in Ireland, in order to secure houses at a moderate rent for the middle and working classes. Wherever building societies have been in operation there is no crowding of a score of families into one house—each working man has his own house. Belfast is the only town in Ireland where this has been worked to any extent. The building societies there are, however, what is known as "terminable," or "winding up" societies. The "permanent" societies prevail on the other side of the Channel, and now have been introduced into Ireland by the Alliance National Land, Building, and Investment Society, which will, no doubt, soon and rapidly extend throughout Ireland, having its branches in every town, and many a shopkeeper, tradesman, and operative, by co-operation in it, will secure the title to premises for himself and his family for ever, and so improve his position in life and his prospects for his offspring.

## ROYAL HIBERNIAN ACADEMY.

THE annual meeting for the distribution of medals awarded in the School of art, was held on Monday evening, the 12th inst., in the Academy, Lower Abbey-street.

CATTERSON SMITH, Esq., President of the Academy, in the Chair.

After an examination of the works of the students exhibited, the president said:—

GENTLEMEN,—We again meet (this being our second year) to distribute the medals awarded to the students of this academy. I heartily wish this duty were in the hands of one more able, more competent, and more accustomed to address such an assembly of distinguished talent of various kinds as that which I see around me. Before I distribute the medals, I desire to say a few words upon the state of art in this country. I regret to state, then, that I think the patronage of art is not concurrent with its advancement. I would only direct your attention to the improved character of our annual exhibitions of the last few years. You will find, then, that our exhibitions have been more and more sustained by native talent, and that we have been less under the necessity of inviting foreign aid to increase an interest upon our walls. I rejoice, gentlemen, to be able to mention this fact, but nevertheless I have to regret that many works of great interest and merit leave these walls unsold. The interest which has lately been given in a great measure to our exhibitions has arisen, no doubt, from a taste for landscape—I, perhaps, ought to say a revived taste—which has always exhibited itself powerfully in this country, as the works of Roberts, of Barrett, of Ashford, of O'Connor, and of Petrie, abundantly testify. The present talented professors of this beautiful art have ably sustained it, and I need not say I hope they may long continue to pursue it with advantage to themselves, and to the credit of this Academy, of which they are members. Perhaps no part of her Majesty's dominions is more prolific in natural beauties than Ireland. The country teems with them; turn to any point of the compass, north or south, east or west, we shall find in each direction characteristic developments admirably adapted to the genius of painting. If I were to dwell upon the lake scenery of Killarney, the soft and graceful beauties of the county of Wicklow, or on the rugged rocks and cliffs of Malen Head, its weather-beaten, blackened, and iron-bound shores, I should only be occupying your time in feebly repeating effects which have been felt more strongly than I can depict by each individual present. It would appear, then, that the landscape painters have discovered in these natural beauties of this country an inexhaustible source of artistic wealth. May we not hope, then, that those artists who devote themselves to the figure may find congenial material for their pencils also. I think a letter dated 10th August, 1835, which I will read a great portion of, written by the late Sir David Wilkie on his first visit, as he says, "to the all-engrossing sister kingdom. Having," he writes, "embarked on Sunday evening at twelve o'clock, I was awakened about six in the bay of Dublin. The scene that presented itself on landing is to a painter most interesting. Valasquez, Murillo, and Salvador Rosa would here find the fit objects of their study. The meeting of the British Association at Dublin did not present much for a painter during the time; therefore, I was occupied in visiting convents, chapels, and the haunts of the lower classes; and when it was over, started with two friends per mail directly westward till we met the Atlantic at Lord Sligo's domain, called Westport. We then proceeded southward through a wild mountain district of Connemara to Galway, a region of which the inhabitants are said to be descended from a colony of Spaniards, to whom they still bear a marked resemblance. Here the impression produced by the aspect of these people and their cabins, is not to be described. In a state of primeval simplicity, honest, polite, and virtuous, with so few wants that even their children run about the cabins unclad, they realize to a fervid imagination an age of poetry, which, nevertheless, the poetry of our times has not described, and which to painting is perfectly new and untouched. Indeed, I would say, that a future painter, after he has seen and studied all that has been done by the Greeks and Italians, should see such a state of life as a basis for his imagination to work upon—and I would venture to recommend that Mr. Knighton should, in the course of his studies, see Ireland at a future time with such a view. The costume of the district we have travelled through, he would find a perfect model. Dublin has this disadvantage, that the lower classes wear only the cast-off clothes, in rags, of their fashionable superiors; but in Connaught and Connemara the clothes, particularly of the women, are the work of their own hands, and the colour they are most fond of is a red they dye with madder,

which, as petticoat, jacket, or mantle, brightens up the cabin or landscape, like Titian or Giorgione. Indeed, the whole economy of the people furnishes the elements of the picturesque. They build their own cabins, fabricate their own clothes, dig their own turf, catch their own salmon, and plough their own fields, bringing into their confined dwellings a confused variety of implements not to be described. So remarkable are the scenes that I am wondering they have not long before been the object of research among painters." This letter, I think, is highly suggestive, and worth the consideration of our artists. It comes with great force from such a man as Wilkie. No man was more able to perceive and appreciate the beauties he describes than himself—a man of consummate power in his art, as his precious works sufficiently prove. How must he have enjoyed, with his feeling for tone and colour, an individual character, the scenes he saw—his pleasure must have been exquisite! Since this letter was written these then untrodden fields have been explored by some few talented artists; but they yet remain for you, gentlemen, to estimate their value, and with a true Irish feeling to make them subjects for your pencil, throwing into them an interest worthy of their claim, and so bringing before us a class of art always popular, as it always appeals strongly to our best feelings, and I must say, if powerfully effected, it is a charming class of art. Let us imagine what Rembrandt would have made of such subjects, with his deep, yet clear, tones; his mysterious and magical light and shade. I am persuaded, then, that we need not leave this kingdom in search of subjects; they are about us in all directions. Therefore we may feel assured of a large amount of material for artists of all tastes and tones of mind. How often are we reminded of Gainsborough. We see a lovely child issuing forth from her cabin with a pitcher in her hand. It may perchance have lost its handle, and as she bends gracefully, innocently, natural to catch the stream as it flows rapidly by, she looks the very realization of one of Gainsborough's most lovely creations. I am happy to say that we are a little in advance of our receipts and profits of last year, which may be an omen of a gradual improvement—a result much to be hoped for. Until the public taste is awakened to the full value of art in this country, we must depend greatly upon the aid—the timely aid—of art unions, which have alone sustained us. We are on the eve of opening to the public a national gallery, which I will forbear to say much about here, but I feel that it will be esteemed a great donation to the public. It contains many works of high merit, which I have no doubt will be useful to our students, and will, I feel sure, have a considerable effect upon the public mind in the right direction, in diffusing and enlarging the public taste. We shall have also a great public exhibition called the Winter Garden opened to us in the course of a year, which I hope will contain many works of art of a high and charming character. All this is, doubtless, an onward course. We have been slow in our advancement in this country, but perhaps that slowness is a proof of stability. Progress in art is slow—its advancement must depend upon the wealth of the people; but I conceive its progress is certain when a people ask for it, and by their own means obtain it. This is the case I think in this city at present. If we look at our architecture we can have no doubt of this—art seems gently stealing upon us—art meets us more frequently in this city than it formerly did. We see it displayed also in furniture, in decoration, and in a desire for ornamentation, not always the best, or in good taste, showing a feeling for art which will improve as it advances.

Mr. Michael Angelo Hayes, Secretary of the Academy, proceeded to read a paper on the subject of the "Annual Exhibitions" which have been held for the last few years. After referring to the various foreign academies, especially that at Rome, which had shown an example to the Hibernian Academy, and which had afforded to those students who had been able to go abroad the advantage of studying their art from the best models in sculpture and painting, Mr. Hayes proceeded: Sketching from nature was now much more studied by artists than was formerly the practice. Twenty or thirty years ago an artist but very rarely made a coloured sketch in the open air—a pencil outline being considered sufficient, and the colouring being put in from memory. Now, an artist never thought of making any other but a carefully coloured study. It was this careful study of nature that had made the English landscape school, both in oil and water-colour medium, the first in the world, and gave that charming appearance of natural truth so much wanting in the landscape painted during the end of the last and commencement of the present centuries. The Royal Hibernian Academy owed its foundation to the munificence of a private individual, the late Francis Johnston, Esq., who, entirely at his own expense, built and presented to that Academy, in

the year 1826, the building in which its annual exhibitions, schools of art, &c., were now held, and about the same period the Royal Charter of incorporation was granted. Subsequently an annual grant of £300 was voted by Parliament for the sustenance of their school, and he might say in parenthesis that that sum was quite insufficient for its purposes. Years before that period the artists of Dublin used to hold their exhibitions in what was the City Assembly House, in William-street, but from some cause it passed out of their hands. They were denominated the Society of Artists. A grant of £500 was voted to the society by the Irish Parliament, and exhibitions continued to be held annually till 1775. But about 1782 that society became extinct. Mr. Hayes then traced the history of the present Academy. Since 1826, annual exhibitions, with one or two exceptions, had been held in the Royal Hibernian Academy. In 1842 a second exhibition was held in Dublin by the Society of Irish Artists, which to some extent was in opposition to that of the Academy. It lasted about half a dozen years, and became in its latter years altogether a water-colour exhibition. It was a singular fact, that nearly all who were members of that society were now members of the Royal Hibernian Academy, and the individual who acted as secretary of that society was himself (Mr. Hayes). The apathy and almost total indifference towards the arts which existed in Dublin when he commenced his career as an artist, were sufficiently palpable. Indeed, although he had used the past term, he could not but feel that art had still to struggle against a great deal of apathy; but all must admit that, compared with the period of which he had spoken, a great improvement had taken place. The establishment of art unions had contributed in a remarkable degree to produce this desirable change. It would cause a smile if he were to state the amount of sales in the exhibitions which immediately preceded the establishment of the Royal Irish Art Union, so miserable were the sums expended. Subsequently, the sales at the yearly exhibitions amounted to between £3,000 or £4,000, and the receipts at the door to £800. This bright state of things, however, did not continue, and soon the Art Union itself became extinct. Other societies of a kindred nature arose, and after a more or less brief existence, sunk in their turn; but none had ever attained the prosperity which the Royal Irish Art Union at one time enjoyed. A proof of the value of such institutions to the progress of art, might be found in the many efforts made from time to time, by those interested in its progress, to revive the Art Union. Since 1840, six different art unions had been formed. Two at present existed—the Art Union of Ireland and the Shilling Art Union of Dublin. He regretted he could not say that they flourished, the returns for the last few years showing a falling off in their funds. Such diminution, however, was not so much owing to a disinclination on the part of the Irish public to sustain art unions, but might be ascribed to the diminished resources of most classes in Ireland, consequent on three bad harvests in succession. Nevertheless, the expenditure on works purchased in the exhibitions has been considerable. In 1861 it amounted to £2,000, in 1862 the sales were £1,700, and in the present year's exhibition the total expenditure was £1,680. It was satisfactory, too, to find that the receipts at the doors from visitors this year have increased by over £100, as compared with those of 1862, and there has been a large increase in the number of season tickets disposed of. Although the expenditure by the art unions had decreased, private sales, on the contrary, had rather increased. Last year a merchant of this city entered the exhibition, selected four paintings by some of our young and rising artists, and drew a cheque for 170 guineas in payment. What a contrast from twenty-five years back, when the sum of 30s. represented the entire sale of the season's exhibition! This year, in addition to a great number of moderate-sized pictures, the fine landscape by Kruisemor van Elston, and the wonderful painting by Van Schendal, have been purchased. I cannot but feel that the example of his Excellency the Earl of Carlisle had materially contributed to influence a patronage of art. We have had many Lords Lieutenant here from time to time, but with the exception of the late Lord de Grey and the late Lord Eglinton, the Earl of Carlisle had been, I may say, alone in recognizing the claim of Irish art to Viceroyal support and patronage—every year, at the opening of our young artists, encouraging them in the difficult path of fame. I could wish that his noble example was followed by our municipal Corporation, to whom the national importance of the advancement of the fine arts ought not to be indifferent. Mercantile pursuits are more intimately connected with the development of art and taste than is perhaps imagined. It is a great civilization, affording a healthy and instructive

source of amusement and gratification to all classes; and I am sure I cannot conclude better than by quoting the words of a gifted writer upon art, which we have adopted as a motto to our catalogue—viz., "All the arts spring from an inherent desire in man to enlarge the sphere of his enjoyments, and improve his well-being."

The President then distributed the medals to the successful students.

#### GREAT ANTIQUITY OF THE ART OF ENGRAVING.

THOUGH engraving, regarded as an art for the multiplication of prints struck off from engraved plates, is of comparatively modern invention, the practice of making incisions or carvings on stone, steel, or copper dates its origin from a period of the most remote antiquity. There can be no doubt that carving on metallic plates, or engraving, at least in a rude style, existed before the Flood. Tubalcaïn, the son of Lamech, is the first who is recorded to have been an artificer in metals, as we read of him in the 4th chapter and 22nd verse of Genesis—"Sella also brought forth Tubalcaïn, who was a hammerer and artificer in every work of brass and iron." In the book of Exodus, the Lord directed Moses to decorate the vestments of Aaron with stones "ornamented with the work of an engraver and the graving of a jeweller" (28th chap. 11th verse), proving the great antiquity of gem engraving. Bazaleel and Ooliab are mentioned as "filled with wisdom of heart to work all manner of work of the engraver." But though they are the first who are mentioned as having been engravers by profession, it by no means follows that the invention of the art originated with them, or that it did not exist long anterior to their time. The hieroglyphics on the obelisks and other relics of the Egyptians and Etrurians at present extant, prove it was practised at a very remote period in those countries. Herodotus describes the ornamental and emblematical figures carved on the shields and helmets of the warriors of his time. At first all engravings seem to have been confined to mere outlines, without any attempt at shading or perspective, and were very rude delineations; but in them existed the germ or foundation of the art, which was subsequently developed. To us, at the present day, it does appear very strange that even with that amount of knowledge possessed by the ancients, that so many ages should have elapsed before the idea suggested itself of taking impressions on paper from those engravings. Sacred and profane writers prove that engraving was practised before the Flood, and yet the art of taking impressions on paper was never discovered till the fifteenth century, and even then, not by an effort of genius, but by a mere accident, by Maso Finiguerra, a goldsmith of Florence.—*Canon Pope's Lecture.*

#### THE GRANGEGORMAN PRISON COMPETITION.

So far as the Board of Superintendence is concerned, the second competition amongst architects for the proposed improvements at Grangegorman Prison, has been decided in the following manner, viz. :—

- 1st Prize of £25 (with subsequent fees for having the works brought to completion)—Mr. E. H. Carson, architect, 25, Harcourt-street.  
2nd Prize of £15—Mr. John J. Lyons, architect, 26, Lower Gardiner-street.  
3rd Prize of £10—Mr. W. Hague, jun., architect, 175, Great Brunswick-street.

This decision is subject to the approval of the Inspectors-General of Prisons, also to that of the Corporation at large, and finally of His Excellency the Lord Lieutenant; but its ratification seems to be more a matter of form than otherwise.

#### "THE CORK STEAM BISCUIT FACTORY."

THE store itself, or main part of the building, is a massive structure of four stories in height, from the highest of which projects a powerful crane, capable of raising enormous weights. Connected with the store, and extending to Paul-street, is an extensive handsome erection, its front ornamented in stucco, with handsome pillars, supporting ten arches. On entering the basement storey, we find ourselves surrounded by the boiler, furnace, and reservoir, which supplies the steam that propels the machinery throughout the entire building. At the end of the basement storey is an immense reservoir for supplying the engine and other parts of the factory with water. This runs nearly across the store, and is capable of containing 2,000 gallons of water. At

the corner of this store is placed the steam hoist, made by Vickers, of Liverpool, and by means of this invention a weight of from two to five tons can be raised with extraordinary swiftness to any loft. On the left hand of the basement storey, near the checktaker's little desk, we enter by folding-doors the bakehouse, a large spacious room. Passing through this and the fancy bakery on the left, we ascend to the third storey, or, as it is termed, "The Flour Loft." In this department commences the first process in machine biscuit making. "The Preparatory Mixing Loft" occupies the third storey, and is large and well ventilated. Around the room are a number of patent mixers, of cylindrical shape, standing on iron supporters. At the side of these machines are wheels, propelled by line-shafts connected with the powerful engine. From these wheels a spindle passes through the centre of the cylinder, to which are attached, at intervening distances, "arms," which perform the work hitherto done by the arms of men in mixing dough, and which is a much cleaner process, and consequently a great improvement on the old system. In the centre of the cylinder or mixer is a large upright shoot, that runs through the ceiling to the loft overhead, where the sieving process is going on, and from the sieve descends through this tube into the mixer. Alongside the tube is a water-pipe, which also runs through the ceiling, and is connected with the cistern on the roof, by means of which sufficient moisture is conveyed into the mixer during the preparatory compounding process. This cistern can be made to answer a double purpose, for besides supplying water to the mixer, it can, in case of fire, be brought to bear, by inundating the place, and thus extinguishing it in a moment. From the mixers the dough is transmitted, by an immense tube, to the bakehouse on the basement storey.

On this loft is also the sugar and almond mill and mixing pan, a large, circular, flat-bottomed metal vessel, like a bason, that turns on a pivot, fastened to the floor round a roller attached to an iron bar placed across the pan. By means of a screw the roller can be raised or depressed, so that the ingredients can be ground, as with a pestle and mortar, to the requisite degree of fineness required for the making of pastry. The roller, which is an immense mass of metal with a grooved surface, crushes and grinds the sugar, almonds, and other ingredients in the pan into the finest powder, so fine that it appears to the uninitiated like flour. In another part of the loft are barrels and hogsheads of sugar, treacle, and other depositories containing the ingredients used in the making of the biscuits and cakes.

Descending from the preparatory mixing-loft, we enter the Fancy Biscuit Bakery, and passing through it enter the bakehouse, a spacious lofty building. On one side of the entrance stands a high-pressure steam-engine of twenty horse power, worked by the boiler in its adjoining outside store. Some idea may be formed of the amount of capital involved in this undertaking, when it is stated that this engine with the boiler alone cost the firm several hundred pounds, though they form but a very small portion of the vast machinery in operation throughout the concern. By this engine a large wheel, about twelve feet diameter, is set in motion, and from it proceed many hundred feet of line shafts, worked by six sets of connexions, by which the whole machinery throughout the factory is propelled. On the left hand side, as you enter, is the railway oven, so termed from the pans gliding in and out on rails, and heated at top and bottom also by a new process, and has three mouths, through which the pans are constantly entering and returning, being laid on rails. Each batch of cakes takes ten or twelve minutes in baking. On the right hand side of the room, and near the railway oven, are tables on which are produced those beautiful cakes coloured by the rich ingredients of which they are composed. From these tables they are transferred to the pans of the railway oven. In the other parts are many large patent double power reversing break rollers, cutting machines, and other large ovens, driven by cranks and rods, and heated by furnaces underneath, while the flues are all underground; and though the ovens and furnaces are in full operation, no smoke is seen to issue. From the present construction of the building, ovens, and flues, as well as from the precautions taken, it would appear that the circumstances of such an establishment being injured by fire is almost an impossibility. The consumption of fuel in such a factory, with furnaces in full blast, must, as a matter of course, be very great: the firm have therefore taken the adjoining premises for the manufacture of the coke used. Through other parts of the bakehouse are stands, on which are piled tough sheets of dough, in course of preparation for the oven, while the cutting-machines resemble so many printing presses, and the whole process is so different from the old system, that a person unacquainted with machine baking

would scarcely imagine that he was standing in the middle of a bakehouse where immense biscuit baking operations are carried on.

On the left hand side of the room commences the first part of the process in this department. Protruding through the wall, a couple of feet from the floor, is the mouth of the large tube, communicating with the second loft, or preparatory mixing department, already referred to, and through which the dough is sent down from the mixers, and is here received in lumps into a large square box, moving on castors, to the break rollers or cutting machines, which these travelling boxes are constantly supplying, transferring to the iron plane of the press, and then, by a curious process, passing through different revolving rollers until it is kneaded into a proper consistency. At one side of the room, and connected with the oven which it feeds, is one of those curious compound cutting machines, where the dough is received on a metal plate, which glides beneath a roller that reduces it to the proper thinness, and then passes over a large cylinder, which lifts the "scraps," that appear like a piece of perforated cloth; these, passing over the cylinder, drop into a receiver, while the cakes remain on the gliding plane, which takes them into the oven, and through which they slowly move, and in about twenty minutes drop out of the aperture at the other end into a box or shallow drawers, with grated bottoms, in order to cool the cakes coming hot out of the oven. From this they are raised by a patent hoister to the packing room. Taking the ovens and cutting machines altogether, they are a singular invention. Here the dough that you see at one end is kneaded, stamped, glides into the oven, and in a short time comes out in showers of cakes and biscuits at the other end, and all this without a hand being put to it. Opposite to this, and at the other side of the room, is the large biscuit oven, also connected with a cutting machine, and worked in much the same manner as the one we have described, and which is capable of turning out an almost endless supply of biscuits. At the same side of the room we observed a round boiler, into which a man was throwing a number of dough cakes just brought from the stamper, and after floating awhile in the water are removed to the baking pans, thence to the ovens, and come out in that hollow rounded shape peculiar to the "cracknell." In another part of the room a man was pouring out with a ladle what appeared to be a liquid paste made of the richest ingredients—sugar, milk, eggs, and so forth—to be formed into pastry cakes, while around and through the rooms at the different tables and machines a number of men and boys were busily engaged at different occupations, for the supply and feeding, with an endless variety of cakes of every shape and form that fancy can devise, the large ovens that here are constantly in operation during the entire day. Passing out of this large room or bakehouse, we enter the fancy biscuit bakery. The plan of operations and mode of manufacture is somewhat similar to those of the bakehouse.—*Abridged from the Grocer.*

#### RAILWAYS FOR DUBLIN.

You have opened your columns to the letters which offer an explanation of some of the Dublin Railway Bills which may be brought forward next session; let me say that I hear already of four different schemes. I believe that steps are being taken in order that Mr. Barry's scheme, which passed the House of Lords last session, may again seek the suffrages of the Upper House. There will be some modifications introduced to meet some of the leading opposition which was before offered to it, but the scheme will be in the main the same as last session. It is rather early yet to discuss the chances of these several projects. During this and next month the advertisements which precede the application for a bill must be published, and sufficient can be gathered therefrom to ascertain the merits of the several plans; but if the four bills go forward, the committee, which may be called on to examine their several features and defects, must have a lengthened and stormy sitting. Certainly the opponents to the Dublin Metropolitan Bill will have one powerful argument of last session—that in which they prayed for delay in order that a Royal Commission might recommend the best scheme. The delay has been obtained, but no steps taken for a commission. I may as well give you the grounds on which the promoters of the bill of last year say it was abandoned. It is very well known that the sinews of war were supplied by Mr. Thornton, an English railway contractor. When he saw the storms rage high, he said "There is no use in my advancing money to benefit the people of Dublin if they are not satisfied with my proposals. I can expend my money with an equal prospect of profit elsewhere, and with more thanks." Therefore, he ordered the bill to be withdrawn.—*Letter to Irish Times.*

## STEPHEN'S GREEN AS A PEOPLE'S PARK.

FROM time immemorial Stephen's-green has been the property, the common land of the citizens of Dublin. It is true, no Royal Charter is now extant at City Hall, no Act of Parliament to be found on the Statute Book granting or conferring this property;\* but a prescriptive right, founded on undisturbed and unquestioned possession for a period of at least two centuries, must be admitted to establish a title equally good with any other, however sanctioned or conferred.†

According to Speed's Map or Plan of Dublin, of 1610, a church, dedicated to St. Stephen, then stood upon the spot now occupied by Castle Market, and, according to Archdall's "Monasticon Hibernicum," an hospital, dedicated to St. Stephen, stood during the fourteenth and fifteenth centuries on the site of our modern Mercer's Hospital. The roadway thence towards the Castle and city walls was called, in 1610, as it is now, St. Stephen's-street, while the adjacent green or common extending to the southward and eastward was called St. Stephen's-green; and that this Green was public in the same sense as the Campus Martius of the ancient Romans, or the "village greens" of the modern English, we may safely conclude—1st, From its name; 2nd, From its location just without the city walls; 3rd, From the absence, after the alienation of Hoggin-green, of any equally convenient "green" for the warlike musters and athletic games of the citizens; 4th, From the total absence of any proof of its having ever been treated as private or corporate property, while even the meagre annals of Dublin furnish us with an instance of its being used for a public purpose;‡ and, 5th, From the mode of its appropriation and enclosure in 1669, by the Corporation.

It was popular in the olden time to appropriate common or no man's land to religious and charitable uses. In this way it was supposed "waste" or public land would be best utilized, and not for private but for the public benefit. A large portion of Hoggin-green was thus gradually appropriated to the Priory of All Hallows, erected upon it in 1166. On the dissolution of the Priory in 1538, the land was restored to the city, but to be only again alienated by the city in 1590, for the foundation of Trinity College.

A very similar plan of appropriation was adopted in 1669, in reference to Stephen's-green. It was enclosed a year or two previously by the Corporation, and the building plots established around were (probably to "bribe" the freemen) not sold by auction, but divided among the freemen by lot, at very moderate rents; and these rents, £80 in all per annum, instead of being applied to city purposes, were forthwith granted for ever to the Blue-coat Hospital, then being erected at Oxmantown—the Corporation, in the transaction, appearing but as the agents of the charity, in providing it with the endowment. The central space, the present Green, was reserved for its ancient public purposes, improved, however, by drainage and the planting of trees, to suit the more civilized taste of the time.

In 1678, Stephen's-green was, at the expense of the city, still further improved; and in 1758, by public subscription, the equestrian statue of George II., in the centre, was set up.

Stephen's-green then became one of the favourite fashionable resorts of the city. Inside and along the wall a fine gravel walk, thirty-five feet wide, separated from the interior by a deep fosse, formed a pleasing promenade, called the "Beaux-walk," from its being "the resort of the gay, the beautiful, the fashionable, and the elegant."

But the glories of Stephen's-green were short-

\* In Mr. Mannell's pamphlet it is stated, that Stephen's-green was granted to the Corporation, by Henry II., "which grant was confirmed by subsequent charters, from King John, Henry III., and succeeding sovereigns." To this I must oppose the statement of the learned writers of Walsh's White-Laws, and Warburton's History of Dublin (1817)—that the oldest Dublin Charter extant was that written in London, in May, 1192, by John, Lord (not King) of Ireland (his brother Richard being then king). This charter confirms that of King Henry II. (now lost) as to local franchises, but confers no right of property on the citizens of Dublin over the Stephen's-green district, as is very manifest not only from the wording of the charter, but also from the fact that in 1814, with this and the many subsequent charters before them, the Corporation solicitors could make out no other title for their clients, in granting the lease of Stephen's-green, but that founded on prescription, "no chartered grant from the Crown" whatever appearing.—Walsh's History of Dublin.

† The provisions of the Stephen's-green Improvement Act (54 Geo. III. c. 208) are consistent with this state of things. The clause empowering the Commissioners to purchase or lease the place does not speak of the Corporation as the owners; on the contrary, as if their title was doubtful, it enacts "That they (the Commissioners) shall contract and agree with any person or persons, body or bodies corporate, who shall be, or be deemed to be, the owner or owners," &c. It is important, if not in a legal, in a moral point of view, to show that the Corporation disposed of property which justly belonged to the commonalty, and not to the corporate body of Dublin.

‡ In 1640, on the execution of John Atherton, Bishop of Waterford.

lived indeed. By the end of the century, and for some years previous to 1814, Stephen's-green had been permitted, by corporate neglect and popular indifference, to degenerate into a public nuisance, disgraceful to the city, and injurious to the residents of the Green:—

"The outer wall had been broken down in many places; the 'Beaux-walk' levelled with the fosse, now a ditch of stagnant water, had become a receptacle for unmentionable filth; while the interior, the green itself, had been turned over to the yeomanry, as an exercise ground;\* and in their absence, or conjointly with them, as a boxing-field, or Newgate Park, for the thieves and vagabonds of the metropolis."—Dublin Newspapers of the year 1814.

However and whenever the Dublin Corporation or the citizens came by their property in Stephen's-green, the property was certainly theirs in 1814. We find that for many years previously to 1814, various projects for the "improvement of the Green" had been set afloat; and although none of them were carried into effect, a general, if not unanimous expression of public opinion was conveyed through the public press of the time, that it was necessary, in the interest of the entire city, that some scheme of improvement should be adopted and carried out without further delay.—(From J. M'Evoy's pamphlet advocating the free opening of Stephen's-green.)

## Correspondence.

## THE DUBLIN JUNCTION RAILWAY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—With respect to Mr. Barnes' plan, the great, and indeed the only objection urged against it is, that "no provision whatever is made for a central terminus or station." Now, in my opinion this is no objection at all, for what advantage can a central station be to the City of Dublin? I venture to assert that amongst the citizens, who, as a whole, are the best judges of the utility of a central station, ninety-nine out of every hundred would say, "We want no central station, as it would be of no benefit to the city." And if there be one, the city must necessarily be destroyed, if not by an unsightly wall or cottages, certainly by the continual noise of trains, which must interfere with the value of property in these districts of the city where the line passes. But if a central station is wanted, would not Portobello, Charlemont-street, or Baggot-street be quite central enough, as five minutes' drive from either of these points would bring the traveller into nearly any part of the city? and if a central station were at Carlisle-bridge or Aston-quay, a drive would still be indispensable from any other part of the city to either of these points; so that in any case there must be a drive to and from the station, wherever that station may be for those who do not live in its immediate vicinity. Now, if Dublin bore any reasonable proportion to the size of London, it might be argued with some apparent reason that a central station would be necessary; but even in the case of the London Metropolitan Railway, the report of the Select Committee ordered to be printed on the 24th July, 1863, states in its 3rd paragraph the decision, "That it would be objectionable to allow the construction of a great central station in the Metropolis." If, then, it is stated on such high authority to be objectionable in the great city of London to have a great central station, I would wish to know upon what grounds it can be argued that such is not objectionable in our much smaller but beautiful city of Dublin? Surely it requires no great power of reasoning to show that such is not only not wanted, but that it would be highly objectionable.

With regard to the objection "that the passenger could pass much more quickly by cab or jaunting car from the Great Southern and Western Railway to the Kingstown terminus than he possibly could by the intended railway," owing to the three or four stoppages on the line, the simple reply is that through trains need not stop, and, most likely, are not intended to do so at those intermediate stations, but, as on nearly all English and Irish lines, trains, at certain hours, may call for the conveyance of local passengers.

And, lastly, it is asserted that it would be a blessing to drive a railway through many parts of Dublin, as it would "make room for air, and light, and health;" but I confess that I am one of those persons who could never yet see that railway companies were so philanthropic in their views as to take into account the comfort and happiness of the labouring classes; and I really do not see how

\* As compensation for which the Government paid £150 a-year to the Lord Mayor of Dublin.

taking away the dwellings of some thousands of poor human beings, without first providing a shelter for them, could be a blessing, if I understand the proper meaning of that word, and so far from a railway through the city "making room for air, and light, and health," I think it will appear plain that a contrary effect would be the result, as, instead of the dwellings referred to, the unsightly and dismal-looking walls which would occupy their places would only block up the way, shut out the air and light, and tend greatly to affect the healthfulness and destroy the cheerfulness of the adjoining neighbourhood.

But the advantages to be derived from Mr. Barnes' plan over any other I have yet heard of, or, indeed, over any other that is likely to be proposed, are many; and not the least of them is the connecting of all the military barracks with one another by means of this circular railway, for by it the quickest access is had from one to each, his line being proposed to pass the gates of the Richmond, Portobello, and Beggar's-bush Barracks, thereby forming a complete defence to the south side of the city, should occasion ever occur for such. There is little doubt that many projects will be brought forward during the present and next months for the purpose of connecting the various lines of railway; but I am persuaded that Mr. Barnes' plan, when brought before the public, will be the favorite one, and that which will also meet the sanction of the Legislature.

D. EDW. HEFFERNAN.

12, Charleville-road, Rathmines, Oct. 7, 1863.

## THE METROPOLITAN RAILWAY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—May I be permitted to offer a few remarks on a subject which is every day engrossing more and more of public attention. The plans which have been furnished in rapid succession for the connexion of the various lines of railway in the city bear testimony, not only to the wonderful progress of science in the present century, but to the talent and skill of the eminent men who have proposed them. While, however, they deserve admiration for novelty, and the boldness with which they have been designed, does it not appear as if the latter principle had been the subject of competition, and that the production of designs of stupendous magnitude and proportionate cost had been made a more prominent feature than the real object of the proposed railway, viz., the complete and perfect connexion of all the railways with one another, and with a central station, at the smallest cost, and with the least possible detriment to existing interests. If, then, the promoters will look on the matter in a pecuniary point of view, it must be evident that the design which, dismissing every other consideration, adheres strictly to the solution of the above problem will not only be the most remunerative, but will be the least likely to meet with opposition on the part of the public. I would ask, then, has any design as yet appeared which does not violate one or both of the above conditions? The plans which have already been furnished, to view them from a bird's-eye glance, may be divided into three classes. 1st. Those which propose to tunnel under the city. 2nd. Those which propose to cross through the streets. 3rd. Those which propose to run round the city. Now, with regard to the first class, the process of tunnelling through the sewers and gas pipes of a city is not only attended with threefold cost in the construction, and subsequently with darkness and discomfort to the olfactory nerves of passengers; but it must be evident to every engineer that it would be unengineerlike in the highest degree to connect a number of high level stations by tunnelling beneath the ground. The precedent of the Thames Tunnel ought to be sufficient to deter the most adventurous from the idea of a subaqueous railway, and the only feasible method by which such a project could be carried out—viz., by a coffer dam, would not only be attended with great expense and delay, but would be certain to meet with successful opposition from the Admiralty. The plans of the second class all involve the crossing of one or more of our most fashionable and busy thoroughfares, the very name of which is sufficient to cause all Dublin to rise in alarm. Those of the third class do not only require a most circuitous route, but are incompatible with the idea of a central station.

The above considerations have induced your correspondent, after a careful survey of the whole of the district of the proposed line, to furnish a plan based strictly upon the conditions of the problem above stated. It would be an intrusion upon the limits of your valuable space to describe the details *in extenso*, but they may be briefly stated as follows:—

First. The five lines of railway will be connected with one another, and with a central station by an overground route, without crossing a single leading thoroughfare, or involving the destruction of a single valuable house. Second. The central station will be in a most central part of the town, and the approaches

to it on three sides wide and commodious. Thirdly. The expense of the whole, including the central station, will not exceed £120,000. Fourthly. The trains will be capable of being run over the whole line *without locomotives*, and will pass over the bridges almost without noise.

A full prospectus of the design will be laid before the public in a few days.—I am, Sir, yours very obediently,

H. PARMURE RIETON, C.E.

37, Corrig-avenue, Kingstown.

#### TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The Metropolitan Railway being again under consideration, will you kindly afford me space to suggest a scheme for it that appears to meet all the essential requirements, without involving any injury to the leading thoroughfares of the city?

I propose that the line should start from the Kingstown Railway, near the Westland-row Terminus, and cross over Great Brunswick-street, Lombard-street, Townsend-street, and Moss-street, passing, parallel with the quay, south of Poolbeg-street, to a central terminus between the Theatre Royal and Townsend-street, communicating over Hawkins'-street with an hotel extending to D'Olier-street and Burgh-quay. From this line another would branch off near Moss-street, and cross to the north side of the river between the east end of the Custom House and the Dock, passing through a couple of the upper floors of the warehouse, and over the lower end of Talbot-street and Gloucester-street, to the highest part of Summer-hill, with a branch crossing over Amiens-street, near the Dock, to the end of the Drogheda Terminus. The main line to continue through a tunnel under Summer-hill, Mountjoy-square, Temple-street, Dorset-street, and Blessington-street, to near the end of Wellington-street, from which the line would run over the canal to the north of the Midland Great Western Terminus, forming a junction with that line, and passing on to Prussia-street, close to the new cattle market, and crossing Anghrim-street, continue by the south of the Royal Infirmary to the Park, when it would pass through a cutting inside the Parkgate-street entrance, and again crossing the Liffey, unite with the Great Southern and Western Railway near the terminus, thus connecting all the lines now converging in Dublin with each other and with the new cattle market; and there could be a goods' store on the City-quay, to the east of Moss-street, so that cattle could be sent by rail either into the market or direct to the quay, and merchandise could be delivered from the ship into the railway wagon, or *vice versa*.

The hotel and terminus would be well situated; and if one or two of the houses at the narrow point between the ends of Great Brunswick-street and Townsend-street were removed, it would form a fine space before the terminus and the end of the hotel facing the College buildings. The only streets of any importance that would be crossed over by the proposed line, are Great Brunswick-street, beyond Westland-row, Talbot-street, near Amiens-street, and the lower end of Gloucester-street.

From Westland-row to Hawkins'-street the line would pass through a locality in which the property is not very valuable, and would be more improved than injured by the railway; and from the Custom House to Summer-hill the ground is only partially built on, the houses being of a moderate class; and as the line would pass in a tunnel from Summer-hill to near the canal, it would scarcely interfere with any valuable property at all, from the canal to the Park being chiefly ground not yet built on. The bridge at the Custom House would, in fact, be the only drawback to the scheme, as it would cut off a part of the river from a class of vessels (colliers, &c.) that now use it; but the height of the railway over the quay would allow small craft and such vessels as the Kingstown steamers to pass under, so that the latter could land passengers at the new hotel, and the Railway Company might undertake to make the Grand Canal Docks more available for shipping than they have heretofore been, which is much to be desired. If that could be effected, I would prefer having the bridge at the Custom House two stories high, like the one at Derry that was lately opened, but that the roadway should, of course, be level with the quays, having the railway above it. The footways could project on cantilevers at the sides. This arrangement, which would be a great accommodation to the public, would increase the cost of the bridge for the railway very little, and by diverting the traffic from Carlisle-bridge, would save from the destruction to which it has been prematurely doomed the most beautiful bridge in this country; but if the roadway at the Custom House bridge was deemed inadmissible, then, I think, the increased traffic from the central terminus would make it necessary to rebuild Carlisle-bridge; and I think the railway company

should, in that case, contribute a portion of the cost.

The entire length of the proposed line would be nearly three miles, about half a mile being through a tunnel, and more than a mile passing through open ground near the Park.

PRO BONO PUBLICO.

#### TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The promoters of the Irish Metropolitan Railway Bill of last session have rendered service to the public by the discussion which their project has occasioned, and the degree of attention which has thereby been attracted to the subject on the part of the citizens generally, as well as by members of the profession; and in the hope of rendering some service towards the attainment of what is now admitted to be a desideratum, I beg through your columns to contribute my quota to the general stock of information.

The evidence before the Select Committee of the House of Lords last session left no room for doubt as to the desirability of some project for connecting the several Dublin termini. The case, so far, may, therefore, be regarded as proved. The problem to be solved is how this object is to be attained with the least possible injury to the appearance of the city, and at the smallest possible outlay, consistent with affording the requisite amount of accommodation.

One feature of any metropolitan railway for Dublin must unquestionably be a central terminus by which our men of business may be brought close to the great centres of business. This is a point which the promoters of any scheme are not likely to lose sight of as forming the most important item in the calculation of their future resources. A central terminus, for example, in the vicinity of the Royal Exchange, would accommodate the law courts and Dame-street in an especial degree, and the public generally; and with this terminus the other termini may be connected without the sacrifice of scarcely a particle of first-class property, or interfering in the slightest degree with the beauty of the city, of which the inhabitants are naturally jealous.

Taking the high ground from the rear of the Hibernian Bank to Christ Church Cathedral for the central terminus, the lines connecting it with the King's-bridge, Broadstone, Harcourt-street, and Dublin and Kingstown line would present no engineering difficulties, would not interfere with any important thoroughfares, and would, as already stated, scarcely interfere with any valuable property. From the King's-bridge the proposed line would pass under the road in front of the station, and thence follow the course of Mr. Barry's scheme of last session to the central terminus, about thirty-five feet above the ordnance datum line, which would give a level entrance to the station. From this elevated position the river and quays could be crossed with great facility in forming a junction with the Broadstone station, in almost a right line, with an inclination of about 1 in 100.

In forming the junction with the Kingstown line the proposed line would cross under Castle-street, and thence between LaTouche's Bank and Werburgh's Church, be carried to the junction of York-street with Augier-street; crossing Cuffe-street mid-way between Mercer-street and Redmond's-hill; thence between Harcourt-street and Camden-street, through the deanery garden to the Harcourt-street terminus. This terminus would thus be available for the proposed metropolitan line, adding thereby largely to the resources of both lines, and in a corresponding degree to the accommodation of the public.

From this terminus the line would cross the South Circular-road, curving towards the southern end of Harcourt-terrace, at its junction with the Grand Canal, 300 yards west of Lesson-street bridge; thence passing under the roads and canal to the Roman Catholic Chapel, De Grey-terrace, and Beggar's Bush Barracks to Beggar's Bush road some 200 yards west of Lansdowne-road, where it is proposed to form the junction with the Dublin and Kingstown line, and with the South-wall quay. From Beggar's Bush road the proposed line curves, to meet the Dublin and Kingstown line at Haigh's-avenue level-crossing, from which it passes along the Kingstown Railway to Serpentine-avenue level-crossing. From this a branch 700 yards in length may be extended to Sandymount-green, by which that populous locality, as well as Ringsend, would be connected with the whole of the Dublin termini.

The Liffey Junction branch would proceed from Beggar's-Bush road, passing under the Kingstown Railway, curving northwards under London-bridge road, along the left branch of the Dodder to Ringsend-bridge road, under which it would pass, and then across the present entrance to the Grand Canal Dock, with a terminus at the end of the South-wall. A new entrance would be required

from the west end of the dock to the Liffey, which could be made by prolonging its western arm, and thus supply a mile of quayage, the greater portion of which would belong to the Grand Canal Company. If found desirable, a railway or tramway could be continued along the quays to the Corn Exchange.

The connexion of the Drogheda Railway with this scheme will commence at the Liffey branch (Midland Great Western Line) under the Clontarf-road, curving eastward to the crossing of the Drogheda line over the east wall, a length of about 700 yards.

The entire length of the several sections of this scheme would be under seven miles, and the cost of the works would not exceed £300,000. Of the sum to be paid for the property, it is difficult to form a reliable estimate in the absence of a detailed valuation; but inasmuch as a large proportion of the proposed line is not even built on, and the remainder would interfere with little really valuable property, the outlay in this department could not be extravagant.

The west side of Parliament-street, between Cork-hill and Essex-street would form an admirable site for a hotel, should such an addition be considered advisable. A fish, fruit, and vegetable market might also, with great convenience, be established in close proximity to the terminus, by which much of the street cartage would be avoided, and facilities be given for bringing produce of all kinds to market, to the advantage of the railway companies as well as of the consumers.

By this scheme the Midland Railway would have a junction with the South-wall Quay quite as convenient as that with the North-wall. The property of the Grand Canal Company would be much improved by the great increase of business which the new Liffey branch would cause. And, finally, every section of the public would, I believe, be accommodated to the fullest extent without injury to any of the great thoroughfares, or interfering in any way with the beauty of the city.

R. H. FRITH, Civil Engineer, M.R.I.A.

51, Leinster-road, 12th Oct., 1863.

#### TO THE EDITOR OF THE DUBLIN BUILDER.

London, Conduit-street, W., Oct., 1863.

SIR,—It has been a matter of regret to all who take an interest in archaeological studies, and somewhat of a reproach to the Irish architect and antiquarian, that the ruined remains of the mediæval period have not been more thoroughly investigated and properly illustrated. There have been partial book notices by faithful labourers in the field of research, and some graceful illustrated works on the subject, as those by Wilkinson, Petrie, Newenham, and others; but what are now wanted are proper and fuller plans, elevations, and sections (as those of the ecclesiastical edifices of England), with the history of the foundation, founders, and other benefactors, and workmen, as also of who designed and who executed such interesting buildings.

It has been objected to such publications that there would not be a sufficient sale, and that there is no encouragement. On this latter point I beg to call the attention of my younger brethren in the art, to the following announcement of a prize for this special purpose, by the Royal Institute of British Architects of London:—

“The silver medal of the Institute with five guineas will be awarded (in January next) for the best illustrations, geometrically drawn from actual measurement (with dimensions figured both on the drawings shewing the general arrangements and the detail), together with descriptive particulars of an abbey gateway and bridge or other mediæval building in the United Kingdom, hitherto unpublished in that manner.”

N.B.—This medal is open to all members of the profession without limitation as to age.

It is to be hoped that some of our Irish young friends residing within accessible distances of Cashell, Kilmallock, Limerick; Holy Cross, Tipperary; Muckross, Killarney; Ross Abbey, Galway, Glendalough, Wicklow, or the district around Meath, would set to, spend a few days at those places, and measure and draw out the remains, and send the fruits of their studies to the Institute in competition for the reward here held out to them. They will thus rescue valuable monuments of antiquity from oblivion and neglect, redeem the credit of their country from indifference, and acquire that distinction for themselves, which is due to perseverance, skill, and a spirit of enterprise.

Several visits to Ireland have inspired me with great respect for its fine remains of ancient art, and I am therefore induced to make this appeal to the generous sympathy of her artists. Believe me, Sir, yours faithfully,

THOMAS L. DONALDSON,  
President of the R.I.B.A.

## THE DWELLINGS OF THE POOR IN DUBLIN.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The London papers are thundering with leaders relative to the recent inquests held at Bethnal-green on the bodies of five children whose lives have been sacrificed at the shrine of a foul and putrid atmosphere. It is only when a sensational calamity of this nature arises that the vulture which is gnawing the vitals of an overcrowded city is laid bare, and the surgeon of public opinion is called on to administer to the paralysed victim. The covering is drawn aside, and the sore is shown up in all its loathsome deformity. The poorer localities of the city of London are not one iota more densely populated or overcrowded than some of the poorer localities of this our city of Dublin. There are thousands in this small city, living in an atmosphere that is slowly but assuredly poisoning their blood, living in habitations totally unfit to shelter human beings—thousands huddled together in sweltering masses, while the air is hot with the germ of the pestilence that, ghostlike, surrounds them. There are lanes and alleys in Dublin into which the rays of the sun never penetrate, dark, gloomy, and vaultlike—lanes through which a malarious slime oozes, emitting a stench almost unbearable to those accustomed to dwell within its reach. There are rooms in these lanes dark, ill-smelling, and overcrowded, four families congregated in some of the u. In these rooms there is no provision for a decent separation of the sexes. Men, women, and children are huddled together like so many brutes, and habitual dirt and misery are combined to effect a destructive demoralization. True it is that Dublin is improving (in its appearance) every day, but as Dr. Letheby well remarks, “the majesty of a great city may be but a glittering diadem on the front of death.” The mansions of the rich are being fitted up in a style of the most costly extravagance, while the dwellings of the poor are unnoticed and uncared for. In other cities vast efforts have been made to ameliorate the condition of the poorer localities. In Dublin the fell spirit of apathy clogs the will of many who would be philanthropic enough to stretch forth a hand in so good a work, and yet the evil flourishes like a gigantic upas tree under their very eyes. The commonest laws of prudence declare that instant measures should be taken. If the cholera, or some equally to be dreaded epidemic, were to cast its dark shadow over the city, the masses would be decimated, since the germ of disease is lying in wait, tarrying but a breath to expand into devastating vitality.—I am, Sir, your obedient servant,

October 8, 1863.

N. R.

## General Items.

The Committee of Council on Education propose to establish two scholarships, to be held by the two most eminent female students of the Schools of Art throughout the country, the endowment for such scholarships having been provided by the fees taken for inspecting the wedding presents of the Prince and Princess of Wales at the South Kensington Museum in May last.

The church of Tullamelan has lately been renovated by the Ecclesiastical Commissioners, at an outlay of £150, half of which sum was contributed by the Earl of Donoughmore. A new vestry room has been built, and the old pews have been superseded by neat looking and comfortable stalls. This handsomely situated church, from being one of the least admired of our ecclesiastical buildings, has become, under the superintendence, and after the design of Robert Phillips, Esq., the Commissioners' architect\* one of the most beautiful of the district.

The railway receipts for the past three months have been very encouraging, nearly every line showing an increase, and some of them a large one. The Dublin and Wicklow Co. have increased £6,000; Midland, £5,000; Southern and Western, £4,000; Cork and Youghal, £1,200, and others of smaller amount. The only falling off worth notice is the Irish North Western, £900, the next amount being Cork, Blackrock and Passage, £300.

We are informed that an English company is about to build an extensive hotel at Dalkey. The cost of the proposed building is estimated at £60,000! We believe there is ample and good accommodation to be had at Dalkey notwithstanding the number of visitors who annually seek health and recreation there. We should be glad that any honourable speculation would give employment to the population, or increase the attractions of our seacoast; but we think that the erection of a number of neat residences, which could be let at a moderate rent, would prove more remunerative than an additional hotel on a large scale.

\* Our contemporary's (*Irish Times*) correspondent is in error as to this gentleman being the Ecclesiastical Commissioners' Architect—Messrs. Welland and Gillespie conjointly holding that appointment. Mr. Phillips is, we believe, one of the Commissioners' District Clerks of Works.

## Miscellaneous.

**PATRICK'S CATHEDRAL.**—While the workmen at present engaged in the renovation of this venerable edifice were digging up a portion of the flooring in one of the aisles, they discovered a large stone coffin of curious workmanship buried a few feet beneath the surface. The coffin, when opened, under the direction of Mr. Murphy, the contractor, was found to contain the skeleton of an ecclesiastic, supposed to have been interred there some six hundred years ago. The skull was perfect, but the bones crumbled into dust when exposed to the air. On the lid of the coffin there was a full-length figure of a bishop in his robes. It was inspected by some antiquarians, including Dr. Todd, who expressed it as his belief that it was the coffin containing the remains of the original founder of the church. It is in a good state of preservation, and is in every respect a most interesting relic. When the church is completed it will be placed in a prominent position, because there is no more remarkable antiquity of the building.

**CELTIC MONUMENTS.**—In April last, M. Féraud, an interpreter to the French army in Algeria, having set out from Constantinople in company with an Englishman, Mr. Henry Christy, who has been for many years engaged in searching after Celtic monuments, found, on arriving at the sources of the Bou-Marzoug, at 35 kilometres S.W. of Constantinople, the ground entirely covered with Celtic monuments within a range of at least three leagues' radius. There were dolmens, menhirs, cromlechs, and tumuli, amounting to several thousands, scattered about the country. M. Féraud examined more than a thousand of them. The dolmens are surrounded with one or more square or circular walls built of large stones. The slabs used for tables are so placed that one of their corners is higher than the rest, and some are grooved. At one of the corners of some of the stone walls above mentioned there is a menhir; and lastly, the zone within which all these monuments are placed is surrounded by rows of heavy stones placed upright on the ground, and forming uncovered alleys connecting the dolmens, tumuli, and cromlechs together. Seventeen of these several burial-places have been searched at Mr. Christy's, and found to contain human bones, as well as those of horses and birds; buckles, iron and copper rings, vases, and fragments of vases, &c. In three of these tombs the skeletons were sufficiently well preserved to admit of their position being determined. They were lying on the left side, with their knees almost touching the chin, and their arms passed crosswise over the breast. Now all dead bodies in Etruscan tombs are placed so. Moreover, the head, resting on a stone, was turned toward the south, and human skulls were placed at the feet. The third tomb contained, besides the bones of a man, those of a horse, with flint implements, and a metal bearing the name of Faustina, who flourished in the year 141 of our era. This Celtic necropolis therefore belongs to the second century of Christianity.

**THE PHOENIX PARK.**—A large area of the Phoenix Park, Dublin, has been thoroughly drained by the Board of Works, under the directions of Mr. William Irwin, C.E., the efficient inspector of drainage to the Board, whose services have been substantially though tardily recognised by a considerable increase of salary.—*Civil Service Gazette.*

**ESPLANADE AT KINGSTOWN.**—Mr. P. J. Moran, C.E., suggests a plan for the construction of an esplanade from the East Pier to Sandycove, as follows: The rampart wall of the proposed esplanade should run from the steps opposite Islington-avenue so as to range with the line of road leading to Windsor-terrace, and from thence to continue on to Sandycove-avenue. The width of the esplanade should be sixty feet. The proposed esplanade is to be formed between high and low water mark, and thereby do away with compensation to land owners, which, in this case, might be a considerable sum. An intercepting sewer should be constructed inside the rampart wall, and should discharge itself at the point where the Glaschule river discharges. This sewer should be run out to low water mark. A terrace might be built and called “Victoria Crescent,” which would be 300 yards long, between Mr. Samuels' house and Burdett-avenue. If the foregoing plans should be carried out, Kingstown could boast of having one of the finest esplanades in the United Kingdom.

**THE COUNTRY OF MULREADY, R.A.**—“Nemo” writes as follows to the *Scotsman*:—“In the *Art Union* for this month, which I have been rather late in seeing, there is a memoir of the life of this celebrated artist. He is stated to have been born at Ennis, county Clare, Ireland, about the year 1786, and to have left it in company with an elder brother at an early age, but nothing is known of him from the time he is said to have left Ireland till the time he entered the School of the Royal Academy in London, about the year 1800. If he was really born in Ireland, of which there is no evidence, there can be but little doubt that towards the close of the last century he was resident in Edinburgh. The information upon

which I make this statement was derived from the late Mr. John Graham, master of the Trustees' Academy, who, about the year 1790, painted a picture of ‘Eli blessing Samuel,’ in which the latter was represented as a remarkably fine-looking boy, with long flowing locks. Early in the present century a copy of this picture was made by a favourite pupil of Mr. Graham's and an old friend of mine, the late Mr. Thomas Carfrae; and I well recollect, when talking about it on one occasion, of Graham telling us that he had been attracted by the fine appearance of a young Irish boy, named Mulready, whom he had accidentally seen playing in the Canonage—that he had got him to stand for his model of Samuel—and that same boy was now one of the most rising artists in London. I don't know what has become of Graham's original picture, which, according to my recollection, was one of his best works; but my friend's copy—a very good one—is still, I believe, in the possession of his sister, who resides in Edinburgh. This is not the first time I have made these facts public. Nearly forty years ago, when Mulready's fame became widely known, I inserted a similar communication in a paper then published in Edinburgh, called the *Star*; and a copy of the paper containing the communication referred to was sent to Mr. Mulready, but he never took any notice of it. It is a curious circumstance, also, that amongst Mulready's earliest works was the ‘Disobedient Prophet.’ Could this have been suggested by Graham's picture of the same subject now in our National Gallery, which at the time Mulready stood for the model of Samuel must have been seen by him, as it was painted shortly after Graham's return from Italy, and always occupied a prominent position in his studio? From Graham's statement I was inclined to think that Mulready, though descended of Irish parents, was born in Edinburgh. In Graham's picture he is represented as a very handsome boy, of some six or seven years of age; and in the memoir referred to Mulready is said to have been a remarkably fine-looking man.”

**THE STANDARD LIFE ASSURANCE COMPANY.**—We have been favoured by a view of the sculpture designed and executed by Mr. John Steele, R.S.A., of Edinburgh, to adorn the tympanum of the new offices being erected for the Standard Life Assurance Company, in Upper Sackville-street. The subject is the parable of the wise and foolish virgins—a very suitable one for an assurance office, and capable of a close application to the business which such institutions transact. Mr Steele was commissioned more than twenty years since to produce a work for the Standard Office in Edinburgh, when this subject was selected; and on the present occasion, the directors were desirous that the original design should be copied, with such modification only as the greater size of the figures and the bolder relief from the greater space disposable would permit. Accordingly, with these exceptions, the work is a reproduction of the original design. It is executed in four blocks of freestone, from the celebrated Binny Quarries, near Edinburgh. The wise virgins, of course, form the central group, and are standing; and the foolish virgins, whose recumbent attitudes sufficiently mark their character, naturally occupy the angles of the tympanum. The striking characteristics of the central group are great joy, calm dignity, and composure, each face bearing an expression differing from the others. One figure, with garments gathered up, appears quite prepared for the occasion; another is heralding the advent of the bride, with lamp uplifted; whilst a third appears almost in doubt whether the bridal party has indeed arrived. At the outside of this group we see a fourth, who seems to entreat her sisters to listen to the suppliant and foolish virgin, who, on bended knee, begs for a supply of that oil she has herself failed to provide. The recumbent figures in the other groups are no less happily treated. On the left there is the foolish virgin in the first moment of alarm partially uprising, whilst another seeks to fill her lamp, almost incredulous that the supply is exhausted; and at the opposite angle we have one not yet awakened, with drooping head and dishevelled hair, the falling arm and lax muscle denoting the careless sleeper. The parable has been embodied in stone very successfully, and we welcome the addition to the ornaments of our city. We believe this is the only specimen in Dublin from Mr. Steele's studio, but many of his best works adorn the Scottish metropolis. The statue of Scott on the Mound, and Wellington in the Register House, are amongst the best examples of his style; but, perhaps, he has rarely succeeded so well as with the Baxter Memorial at Dundee, for which so large a subscription was raised throughout the length and breadth of Scotland.

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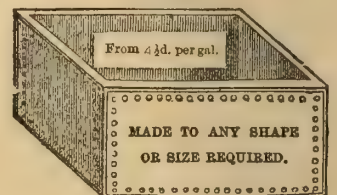
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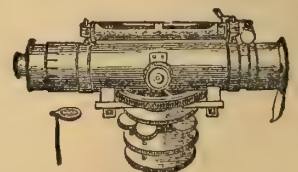
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# The Dublin Builder.

VOL. V.—No. 93.

## THE LAST OF THE GRANGEGORMAN COMPETITION AFFAIR!

### THE REFERENCE TO THE CORPORATION.

**A**T a special meeting of the Corporation on Tuesday last, after Alderman Bonsall moved the adoption of the report by the Board of Superintendence and Mr. Casson seconded it, Mr. A. M. Sullivan, T.C., wished to offer some explanation with regard to the proceedings of the board in this matter, as some misconception appeared to exist outside. Having referred to some former proceedings in connection with the proposed alterations he said, that the present board, in considering the matter, had seriously taken up a work bequeathed to them, and they had endeavoured to discharge their duty as they were bound to do. They advertised for plans, and a number were sent in. These plans, he said, were committed to the present board by their predecessors. The Board of Superintendence approached the selection with every disposition to deal fairly and justly between the several competitors, but a mishap occurred which every one greatly deplored. Of the eleven plans originally sent in, every one was, in the opinion of the board, radically defective; there was not one that met the necessary requirements. The board, therefore, knowing that they were dealing with members of a learned profession, asked the counsel and advice of the Inspectors-General with reference to the plans. The latter stated that not one of the plans met the requirements. The board then absolutely rejected eight sets, and held over the remaining three for further consideration, referring them again to the Inspectors-General. The board had been assailed by some of the competitors in the public press, in very hard terms, but he (Mr. S.) could satisfy the house and the public that never did a board act with a greater spirit of independence and strict justice than did the Board of Superintendence on that occasion. What the Inspectors-General of Prisons did, after getting the three plans, was this—they ascertained the name of one of the competitors (Mr. P. Byrne, jun.), for whom they sent. They then showed him the other two plans by Messrs. Carson and Lyons; told him what sort of a plan they would approve of, and directed him to draw up a sketch of such a plan, making radical alterations in his original one; and the board were then asked to ratify all that. The board could not ratify that proceeding, which they found had happened through the best motives in the Inspectors-General's office, where the merit of one plan out of the three was anticipated, no such authority existing for such anticipation. They felt that, standing between the Inspectors-General and the public, they would be open to a serious impeachment if they sanctioned such a transaction. The board could not allow, that before any selection had been made, the name of one of the competitors should be ascertained, that he should be sent for by the Inspectors-General, and the brains of the other two gentlemen picked for his benefit, and that the selection thus made should be put before the public as a fair and a just one. The board, under those circumstances, did not accept one of the plans.

One of the competitors, a gentleman well known in his profession, Mr. J. J. Lyons, of the DUBLIN BUILDER, also assailed the board in his journal, and said that they had selected three plans as "the best," and were bound to give the premiums between them, and that there might be something like a compromise between the three as to who should get the first premium. The board did not select the three best plans. They delayed the rejection of these three plans, but they did not select any. They advertised

again, but many thought that it would be a farce to advertise for competitors when one of the competitors was in the position of having advantage over the others. It happened that amongst the plans last selected was not that of the gentleman who had the interview with the Inspectors-General, and he accordingly—actuated by feelings of disappointment—published a letter in the newspapers stating that the Board of Superintendence cared nothing about the merits of the plans, and were guided by partizan motives in the selection. The board made no reply to such a libellous assertion, believing that the council-room was the proper place to vindicate themselves. They ultimately selected Mr. Carson's plan as *first*, Mr. Lyons's plan as *second*, and the plan of Mr. W. Hague, jun. as *third*. The board did not know what gentlemen were selected. For himself he (Mr. S.) would have been in favor of selecting Mr. Lyons's plan as *first*, if he had not recognised his handwriting on the document, which prevented him from exerting himself as much in favour of its adoption as he otherwise would. There was no partizanship whatever in the selection. (Mr. Sullivan's statement was received with much satisfaction by the council, of which there was a very full meeting.)

Mr. Whelan, T.C., desired to have a look at all the drawings, and complained that they were not accessible. The Town Clerk handed him ten sets, with which, heavily laden, the Councillor walked across the chamber and proceeded to inspect them one by one. He said the selected plans were all uncommonly like one another (great laughter); that the board had awarded a first premium to Mr. Carson, and a second to Mr. Lyons, but he believed it would be difficult to say which was the best, as they were nearly fac similes. The City Architect was badly treated in the matter, for he had furnished plans for the same works. One of the competitors, Mr. P. Byrne, jun. (the City Architect's son) was also badly treated. The speaker concluded by suggesting that a *fourth* premium ought to be now given to the latter (cries of oh! oh!) On the resolution being put from the chair by the Lord Mayor the Council unanimously confirmed the report.

[In the foregoing, Mr. Sullivan remarked that the conductor of this journal "had assailed the board," and though we are not prepared positively to contradict that statement in its entirety, nevertheless, we must offer a qualified explanation thereof, which will place Mr. Lyons' position in a different light to what might be inferred.

In the No. of the DUBLIN BUILDER for Sept. 15th last (page 151), an editorial article (of which Mr. Lyons avowed the authorship) appeared, openly and truthfully detailing the proceedings with respect to the *first* competition, and revealing the circumstance—since corroborated by Mr. Sullivan—of the Inspectors-General having sent for Mr. Byrne, jun.; of their having permitted him,—as a favoured one,—access to both Mr. Carson's and Mr. Lyons' plans; and of their having instructed him to prepare an amended design for submission to the board. Respecting this, what did Mr. Lyons write? We quote from the article in question to show:—

"To the *high honour* however of the board be it recorded, that they *refused to look at such plan*, believing it most properly to be an injustice to the others, and then, and then only, was the idea of rejecting *all* entertained, and of seeking for new designs unlimitedly."

This is certainly not "assailing" the board, but on the contrary is emphatically pronouncing a most deserved condemnation of the act of the Inspectors-General, and conveying a complimentary congratulation to the board for repudiating it!

Taking exception to the principle that induced the board to nullify the competition, and not to award the promised premiums (*and by which exception we still firmly stand*), Mr. Lyons (in referring to a letter of remonstrance he had individually addressed to the board) said as follows:—

"Why should a board comprised of gentlemen of the highest commercial integrity and intelligence be

placed in a position of remonstrance by a competitor for "error of judgment,"—for that is the *only* imputation we suggest, however reasonably we may feel disappointed at the result."

Mr. Sullivan has also stated that although the board positively rejected *eight* out of the eleven plans submitted in the *first* competition they did not select the remaining *three*, of which Messrs. Carson, Lyons, and Byrne, jun. were the respective authors. With every respect for the discrimination of Mr. Sullivan and the board, we must say that this statement looks like "a distinction without a difference;"—rejecting eight, but *not* selecting the remaining *three*! Mr. Lyons maintains that the act of rejection of *any* was *virtually* an acceptance of the remaining sets of plans, and a clear admission that the three sets so remaining were "the best" of the eleven submitted, let them be ever so defective. Instead, therefore, of Mr. Byrne, jun. being presented with a *fourth* premium in second competition, as suggested by Mr. Whelan, we believe that it would be simple justice to award him a *second* or a *third* in the first competition; the board having undertaken to award the premiums without any reservation as to defectiveness. On the same principle, Mr. Lyons believes himself still entitled to a premium in first competition also—the amount awarded in the second being quite a separate matter, and at best but a very insufficient recompense for the trouble incurred in preparing two distinct sets of drawings. As for Mr. Carson, we may fairly anticipate that under the circumstance of his being now the fortunate competitor, he will not question the amount of the premium in the first competition; but instead of entertaining any invidious feeling towards that gentleman for his success, or towards the board for their decision in his favour, Mr. Lyons rather congratulates the one on his well earned laurels in honorably contested struggles, while relieving the other from the slightest imputation of partiality towards his successful opponent.—ED.]

### THE ROUND TOWERS.

IN a recent number of this journal we gave some extracts respecting the origin and use of Round Towers, a subject which has been ably dealt with by Mr. Henry O'Neill in his work. In a subsequent chapter he points out mistakes made by Dr. Petrie, and which we now lay before our readers:—

"Several writers on Irish antiquities have not only maintained the most baseless opinions, but they have also made statements directly at variance with facts; we have already shown one of the Rev. Dr. Ledwich's errors in this respect. This loose writer not only contradicts the reality, but he even contradicts himself. He wished to represent the Irish people up to the seventeenth century as a nation of savages, and, accordingly, he says they were. Shortly afterwards he wished to show that the Irish people were, from an early period of the Christian era, the most learned people in Europe, and he proves they were. Yet Ledwich is an authority on Irish antiquities.

Dr. Lanigan states that the doorways of the towers face the west; Dalton and some others say they face the east, both assertions being wrong. The latter writer makes some other statements respecting the towers which are egregiously wrong, yet these misstatements appear in an Essay which gained a prize from the Royal Irish Academy, and is printed in one of their volumes. Such are some of the false lights that have misguided tyros; there is not one of them trustworthy.

This extreme neglect of accuracy has been very properly condemned by Dr. Petrie. He censures Sir James Ware (123); the Rev. Dr. Ledwich he charges justly with "artfulness and audacious mendacity," as "one desirous of supporting an erroneous hypothesis by false assertions" (10); and other writers receive their share of strong condemnation.

The Doctor informs us that he has avoided errors. "The towers have been all subjected to a careful examination, and their peculiarities accurately noticed" (2); and he asserts his illustrations are so accurate that "they may be considered as quotations from our ancient monuments." Were these statements true, the Doctor's work would be a text-book to which we could turn for facts, and thus see at a glance what required many years to accumulate; but, alas! the text-book of Irish antiquities has yet to be written; for, though the Doctor is immeasurably superior to his predecessors, he is

not always reliable. By pointing out some of the errors of previous writers, Dr Petrie has rendered a good service to Irish archaeology; we hope, by pursuing a similar course as respects his Essay, to be of service in the same cause.

In noticing the learned Doctor's mistakes, we shall not limit ourselves to any prescribed order: we will take the errors as we meet them, satisfied that if we show our objections to be well-founded, we will have done enough; we also beg to mention that we by no means intend to point out every mistake; far from it; our object is not to analyse the whole of the Doctor's book, but simply to show that it is not the correct work he represents; a few instances will serve for this purpose. Our references are to the octavo edition, and are enclosed within brackets.

"The doorway most generally faces the east, but it is also sometimes found facing the north-east and south-east."—(34.)

The aspect of the doorways of the towers we have examined varied from west-of-north round to south. The greater number looked, more or less, south-of-east, but there was every direction included in the eastern semicircle from north to south.

"The external circumference at the base is from forty to sixty feet, or somewhat more."—(361.)

A circumference of forty feet gives a diameter of thirteen feet; and a circumference of sixty feet gives a diameter of a little above nineteen feet. There is only the very small and exceptional tower at Clonmacnoise of only thirteen feet in diameter; but, in support of his argument against the Persian towers being like the Irish ones, he asserts that the Irish towers were only "nine or ten feet in diameter" (33), the average diameter being fifteen or sixteen feet.

"They are finished at the top with a conical roof of stone."—(381.)

This is not the case: some have roofs that are not conical; very many have no roofs; and others have their upper parts destroyed, so that we cannot tell in what way they were finished.

"The top frequently, as there is every reason to believe, terminated with a cross formed of a single stone."—(361.)

Not one reason is given for the belief; but, no doubt, the Doctor was told so, and believed his informants to be trustworthy. How little reliance is to be placed on the statements of Irish antiquaries we may guess, if those who talk he no better, as respects facts, than those who have written. As the tops have been off most of the towers for very many years, the statement is more than doubtful: no proof being given renders it still more suspicious. We know that the top of Swords tower terminates in a cross, but we know also that the whole top is a very clumsy piece of modern work. We have heard, too, of a stone of some sort having terminated Ardmore tower, but though we asked those who could best inform us, we could not get satisfactory proof about it; and if there had been a cross there, we ask, Had it been there from the first, or was it, like the one at Swords, an addition? The Doctor's book is silent on these topics, and we cannot believe that every tower ended in a cone bearing a cross. The assertion supports the Doctor's theory of the Christian origin of the towers, but the Doctor omitted to support the assertion.

That the towers are of Christian origin is the Doctor's great theory. We have seen how the early Irish Christians delighted in Art works. Their illuminations in books, their sculptures on crosses, and on ecclesiastical buildings, their works in metal; of these we have examples in Ireland ranging from the sixth to the fourteenth century; and the lost Book of Kildare, another of Ireland's miracles of Art, was of the fifth century. We have also seen that Irish artists diffused themselves, and had a powerful influence throughout Europe for many centuries. Dr. Petrie declares that the towers were built during this Irish Art era, "from the fifth to the thirteenth centuries" (2); when the Irish were producing their miracles of Art—when the crosses were being sculptured—when the Book of Kells was being illuminated—when the Devonshire Crosier was being produced—when the Irish revelled in Art works; yet, strange fact, the towers are singularly plain. In any description of a tower now demolished that we have met with, no mention is made of its having been adorned with sculpture; there is very little sculpture on the existing towers, and no inscription whatever. There are inscriptions on some ancient churches, and on sculptured crosses and on metal works, but the towers stand before us in solemn, silent mystery; not a line is inscribed on them to guide the inquirer.

As to sculpture, there is very little indeed: this fact is most remarkable. The Doctor evidently felt it to be so. He felt that if the same Irish who

produced all the Art works we have mentioned were the producers of the towers, they would be sure to adorn them with some of their wonderful carvings: this driven, the Doctor boldly faces the difficulty, and declares that

"On several of them Christian emblems are observable."—(359.)

Were this the case, and could it be proved that the emblems had been carved when the towers were built, the Doctor's assertion would be established so far as the towers which bore the several emblems are concerned; but this important assertion he leaves to be proved in a second volume (359), now due these thirty years, and not yet published.

There is a carved band of four human heads and ornaments immediately under the conical roof of Devenish Tower. This singular work has nothing Christian about it; neither, indeed, does the Doctor assert that it has. See his representation of it (400). There is a quartered circle over the doorway of Antrim Tower, which the Doctor terms a cross; that such a figure is not, necessarily, a Christian cross we have shown at page 97. There is also a human figure over the doorway of Donaghmore Tower. This figure has outstretched arms; the legs, thighs, and lower part of the body are represented sideways; the knees are bent; and, altogether, the figure is not unlike a lively Irishman dancing a sprightly jig. Dr. Petrie has given a drawing of this doorway (410) and, by representing the legs straight, and one foot overlapping the other, he has made a figure like, and which he calls, a crucifixion, for which the only authority is Dr. Petrie's mistake.

Dr. Petrie states that the Antrim Tower was built by a great tower-builder, named Goban Saer; that this builder flourished in the early part of the eighth century; and, so precise is the Doctor's information, that he can even tell that he was, probably, born at Turvy, near Dublin. It seems that there, near the strand, lived his father, and the old gentleman used to fling his hatchet from Hatchet Hill into the waves, in order to stop them, and they were stopped accordingly (386)! It is proper to state that the learned Doctor cautiously adds that this information is not offered "as strictly historical."

This keeping out of the sea with a hatchet is almost identical with keeping out the tide with a pitchfork, a tradition we have heard of, but do not offer as strictly historical.

There is a representation of the doorway of the Antrim tower at page 403 of the "Essay," remarkably incorrect; it is nearly eight inches—in proportion—too low. The width of the doorway at the bottom is two feet, as stated by the Doctor—more accurately, one foot eleven inches—and it is four feet three inches high: so that it is in height two and more than a-fifth of the width below; but the Doctor's illustration makes it less in height than two of the width below. The carving over the doorway is also very incorrectly represented.

But the doorway is given by the Doctor as an illustration of Goban Saer's work, that is, of about A.D. 720, or about eleven hundred years old! The top of the doorway is in three pieces, the outer and inner one are stone, the middle piece is oak, and is not weathered beyond the depth of this sheet of paper. Can it be that this wood has lasted thus sound for above eleven hundred years, or is it not more likely that the doorway has been repaired in recent times? In connection with this subject we may mention that the Doctor's illustrations of the doorways of Kildare and Timahoe are greatly out of proportion. By these mistakes the elegant forms of the originals are lost in the representations.

There are no other carvings on the towers than those we have mentioned, namely, Devenish, Donaghmore, and Antrim; those on the two latter are alleged by the Doctor to be Christian emblems; that they are so is extremely doubtful; but, waiving this objection, we ask, Where is the proof that they belong to the same period as the towers they are on? We have heard from calm, dispassionate investigators—some of them builders or architects by profession—that the Donaghmore doorway is not ancient. The Doctor assigns it to the early part of the tenth century (409), and most earnestly denies that it is an after-work (410). Who shall decide? We do not place much faith in the Doctor's judgment. Can the Antrim doorway be ancient? Surely the two instances the Doctor alleges are not "several"; above fifty of the towers still remain, eight or ten of them should have "Christian emblems," to justify the Doctor's expression.

"In several instances an aperture directly over the doorway is of a size little less than the doorway, and would appear to be intended as a second entrance."—(361.)

Immediately before this sentence we are told that the doorway is "only large enough to admit a single person at a time." In general the width of the doorway is two feet, and the height five feet two

inches. No doubt the clergy in the times when the towers were erected, were, like the generality of the clergy of the present time, learned and lean; a fat man could hardly squeeze into such a narrow opening, but what sized person could get into the smaller aperture? The fact is, this second entrance is one of the Doctor's mistakes; there is no such aperture in the towers.

One of the means the Doctor uses to persuade his readers that the towers were keeps, or monastic castles, is by asserting that

"There are few, if any, of the towers which would not have held from fifty to eighty persons, at the moderate average of ten persons to each floor."—(64.)

The area of a circle is found approximately by multiplying its diameter by three-fourths of that diameter. Thus if the circle be eight feet in diameter, multiply eight by six, and we have forty-eight feet for its area. Those who have not an opportunity of ascending a round tower—the one at Clonalkin, for instance—may know from the above calculation, that the Doctor has made a great mistake. Eight feet is more than the average diameter of the floors of towers, and unless he wished to pack men like herrings in a barrel, ten human beings could not be put on a floor with only an area of forty-eight feet. Turn a circle on the floor with a cord four feet long, and try how many can be within it; remembering that stone walls are to be supposed all round, and that living beings, shut up from an enemy; eating, drinking, sleeping, it may be, and discharging all the functions of their nature, are supposed to be thus immured, and the exaggerated nature of the assertion will be apparent. If this assertion has been accepted by the learned, those who accepted it have not had their natural faculties much improved by their learned cultivation. Two or three persons would be inconveniently crowded in so small a space.

With respect to learning, the Doctor has given close upon one hundred and fifty quotations in Latin; only one of these is translated. How could the Doctor expect that the middle classes—who are not learned—would be convinced by extracts in a dead language? The Doctor took no bad means for the fulfilment of his predicted failure with them. Only fancy his going to John Smith, the grocer, and spouting out his hundred and forty-eight Latin extracts, while poor John stands open-mouthed, not understanding a word. When done, the Doctor triumphantly asks, "Does not that convince you, Mr. Smith? Whereupon Mr. Smith declares that he does not know what the Doctor means, and possibly looks keenly at him to see if there is not a something wild in the spouter's eyes, and says to himself—"I wonder in what quarter now the moon is!" Thus the Doctor fails to convince the grocer, and he goes off soliloquising that he hardly expected to succeed with the middle classes, but he fondly hopes the learned will be convinced.

We will give one specimen of his mistakes respecting his Latin quotations, which were to prove so convincing to scholars. He cites a monkish story to the effect that St. Columba, being aware that a man was falling from the top of a great church, sent an angel to save the man, and the angel went with such rapidity that the man was saved from injury. If the learned won't be convinced by this story that the man was falling from a round tower, as Dr. Petrie fondly hopes they will, they have more sense than he imagines. This story he gives as one historical authority which proves the erection of a round tower in the sixth century (387).

While on literary subjects we may mention that the Doctor has pursued a very reprehensible practice of giving as literal copies of inscriptions, ones modified as he thought proper; we, some few years ago, showed his mistakes in this way respecting the inscriptions on the Cross of Cong. His renderings of the inscriptions on that beautiful specimen of Irish metal-work, differed very much from the originals, and yet his were printed in Irish characters, and enclosed within the marks of quotation, inverted commas. These marks implied that they were quoted. Quoted from what? There was nothing to quote them from but the original metal-work, yet when the Doctor put forth the late lamented Dr. O'Donovan to be his champion, the defence set up was, that they were only readings!—readings by Dr. Petrie, and quoted by Dr. Petrie; the Doctor quoting himself, or rather quoting from nothing! What a mistake!

There is an inscription on a sculptured cross at Clonmacnoise; three, or at the most four, of the initial letters are gone; Dr. Petrie has supplied ten letters, and has published the inscription as a quotation, and in Irish characters. Is this another reading? Is this one of his "quotations from our ancient monuments"? (x.) To thus make changes from inscriptions, and not inform the reader what changes have been made, and to publish them as literal transcripts from the originals, are errors.

To be continued.

## WATER SUPPLY OF WEXFORD.

*Report of the County Surveyor on the plans submitted to the Council and Corporation of Wexford.*

First.—With reference to Mr. Smith's plan: I consider he has assumed too high a figure for the available rain-fall; but, taking his own bases of calculation, I am of opinion that the catchment basin which he adopts is quite insufficient to satisfy the demands involved in his proposition, as illustrated by the following analysis:—

1st.—He states that the area of his catchment basin is 660 statute acres.

2nd.—That the total rainfall for a year, which would be available, is 57,499,200 cubic feet.

3rd.—He abstracts from this quantity  $\frac{1}{3}$  for the mills, which he requires to supply, being 19,166,400 cubic feet.

4th.—To these mills he proposes to distribute, annually, this latter quantity, uniformly, over 313 days, thus giving them 61,234 cubic feet per day.

Now, assuming only 10 hours as the term of daily work, there would be afforded 6,123 cubic feet per hour, or nearly  $1\frac{1}{2}$  cubic feet per second to be divided between the three mills, two of which belong to Mr. Leared, and one to Mrs. Kelly.

In the absence of accurate information, the actual quantity of water required for these mills can be only approximately computed. Assuming, from passing observation of the diameters of their water wheels, that 8 cubic feet per second would be sufficient to work them satisfactorily, and this is, probably, a moderate supply to calculate on, they would require daily (allowing the 10 hours as before) 288,000 cubic feet, and multiplying this by the 313 days of the year which Mr. Smith adopts, their annual supply should be 90,144,000 cubic feet, whereas the total annual rainfall, as stated above, yields only 57,499,200. It is, therefore, clear, that, thus, any supply for the town is out of the question, as there would be a deficiency of 32,644,800 cubic feet in the demand, which it would appear necessary to provide for, in order to work the mills alone. This might have been anticipated, from the fact of Mr. Leared's having been obliged to erect a steam-engine (which he states to be 20 horse-power) to work his mills, in addition to the available water-power.

The insufficiency of the natural supply being thus established, it is unnecessary to follow the details of this plan any further. I shall merely remark that, even if an adequate quantity of water could be obtained, I should be slow to recommend the adoption of such mechanical contrivances as Mr. Smith describes, which, though a simple and elegant application of scientific principles, and probably suited to the supply of factories or possibly to more extensive purposes, is, in my opinion, not safely applicable to so serious an undertaking as the providing of a large population with water, particularly as the town can be supplied by the ordinary means.

With reference to the scheme proposed by Mr. Easton I have to remark, that he gives very little information as to the probable quantity he would be able to supply. He merely estimates, without giving the data on which he founds his calculations, that, from the stream marked No. 1 on his plan, and which he assumes to be sufficient for the present population, he would obtain 70,000 gallons daily in the "driest time." It appears that when this stream was gauged, under your directions, on the 22nd of last month, it yielded only 51,840 gallons per day, a result considerably different from his assumption, and of very serious import when the present period of the year is compared with the driest season. Testing this scheme by calculation, it will stand thus:—

1st.—The gauged stream, No. 1, yielded as stated 51,840 gallons per day.

2nd.—Mr. Easton estimates that the quantity daily required for the town, after allowing 20,000 gallons for the existing supply, is 130,000 gallons. The supply from the stream appears, therefore, to be 78,160 gallons less than the assumed daily demand, a deficiency which he calculates on providing for through the medium of a storage reservoir.

3rd.—The proposed capacity of this reservoir is stated to be 3,500,000 gallons.

Now, as the daily demand on this storage would be, as above, 78,160 gallons, the reservoir would contain nearly 45 days' supply. There have been periods of this extent during which no rain has fallen, and, therefore, the store of water would be, at the end of that time, exhausted, and the town be dependent solely on the quantity yielded by the stream, and, even giving credit for the discharge gauged in September as being available in the driest time, there would be, then, a daily deficiency of 78,160 gallons.

We have it on record, that during the months of May, June and July, of the year 1853, the accumulated rainfall was only 0.69 inch, which, according

to Mr. Easton's assumption, that 1 inch of rain should add 1,000,000 gallons to his reservoir, would give a total quantity of 690,000 gallons for the three months, and allowing that the reservoir was full at the end of April, the whole quantity available for this period would be 4,190,000 gallons, affording a supply for each day of the 92 equal to only 45,543 gallons, being 32,617 less than the 78,160, which, as already stated, is required to make up the deficiency between the supply as gauged, and the daily demand of the town. Now, in the month of April alluded to, the rainfall was 2.44 inches (a fair monthly average), therefore, as according to Mr. Easton's figures, it would require  $3\frac{1}{2}$  inches of rain to fill the storage reservoir, the admission that it was full at the close of April, makes the 45,543 gallons calculated on as the supply that would be obtained for each of the 92 days largely in excess of what it really would be, and, therefore, during a similar period there would be a very serious scarcity. This, I apprehend, having calculated the catchment basin of stream No. 1, and found it to contain only 250 statute acres.

The limits of deviation, marked on Mr. Easton's map, include streams 1, 2, and 3, the catchment basin of which, added together, amount to only 480 statute acres. I consider that it would be necessary to obtain a larger area, and that (if it were desirable to adopt this locality) it should be extended not only to embrace the Arcandrisk stream, called No. 4, but also the Kingsford rivers. This would afford a total catchment basin of about 1,800 statute acres, but would, of course, require an enlarged expenditure.

Mr. Easton's scheme is clearly very far preferable to Mr. Smith's, still I do not think it would be advisable to adopt it in its present shape, as it appears doubtful whether it would not entail considerable risk of scarcity during dry seasons, and more particularly as I think an unfailing supply can be had nearer the town, and therefore, probably, at less cost.

Although your resolution would appear to confine me simply to the expression of my opinion "on the character and capability of both plans," it may possibly be expected that, as I have not been able to recommend the adoption of either, and as it appears to be the unanimous feeling of the inhabitants that an unfailing supply of water shall be obtained, I should not close this report without stating whether there is any alternative plan that I should suggest.

I have, therefore, with this view, given the question such consideration and local examination as the very limited time within which you required this report, permitted, and I beg leave to submit the following scheme:—

I have had levels taken, and have ascertained that an available head of water of from 30 to 40 ft. above the present town reservoir may be had between Mr. Leared's and Mrs. Kelly's mills, without at all injuriously affecting the free flow of the tail race from the former, where an ample storage reservoir may be constructed to receive the waters of all the streams which continue to supply the Newtown River, and from which Mrs. Kelly's mill could be provided, leaving it in a condition, at least as effective, if not far more so, than it is at present.

The catchment basin, to be dealt with in this case, would be 2,200 statute acres. I assume the annual rainfall to be only 33 inches, and that, after deducting for absorption and evaporation, 17 inches would flow into the reservoir, the extent of which I would make 6 statute acres.

From these data the results have been calculated as hereafter given.

The quantity of water the catchment basin would supply per annum is 844,519,500 gallons. Deducting from it what would afford Kelly's mill 4 cubic feet per second, the annual amount available for the town would be 562,819,500 gallons.

The supply required, assuming the same quantity as Mr. Easton does, viz., 130,000 gallons in addition to the present supply, which, I think, is the least that ought to be provided, would be 47,450,000 gallons per annum, leaving a surplus delivered from the catchment basin of 515,369,500 gallons.

The storage reservoir is calculated to contain 16,335,000 gallons, or fully 4 months supply.

Now, applying the test of May, June and July, 1859, as was done in the other cases, there would be a total supply, for a similar dry period, of 17,369,550 gallons, or for each of the 92 days, 188,799 gallons, leaving a surplus over the quantity required for the town of 58,799 gallons for Kelly's mill in addition to the whole contents of the reservoir, which the foregoing calculations clearly prove, would be more than filled by the 2.44 inches of rainfall registered in April as before stated.

It would, therefore, appear that an unfailing supply can be had from this source. It only remains to be shown how it would be delivered into the town reservoir. The distance between the

latter and the storage reservoir at Newtown I calculate would be 4,448 yards.

With a head of water of 35 feet, an 8-inch pipe of this length would deliver about 378,000 gallons per day, or nearly three times the quantity assumed as required for the town.

The water is excellent, and, from the extensive capacity of the storage reservoir, I do not think filtering would be required. Should it be, the smaller town reservoir is available for this purpose.

As to cost, I consider that this plan could be carried out within Mr. Easton's estimate. The length of his 8-inch cast-iron piping is stated in it to be 7,600 yards, being 3,152 yards more than is required in the present case, there would, therefore, be effected a saving of £1,733 in this item at his price of 11s., reducing his estimate to £6,000, to which may be added about £100 for the greater quantity of land taken for the storage reservoir than he proposes for his. Taking all the remaining items at his figures, the estimate would be about £6,100.

Should it be found desirable, hereafter, to increase the supply to the town, it can be very easily accomplished, simply by purchasing Kelly's mill.

Although, from the experience I have had in dealing with catchment basins and works in connection with them, dependent for their results on calculations such as the present, with reference to the rainfall, I believe that the supply herein arrived at would be obtained and found satisfactory, I feel that I should be wanting in my duty towards you, if I did not express my opinion, that, in order to render the success of the project a certainty as far as human foresight can secure it, and to ensure the unfailing supply of water to those whom it would be necessary to tax for it, the calculations should not be based solely on the precarious returns afforded by rain-gauge (to correct which in the present instance I have assumed what may probably be considered less than a minimum available rainfall), but that the streams should be frequently and accurately gauged during dry seasons, so as to ascertain beyond a question of doubt what their minimum supply would be.

JAMES B. FARRELL.

Strandfield, Wexford, Oct. 15, 1863.

*Mr. Smith, C.E., has addressed the following letter to the editor of the "Independent" on same subject:—*

"It is greatly to be regretted that serious questions are taken up in a bantering manner in your ancient Borough. The question of a water supply exemplifies this. Dr. Coghlan, as reported in one of your issues which I have been favoured with, blames me for giving in connexion with my scheme for a supply of water to Wexford, calculations to elucidate the subject. The Editor of the *Constitution* is equally kind, because I did not give more; and singular enough neither seems to understand what I did give. The one represents the community, as you do; the other the ratepayers; and, singular as it may seem, still it is a fact, that both endeavour to injure public interests by their absurd and injudicious advocacy. I am a stranger to your community, although well acquainted with its wants. In preparing my scheme for a supply of water to your Borough, I have studied above all other considerations the public interests. If I were deputed to meet another party, on the part of the mill owners, in half an hour I could set the mill question at rest for ever. This is enough at present. The sufficiency of the scheme has been questioned. If this is proved, then the economy is manifest. All the requirements of a good and sufficient supply are to be met and enjoyed by my scheme. Take a case, say Dublin:—Area of the Vartry district, 14,000 acres; daily supply to Dublin, 12,000,000 gallons. Proportionally, area of Hayestown district, 660 acres; daily supply to Wexford, 566,000 gallons. To this report of the Commissioners, Mr. Hawkshaw, the Government, Parliament, and the Ratepayers, &c., give their assent. Now cannot 100,000 gallons daily be very economically obtained from a district capable of yielding over and above what is required for the mills, 566,000 gallons daily?"

Belfast, Oct. 12th, 1863.

JAMES SMITH.

**ST. BRIDGET'S CHURCH.**—This church, which had been closed for some weeks in order to be newly painted and decorated, was re-opened for public worship on the 18th ult.; and as this was the first occasion on which the church was open since the death of the late Archbishop of Dublin, it was appropriately draped in mourning. The painting and decorations are by Mr. Mannix, of Merriown.

## ALLIANCE NATIONAL BUILDING SOCIETY.

A MEETING was held on the 21st ult., in the Temperance Hall, Marlborough-street, in connexion with the Alliance National Land, Building, and Investment Society. The Hall was well filled, notwithstanding the inclemency of the weather. Mr. WM. LEDGER ERSON, who occupied the chair, called upon Mr. Mowatt, the agent of the society in Ireland, to address the meeting.

Mr. Mowatt said the great object of a building society was to aid, by mutual co-operation, the middle and working classes to acquire their own houses, and so get rid of paying rent. They also offered the very best investment for the capitalists, and by capitalists investing in the society there were the more funds for borrowers. So great was the confidence of the banks in building societies properly worked, that they could at any time command any amount of money. This was particularly the case with regard to a London society. He found that so little was known of building societies in Dublin, that many confounded them with building companies, which were quite as different from building societies as railway companies were. Some benevolent-minded gentlemen, who were anxious to provide house accommodation for the working classes, had in some places associated together to build houses to be let at a rate to pay only five per cent. interest. This, while it might look to be philanthropic, was unsound in principle, and opposed to the true basis of political economy. The speaker then quoted the following remarks from Chambers's works, respecting such societies:—"The principle of a building society is that of a mutual help. Such a society, therefore, is a scheme of co-operation for mutual convenience and benefit; and provided it be conducted with honesty, and according to that proper calculation as to profits and rates for loans, which, besides covering expenses, shall do justice to all concerned, it may obviously become a valuable engine of social improvement. The notion of applying this principle appears to have originated in the high rents often paid by the humbler classes for dwellings of a very insufficient kind." "In this, as in many other matters, 'the destruction of the poor is their poverty.' Being poor, but honest, they have to submit to exactions which apply to those who are poor, but not honest, and thus they unavoidably suffer in common with their class. What do we frequently see? A steady, well-conducted operative paying year after year a rent of £7 or £8 for a dwelling not worth £3 or £4; but even supposing that the house is not over-rented, he, at the end of twelve or fourteen years, has paid his landlord the entire value of the property, and must still go on paying, or be liable to be removed. In this way, thousands of persons pay rent all their days, and at the end are no better off than they were at the beginning. People do not usually hire the use of clothes; they find it cheaper to buy them, besides feeling more comfortable in wearing what is their own. If people so shrink from hiring clothes and hiring furniture, why do they not likewise scruple to hire houses, for it is equally uneconomical, in reference to a series of years? The reason is simple. 'We have not the money to buy a house.' The answer to this is comprehended in our explanations. Suppose a person pays a rent of £10 per annum for ten years, he has to appearance paid altogether £100. But that is a mistake, and it is mistakes of this kind that keep so many people in poverty. Besides the £10 every year, he also gives away the interest of the £10. Reckoning the interest at 5 per cent. per annum, he has, at the end of one year from the first payment, given away £10 10s. At the end of the second year's payment, he has given away not only twice £10 10s., but the interest on the first interest of 10s., that is, 6d. more, or altogether £21 0s. 6d. In this manner, what with actual payments, interests, and interests on interests, computed half-yearly, he, at the end of a year from the tenth payment, will have expended or lost the sum of £128 5s. 6½d." "Receiving money by weekly, fortnightly, or, it may be, monthly or quarterly payments, interest is allowed by building societies on successive sums of comparatively small amount, by which means the process of accumulation is materially quickened. The following is an example: A payment of 2s. a-week, without interest, would in fourteen years amount to £72 16s., but with compound interest at 5 per cent., added annually, the amount becomes £100—the accumulated interest being £27 4s. The manner in which a person may pay up the price of a house by instalments, may be exemplified from the tables of the society just referred to. Suppose the person has accumulated £50 by savings, and wishes to buy a house costing £150, he draws out his £50, and borrows £100 from the society. The plan pursued is to reckon that he will pay up the £100 by fortnightly instalments, over a period of fourteen years. The payments each year must amount to £10 2s., making

altogether £141 8s. Should he wish, at the end of six, eight, ten, or twelve years, to compound for future payments, that will be satisfactorily arranged. Instead of £10 2s. for fourteen years, he may pay £12 19s. for ten years." As an instance of what building societies had done, Mr. Chambers gave cases which he saw in Birmingham. Amongst others he said—"The next house we visited was that of an artisan, whose wages were 26s. per week. He was not at home, but I saw his wife. The acquisition of their property had been to this family a most resolute struggle. I was told they paid to the society an instalment of 13s. a fortnight, or at the rate of £16 18s. a year. She stated that her husband was now well through with his payments to the society, and that both looked forward hopefully to the period when they would receive the title-deed of their property, which they designed to put in a frame, and hang on the wall as a picture. Hundreds of such cases could be described. Making special inquiry as to the social position of the members, I was informed that fully 90 per cent. of all who are enrolled are working mechanics, whose wages respectively vary from 12s. to 40s. weekly; the average being from 24s. to 30s. To these may be added clerks, shopmen, and small tradesmen. The following three cases are taken in the order they occur in the books, showing the result of paying in over a period of twelve years:—No. 12 Amount paid in, £58 6s. 6d.; profits, £31 13s. 6d.; total £90. No. 14 Amount paid in, £162 11s. 6d.; profits, £82 5s. 3d.; total, £244 16s. 9d. No. 28 Amount paid in, £74 17s.; profits, £40 6s. 7d.; total, £115 3s. 7d. Mr. Chambers added:—"The working classes, if earnestly disposed to follow the example I have narrated, will trust to themselves. As regards the efforts of benevolent individuals to meet the emergency, I need only repeat that this is not alone a question of better house accommodation, but involves better habits and tastes, the self-respect and sense of responsibility incidental to the possession of property, and, in short, social and moral elevation." Mr. Mowatt then proceeded to explain the advantages of the Alliance National Building Society as being equal to anything that Mr. Chambers had pointed out, and Dublin could realize through it all that Birmingham had realized.

Mr. Mowatt added that a local board would be formed as soon as possible, and he had almost completed arrangements for opening central offices. He stated that 118 shares had been taken in Dublin already, and some hundreds of pounds had been advanced by the society to Dublin gentlemen.

Dr. Ryan, Mr. Frazer, and other gentlemen, expressed their confidence in the society, and would each join, and get many others to do so also.

Dr. Ryan then announced his intention to take several paid-up shares of £25, lodging the whole amount at once. Several others took shares, after which the meeting separated.

On Tuesday evening a meeting of the gentlemen employed in the Hibernian House (Messrs. McBirney and Collis's), was held in the library of that establishment, the meeting being for the purpose of having explained to those employed in the concern the principles and advantages of the Alliance National Land, Building, and Investment Society. The agent of the society, Mr. J. A. Mowatt, had been invited to attend, which he did, and, in a brief statement, laid the objects of the society and its operations before the meeting. Several questions were asked and answered to the satisfaction of all. A number of shares were taken, and not a few present expressed their determination to possess their own houses by means of co-operation in the society, and obtaining advances from its funds.

## CORK SCHOOL OF ART.

THE annual inspection and examination of the works of students for this year took place on Wednesday week, under the direction of Mr. Eyre Crowe, Inspector from the Science and Art Department at South Kensington. This inspection was marked by some features of novelty, which impart to it more than usual significance and interest. Mr. Crowe is an artist of high reputation, whose works at the Royal Academy Exhibition in *genre* subjects have obtained for him a well-deserved fame and popularity; and he has been remarkable for the stringent severity of his awards at the examinations of the various Schools of Art, many of which have been greatly disappointed at the paucity of the prizes at his hands—for instance, in the Dublin School but fourteen medals were awarded, of which but three were selected for national competition, whilst Limerick was only awarded five medals. It was natural, therefore, that the Cork School should look forward to his inspection with some apprehension, as a kind of crucial experiment, which would severely test the capacities and acquirements of its students. It is gratifying to state that it has passed triumphant through the ordeal, proving that

it can hold its own with the best schools in the kingdom, as the large number of nineteen medals has been awarded, of which nine have been selected for national competition. On this occasion the competition for local prizes, £10 from the Earl of Cork, for the best works in specified stages, and executed by various classes of the community, was decided. The works exhibited, in widely different paths of art, display considerable ability, and are very interesting from their varied character and intrinsic merit. They incontestably prove that the students worked with diligence and *con amore*, and reflect much credit also on the master, Mr. Brennan, on whom devolves the responsible and onerous duty of supervision and instruction, and to whom the signal success of his pupils must prove a source of pleasure and satisfaction. The works will be exhibited to the public at the Athenæum, in the course of the coming week. The following is a list of the awards in the various stages:—

**Medals Awarded—Central Schools.**—Kate Thorpe: Outline, Tarsia. William Fuller: Outline Pilasters, Tomb, Louis XII. Thomas P. Evans: Outline, Madeline Scroll. Mary O'Driscoll: Ancient Car from Vatican, shaded. Wm. McCarthy: Thistle, shaded from cast; nat. comp. Jonathan Hare: Florentine Scroll, shaded from cast. Wm. Pelly: Hercules, outline from flat. Susan L. Jacob: Hand, shaded from the cast. Maria Thorpe: Outline, Hollyhock, from nature. Anne Baker: Bramble Leaves, shaded from nature; nat. comp. Margaret Hill: Scroll, Trajan Forum, painted in monochrome from cast. Kate Craig: Bigonia, painted from nature; nat. comp. Fanny N. Thorpe: Discobolus, shaded from the cast; nat. comp. Elizabeth White: Design, Meadow Vetchling; nat. comp. Jane Morgan: Ditto, ditto. Margaret Hill: Analysis of Flowers, from nature; nat. comp. Arthur Hill: Design for School of Art; seven drawings in the set; nat. comp. Exham Phillips: Plan and Elevation of Blackrock Castle, from actual measurement; nat. comp. Thomas P. Evans: Outline, Parthenon Frieze; nat. comp.

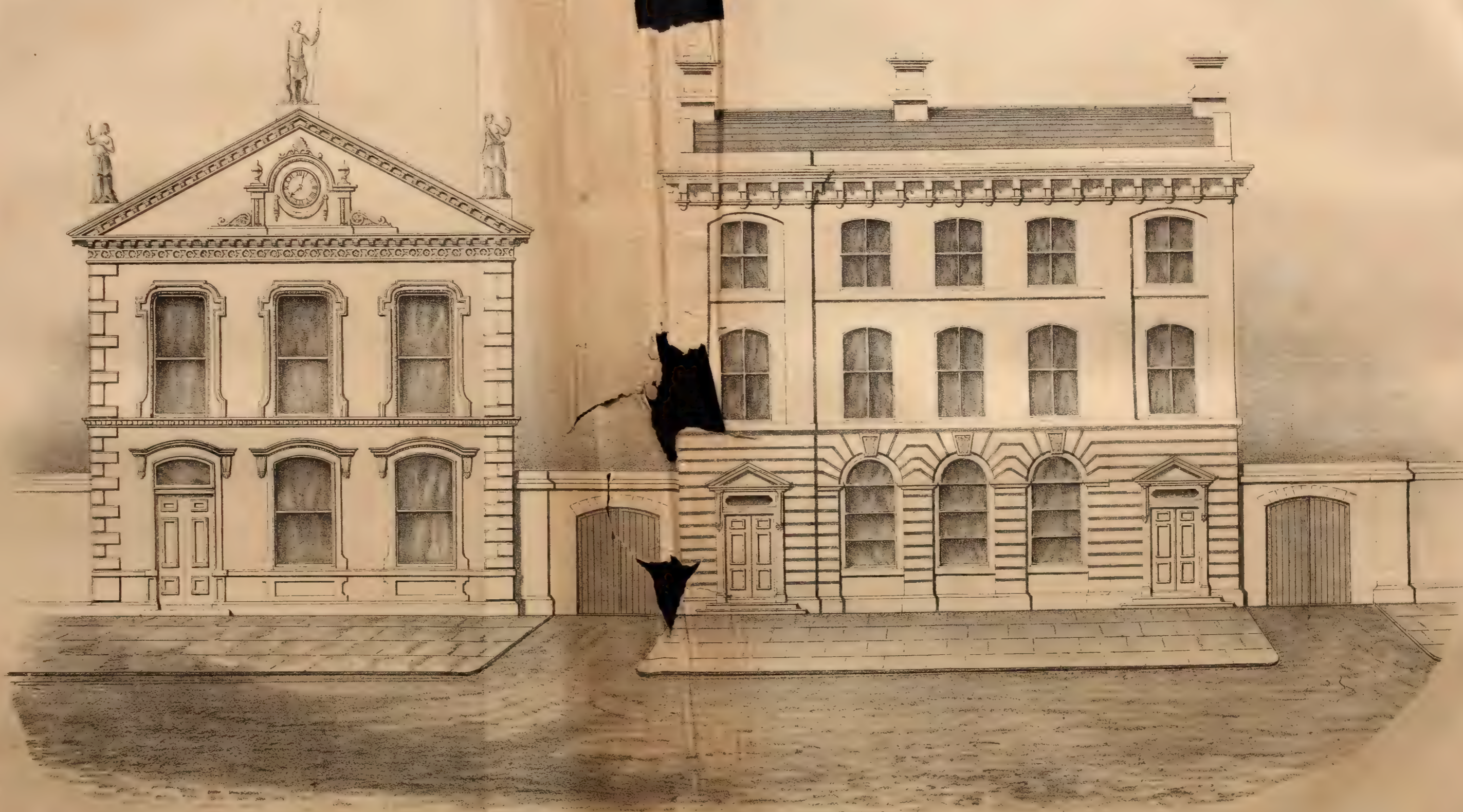
**Earl of Cork's Prize, £10.**—Flowers, painted from nature: 1st. Kate Craig; 2nd. Rebecca Malet. Landscape, painted from nature: Susan L. Jacob. Design for Brocade: Anne Baker. Frieze in outline: Maria Thorpe. Outline of Madeline: Susan L. Jacob.

**Mayor's Prize—Evening Classes.**—Head, shaded from nature: 1st. Thos. P. Evans; 2nd. Jonathan Hare. Landscape, painted from nature: 1st. Thos. P. Evans; 2nd. Christina Williamson. Design for Lamp: William McCarthy. Mechanical Drawing: Jonathan Hare. Architectural Drawing: Exham Phillips. Outline of Madeline Scroll: Thomas P. Evans. Figure from flat: William Pelly.

**National Schools, &c.—Mayor's Prizes.**—Hercules from flat: 1st. Alex. Thomas, St. Stephen's Hospital; 2nd. Jeremiah O'Sullivan, St. Patrick's. Freehand Drawing: 1st. Jeremiah O'Sullivan, St. Patrick's; 2nd. Margaret Mahony, St. Patrick's. Mechanical Drawing: 1st. Jeremiah O'Sullivan, St. Patrick's; 2nd. Joseph Hegarty, St. Patrick's. Model Drawing: 1st. Jeremiah O'Sullivan; 2nd. Joseph Hegarty.—*Cork Constitution.*

## DUBLIN EXHIBITION PALACE AND WINTER GARDEN.

It appears only a few weeks since we witnessed the laying of the first stone of the Winter Palace by His Excellency the Earl of Carlisle, and at that time we thought that years should elapse before the uneven, trampled, and most anti-picturesque Coburg Gardens could be made present anything like an attractive appearance. Eleven acres of its surface had to be levelled, innumerable roots of old trees dug out, piles of stones, accumulating for ages, cleared away, and the whole soil thoroughly drained by a series of arterial pipes laid down on the most approved principle. In fact, labour had to effect a thorough revolution in the Coburg Gardens before the skill of the landscape gardener could be brought to bear. Massive walls, twelve feet high, enclosing the grounds on the north-west and south sides had to be erected, large mounds had to be thrown up to conceal the gables and the unromantic stables of the houses in Harcourt-street. In the month of June last the plans for laying out the grounds in the best style of landscape gardening were furnished by Mr. Niven, and these plans, we were happy to perceive, on the occasion of our visit on Friday, were being admirably carried out by Mr. Bowers. On entering the grounds we were quite taken by surprise at the extraordinary change which had been effected in what we at one time knew as the Coburg Gardens. The trimmed green sward presents itself in various shapes, and the main avenues and serpentine walks running from them are all finished, and numerous trees, which had been planted some time since, in appropriate places, are looking most healthy. To prevent tameness in the general ap-



TOWN HALL.

NATIONAL BANK

J. Scanlan Builder

W. F. Callcock Architect

Marison, Liff. Dublin

NEW BUILDINGS AT MOUNTMELICK.



TOWN HALL.

pearance of the grounds, means have been adopted for producing strong and effective contrasts. The main centre is laid down in the Italian style of gardening, and beds, in imitation of panelling are admirably produced. The southern side will be in what is called the American style, and will be planted with rhododendrons and other natives of the western continent. In this section "a maze," similar to that at Hampton Court, on a small scale, is being laid down. A great deal of skill has been successfully applied to make the grounds appear more extensive than they really are; and when the hedges, trees, and evergreens which are planted inside the boundary walls grow up, they will materially assist in strengthening the illusion. At present the object of greatest interest in the gardens is the huge rockery or grotto at the western side, which is one of the most bold and massive things of the kind we have ever seen. The centre or main part is composed of huge blocks of rugged stone of varied "formation," presenting an endless variety in shape and colour. Between the massive courses of irregular stone, and from every cranny and fissure, native and foreign ferns and mosses are growing luxuriantly. At the base and in front of this Druid-looking pile a huge semicircular reservoir is constructed of rugged stonework, which presents a fine bold appearance. The grotto is flanked at either side by two exquisitely constructed rustic arches, leading to flights of spiral steps by which the top of the grotto is reached. The arched entrances are more effective than those of a similar kind which are in the Bois de Boulogne. The black stone of Donnybrook, and the white, spar-like stone of Ticknock are made to produce fine contrasts. On either side of the steps, as the visitor ascends, he perceives the fantastic roots of old trees, most ingeniously introduced amongst petrifications of vegetables and strange geological specimens. On the top of the grotto a large circular reservoir is constructed, from the centre of which a huge *jet d'eau* will spring. Over the outer margin of the reservoir the surplus water will tumble in a cascade to the reservoir beneath, from which the playing fountains distributed over the grounds will derive their supply of water. The view of the gardens from the top of the grotto will be most pleasing, and the manner in which this piece of massive rustic work is constructed does much credit to the judgment and pictorial taste of Mr. Bowers. The source from whence the main water supply for the gardens is to be derived is from a large pond which has been constructed at the northern side, and on which the pleasure ground to the rear of the residence of Mr. B. L. Guinness opens. The southern wall of Mr. Guinness's garden has been removed, and the pond is made its boundary at that side. In the midst of the pond a beautifully designed temple composed of granite is being erected. On the left of the entrance from Harcourt-street the archery ground has been laid down and completed. It occupies nearly three acres in an oblong square surrounded by sloping grass banks. The mounds and rockery above referred to serve the purpose of screening off the houses on the west side from the view of those who will be in the gardens. The general planting will commence at once, and by the time the summer comes round even that venerable individual, "the oldest inhabitant," will not know "the Coburg Gardens." Having said so much about the grounds we must now refer to the Exhibition Palace and Winter Garden, which are progressing admirably notwithstanding the unfavourable weather, which materially interfered with outdoor labour. In May last the ground was handed over to the contractors, Messrs. J. Beardwood & Son, and although very deep sinkings had to be made for the foundations, the vast pile of building which is to constitute the "Exhibition Palace," concert rooms, lecture rooms, &c., is now raised to a height of thirty feet. Wooden barriers shut off the site of the building from the grounds on the west, and from Earlsfort-terrace on the east, and within "the wooden walls" is to be witnessed a scene of active and busy labour. On forests of poles floors of scaffolding are secured round the masses of granite and brick masonry that is being rapidly carried up to its intended elevation. Hundreds of workmen are to be seen above and below as busy as any contractor could desire. Horses, by means of patent lifting gear, are to be observed raising square boxes filled with ponderous stones, or drafting along iron tramways building materials of all kinds. In a snug wooden house, which the boiler keeps as cozy as possible, a most industrious engine could be seen puffing and blowing as it turned its attention to the making of any amount of mortar, which was hoddied up by block lifters to the masons above. The din of three hundred men hammering, sledging, shouting, the clank of the engine and the machinery attached to it, not to mention the vehement language addressed to the horses, produces a kind of Chinese concert of a novel character. The two wings of the build-

ing will be ready for roofing in a month, and the central or more elevated portion in two months. The manner in which the Messrs. Beardwood have carried on the works has given the greatest satisfaction to the directors, and there can be no doubt of the contractors having the building completed within the time specified in their agreement. The iron work of "The Winter Garden" is far advanced, and no delay will be occasioned in this department to the opening of the building to the public at the very farthest early next autumn. Those who have experienced the cold and wet of our recent winters can form a just estimate of the value of a place where they can enjoy exercise, good music, and society in a genial atmosphere when all is dreary and cheerless outside. The Winter Garden will be a great boon to the citizens of Dublin, as it will make them more or less independent, as far as amusement and recreation are concerned, of our ill-humoured, eccentric, and capricious climate, and tend in an eminent degree to create friendship and promote social intercourse.

#### VENTILATING DWELLING-HOUSES.

At the meeting of the Social Science Congress, on Saturday, the 10th ult., Dr. Elliott, of Carlisle, read before the Public Health Department a Paper describing a simple contrivance of his own for the ventilation of houses. For the ventilation of hospitals he recommended, as the best plan, one by a Continental physician, Dr. Van Hecker. The plan had been largely introduced on the Continent, and had everywhere succeeded well—Professor Gamzee condemned the plan of Dr. Van Hecker as being too complicated for use. It was only by the most simple method, and one that was not placed in the power of the ignorant, that proper ventilation could be secured.—Mr. Rawlinson said that, from communication with Miss Nightingale—who, while she was well, had visited many of the chief hospitals on the Continent—he knew that that lady had arrived at the conclusion that the only way of properly ventilating hospitals was by the ordinary one of open windows and burning fires. The complicated systems had all failed. When Her Majesty took up her abode at Windsor Castle, the whole drainage of the Castle was passed into the cesspools, upwards of fifty of them permeating the base of that building. There was not a single window in any of the royal apartments that could be opened from above, all the fresh air being obtained by small casements. The heating apparatus was of the worst possible description. The air passed in to heat the place was burned and diluted in going in, and had that smell of burning you never could get rid of. The question was taken up by a member of the medical profession, Sir James Clark. The basement of the castle was rooted up to its foundations. The vile cesspools and abominable drains leading into them were all removed. The windows were all made to open by an apparatus ingeniously contrived, by which a lady, with a key not much larger than that of a watch key, could open the windows from above. There were now large tunnels, 10 ft. or 12 ft. in diameter, for the purpose of bringing in fresh air, and those were regularly whitewashed several times a year; and, as the air was passed over a large heating apparatus when it entered the corridors, it was at a uniform temperature of from 60 to 65 deg.

#### CITY AND COUNTY OF DUBLIN BUILDING COMPANY (LIMITED).

At a meeting of the promoters and the public interested in this project, held on Saturday, at the offices of their solicitors, Messrs. Bentley and Cuthbert, Stephen's-green, there were present the following gentlemen:—John Holmes, Esq., Castlewood House, Rathmines; Rathmines Commissioner, W. H. C. Field, Kenilworth-square; Alfred G. Jones, Esq., Kenilworth-terrace, architect; John Richardson, Esq., Stradbroke Lodge, Blackrock; E. H. Carson, Esq., Harcourt-street, architect; Captain Cross, Adelaide-street, Kingstown; Herbert Hore, Esq., J.P., Pole Hore, county of Wexford; J. F. Nicoll, Esq., Upper Rathmines; J. G. Strickland, Esq., Sherrard-street, Mountjoy-square; John Quinlan, Esq., Rutland-square, &c.

Upon the motion of Mr. Carson, seconded by Mr. Holmes, Captain Cross was moved to the chair. Letters of apology were read from Mr. Tottenham and other parties, who were unavoidably absent.

Resolutions were passed approving of the scheme, and a deputation committee was appointed to wait upon some influential citizens who had signified their desire to co-operate in the undertaking. Many matters of detail were discussed respecting the plans and class of houses in contemplation of being erected.

One of the gentlemen present stated that an impression was abroad, whether rightly or wrongly he

could not say, but he thought right to refer publicly to the matter—namely, that the Messrs. Bentley, of Foxrock, were promoting this company; and much as he approved of the prospectus of the undertaking, and conscious as he was of the great want it was intended to supply, still he could not support a project of the kind if any private interests were to be advanced under colour of a public undertaking.

Mr. Mark Bentley assured the meeting that the Messrs. Bentley, of Foxrock, had nothing whatever to do with the company.

Mr. Cuthbert said he believed these gentlemen did not require such foreign aid to carry out their views, and he might add that he thought the large number of independent gentlemen present was the most satisfactory reply to the rumour referred to.

The gentlemen present having expressed themselves fully satisfied with these explanations, many of them stated they were ready to take shares and act on the directory.

The articles of association were then read, and the meeting adjourned until last Saturday, to receive the report of the deputation committee.

A vote of thanks was then passed to Captain Cross.

#### THE WIDENING OF KINGSTOWN-AVENUE.

At an adjourned special meeting of the Town Commissioners on the 19th ult., Mr. Reilly said that a committee had been appointed, in accordance with the wishes of that board, who had met, consulted, and made its report, which was adopted at a recent meeting of the Commissioners, two gentlemen only dissenting. The essence of that report was embodied in a few short resolutions, as follows:—

"Resolved—That for the convenience of traffic, and the improvement of the sanitary condition of the township, it has been deemed necessary to open Kingstown-avenue by the removal of Mr. Bryan's block of buildings."

"That council having advised that the best plan to be adopted with the view to carry out such improvement is to purchase from time to time such portions of the buildings, &c., as can be conveniently met by the annual rate, after the usual requirements of the township shall have been provided for; and Mr. Bryan having consented to such arrangement, and agreed that the value of such portions as may be settled upon be submitted to arbitration, we proceed with as little delay as may be to arbitration upon the value of four-fifths of the lot of ground upon which Mr. Bryan's house of business, fronting George's-street, formerly stood, having regard to the map of the premises."

"That a competent public valuator be appointed to decide the value of same, with the assistance of six gentlemen, three of whom shall be commissioners selected by the board, and three ratepayers named by Mr. Bryan."

"That such arbitration shall call in a competent public valuator, who will sit as a seventh arbitrator, and who shall be named by them previously to their entering upon their duties, notice of whose meetings to be given in the public papers."

"That Messrs. Reilly, Slaton, and Rourke be appointed arbitrators on the part of the commissioners, and three (to be named hereafter) on the part of Mr. Bryan."

"That our solicitor and the solicitor of Mr. Bryan agree upon such deed of submission as will carry out these resolutions, and that such deed be presented to the board for signature on Wednesday October 21st, at twelve o'clock noon, to which day the meeting at its rising stands adjourned."

"That the entire block of buildings, &c., be valued by said arbitration as before mentioned, and that Mr. Bryan shall give, as a preliminary to the payment of any purchase money, such security as may be deemed satisfactory by the Board of Commissioners, that they can purchase the unsold portion at the price named on such valuation, and in such portions as by them may be deemed convenient, provided the entire block of buildings be purchased within four years."

**THE CONSERVATIVE LAND SOCIETY.**—The forty-fourth quarterly general meeting of the shareholders was held on Tuesday, the 20th ult., at the offices, 33, Norfolk-street, Strand, W.C.; Viscount Ranelagh in the chair. The report stated that the receipts for the quarter were £23,496 8s. 4d., and for the year ending 30th September, 1863, £75,754 5s. 5d.: total cash receipts since the formation of the society, £701,146 18s. 7d. The increase in the year's receipts over those of last year was £11,950. The total sale of land, £332,370 8s. 5d. The report was unanimously adopted, and a vote of thanks passed by acclamation to the executive committee, on the commencement of the society's twelfth year of prosperous management.

## THE PROGRESS OF MODERN ART.

DR. SCOTT, the President of the Devon and Exeter Graphic Society, in his opening address, delivered recently, glanced at the progress of modern art. Among other things he said that the London Exhibition of last year gave us the opportunity of seeing the living Schools of Art in Europe, extensively illustrated, and we learned some interesting facts from it. We learned that in the icy regions of the North a school existed, which, for freshness and vigour, was unsurpassed by any in Europe, and in the fields of landscape, seascape, and genre, their works were not surpassed by any in the Exhibition. Belgium, too, showed high efforts in historical; and Spain, the land of Velasquez, and Murillo, was again awaking into something of its former art-life. Such were a few of the facts that impressed themselves upon the lecturer in last year's Exhibition. Regarding our own school, all must have felt that it held its own in the collection, and showed that it meant not to be behind in aiding in the realization of that third great development of art which is to come. Of the sculpture he did not speak so satisfactorily; he thought there was a narrowness of subject, a conventionality of manner still observable which painting had completely got away from. He then alluded to our own new statues, regretting that they had not been better situated, so as to better show their beauties. He held that statuary of this class was fragmentary, and unfitted for out-of-doors, and that it ought to be associated with architecture. In conclusion, he said he had now taken a hasty glance at the aspect which English art presents us with at the present time, and on the whole it may be fairly said to be promising for the future. England was one of the last countries to take a stand on its artistic merits, but it bids fair now to take a high position. The world had seen two great art periods—viz., the Greek period, and that which extended through the early struggles of Christian art till it found its culmination in Raphael. After that, it had again declined, with a few partial revivals; and we now were looking for a third development, to advance which our own country was doing its share. Whether modern art shall attain its highest development sooner or later is difficult to foresee, but either way let us be thankful for what we are permitted to enjoy of it at present. If we are not to feel the full blaze of its noon-day heat, neither have we lived in the cold shade of its total eclipse; though we may not enjoy the fulness of its summer fruition, we have had its spring blossoms, which have been to us not only pleasant and fragrant in themselves, but have also cheered us as the harbingers of hope and the forerunners of better things which are to come.

## THE NEW KINGSTOWN PROMENADE.

THIS much-to-be-desired seashore promenade has at length engaged the attention of the Town Commissioners.

About two years since I made a survey and a rough calculation of the probable cost, at the suggestion of Mr. Meekins, Glashule House, for the construction of which he very liberally proposed to contribute £100, and to which proposal I have no doubt he will still adhere. Subsequently, Mr. Meekins submitted the plan to the Earl of Carysfort's agent.

Should this most desirable object be undertaken, I trust his lordship will not only give it his sanction, but will become a liberal contributor to its construction.

The improvement is also very likely to have the countenance and support of the Lords Longford and De Vesci. Thus, if the Commissioners go forward at once in this matter, they will obtain not only the assistance of those noblemen, but that of the Ordnance Board, the Corporation for improving the port of Dublin, as well as the co-operation and contributions of the owners of property along the intended line.

When the above referred to plan was drawn it was with the intention of running the road partly on the shore, but principally on the sand. Now, as it is likely to obtain so much public support, I am of opinion that it should be constructed almost exclusively on the shore, for, although more expensive, it would be much better, more effective, enervate less upon private property, and be more charming for all the purposes of air and exercise.

Should this work be carried on with the vigour it deserves, I have no doubt but the ensuing summer will find it in a fair way of completion. Thus, one of the most beautiful and only desirable spots along the coast where one can uninterruptedly enjoy the sea beach, will be brought within an easy approach of the inhabitants of Kingstown, and the delightful locale of Sandycove be opened up more than ever during the coming summer.

E. H. CARSON, C.E.

## CONTAMINATION OF WATER BY IMPERFECT DRAINAGE.

At a recent meeting of the Social Science Congress, at Edinburgh, Dr. S. Macadam read a paper on "The Contamination of Water by the Imperfect Drainage of Towns and Villages." He said that for some years back he had been engaged in investigations relating to the sanitary condition of towns and villages, and his attention had been especially directed to the influences of the want of drainage on the water employed in drinking and for culinary purposes. The majority of towns and villages carried out a system positively unwholesome and detrimental. In the better class of dwellings, each house was provided either underneath it or in a small back garden with two holes. One was a well with a pipe leading to the house with drinking water, and the second was a cesspool with a pipe leading from the house. The well was for the most part dependent for its supply of water on the percolation of water through its sides and bottom, and, as the cesspool was not many yards off, the liquid which it contained would ooze through its sides and enter the well. The injurious effects of this were obvious. There was not much danger whilst the drainage from the house was fresh; but when putrefaction set in, it became directly injurious to health. The surface drainage of towns and villages had also a very evil effect, both upon water and atmosphere. As a means of remedying these evils, he proposed that the Police Act of 1862 should be made compulsory, so far as regards these matters.

The Rev. Mr. Farquharson mentioned a parish which had a population of 5,000, of which about 4,000 were gathered together in the town. It stood high, there was a declivity on all sides, and he might safely say there was no town in Scotland better adapted for drainage, but there was no system of drainage in the town; and with reference to the water supply, the main supply of water was drawn from a loch about a quarter of a mile from the town, into which loch part of the drainage of the town was carried. There were some wells in the town, certainly, but they derived their supply of water mainly from the percolation of surface water downwards. The main supply of water to the town was, however, from that small loch, into one corner of which, as he had already stated, part of the drainage of the town was carried; and the loch became so exceedingly offensive in the summer, that it was injurious to the health of the persons residing near it. They had there a town with a wretched supply of bad water in small quantities, and deficient drainage; for though the main street had a drain, the closes were undrained. Within a few years there had been some very severe epidemics. They had had severe visitations of scarlet fever, and in the summer gastric fever was chronic. Within the last two months there had been more than 150 cases of gastric fever in the town. Some of them had been very severe, and there had been not a few deaths. The inhabitants had now adopted the Act of 1862; and he trusted that they would soon have a good supply of water, and that it would be followed by the departure of those diseases and epidemics of which he had spoken.—Mr. Gowans alluded to the evil smells which arose from the use of these cesspools as they were at present constructed. Persons living in houses where the cesspools caused evil odours became habitual to them, and lived and died from them without knowing it.—Dr. Mackenzie said that formerly Kelso had a most unenviable position in the returns of cholera and other epidemics, but Kelso was not standing still. Within a few years every street in the town had had side pavements laid down. Now, although the population was only about 4,500, they were now spending £4,200 in drainage, and were about to spend £3,000 in water supply.—Professor Bennett said if the legislature would see that the water people drank was pure, instead of paying so much attention to offensive odours, a great point would be gained. There was another question of the greatest importance—What was to be done with their sewage? They had had many schemes to provide an answer to that question. Amongst these was Provost Lindsay's scheme for carrying the united drainage of Edinburgh and Leith into the Frith of Forth. He did not feel surprised at the slowness with which that scheme was being received, for it was proposed by it to carry the sewage in a great pipe about a mile into the Forth into a place called the Black Rocks, there to be poured into the sea. That plan was to cost some £20,000, one-half of which sum was to be paid for the pipe through the Forth. The result of its adoption would be that that valuable matter—the sewage of Edinburgh and Leith—would be thrown into their noble estuary to poison the fish and do as much harm as possible. They ought, however, to consider, whether they could not spend that large sum of money in utilizing, instead of destroying, the valuable material of which he spoke. It had occurred to him that if a

piece of land were bought not far from the town, and if all that matter were conducted into it as to a central emporium, it might be manufactured into something which would tend rather to pay the expense of the drainage than to increase the assessment of the inhabitants. A preliminary step, therefore, in the whole question as to the drainage of towns would be to consider how they were to dispose of the drainage.—Mr. Roberts alluded to the evils of cesspools as at present constructed, and mentioned a case in which three deaths had occurred solely from the existence of a cesspool under the floor of a house.—Mr. Lindsay alluded to the manner in which the overflow pipes of water cisterns were constructed. They went straight to the main drain, and the consequence was that there was a natural current of mephitic vapour right through the house. It might be remedied by the use of the "Waterloo" joint, provided the ball-tap was not made too tight.—Dr. Elliott, Carlisle, contended that the drainage of towns, when poured fresh into the water of rivers, did not injure the fish. They had had ample experience of that fact in the River Eden. Since the introduction of sewage into that river the fish had increased. He must also protest against the opinion given by a previous speaker, that bad smells were not injurious.

## Correspondence.

## THE DWELLINGS OF THE POOR IN DUBLIN.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—There are men who doubt everything, save and except the tangible facts within actual reach of their narrow comprehension. To the irritating solicitude of some half-dozen of these individuals I have been subjected since my last letter, and as these gentlemen are but so many types of a class, and as they have wagged their heads with a profundity of meaning worthy of Lord Burleigh, and have pooh-pooh'd the idea of the fearful condition of the dwellings of the poor in the meaner districts of the city, I would ask of them, or any one of them, to quit the main arteries they are in the habit of frequenting, and, bidding farewell for some fifteen or twenty minutes to the well-lighted and cheerful streets, take a walk into the districts immediately adjoining Meath-street. If the visitor be in full possession of his faculties, he will have to fight a heavy battle against the enemies of his principal senses. His sense of smell will be assailed by an indescribable odour of filth, disease, and poverty. His sense of touch will suffer from the foul ooze he will have to wade through. His sense of hearing will be shocked by the sounds of an unpublished language, foul as the dens from whence they issue; and his sense of sight will be "filled to overflowing" by haggard men, whose life is a long, long battle against overwhelming odds—of women either completely unsexed or meek and uncomplaining, and injured to their fate; while the pallor which the blood-poisoning air carries with it, is spread over the features of old and young. Let my friend Dives's love for the Dantesque get the better of his prudence, and, for the sake of a new sensation, let him gather his purple garment tight about him, and visit his brother Lazarus in his dwelling, or let me use the more conventional word home. He will behold, when his eyes accustom themselves to the obscure light, the lairs in which, without the natural separation of wild beasts, his poorer brethren are compelled to lie. His academical career and his love of science will tell him how many cubic feet of space ought to be allotted to each individual inhabiting that room, and when he hears that some eight or ten people dwell in that space—eating, drinking, and sleeping there—and when he will have arrived at the fact that eight or ten people are inhaling the air hardly sufficient for a healthful supply for half the number, let him no longer wag his head in incredulity, or doubt the possibility of filth and overcrowding in the poorer districts of the city of Dublin.—I am, Sir, your obedient servant,  
N. R.

## DUBLIN METROPOLITAN UNDERGROUND RAILWAY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—I beg to lay before the public a plan for an underground railway in Dublin, which would not in any way interfere with the beauty of the city, and would, if carried out, be of incalculable benefit in a sanitary point of view. The line which I propose, after forming a junction with the Great Southern and Western Railway, would pass under the road into the open ground opposite the King's-bridge Terminus, then enter a tunnel at Barrack-bridge, and pass through it along under the whole length

of the quays, from Barrack-bridge to City-quay, where it would curve into an open cutting and embankment, and join the Kingstown Railway at the end of the Westland-row Terminus by a gradient of 1 in 60, crossing only two streets, Hanover-street and Great Brunswick-street. The tunnel would occupy the side of the quay next the river wall, in which openings would be made above high water mark, to admit air and light. At the other, or house side, of the line a large main sewer would be formed, to receive all the drainage of that side of the river, including the stream at Barrack-bridge and the Poddle river, and discharge the whole into the Liffey at a point near Ringsend, ample room being left at the side and over the tunnel for gas-pipes and water-pipes. I propose to have stations at Carlisle-bridge, Essex-bridge, and in the open ground at King's-bridge—the stations at Carlisle and Essex bridges being made by enlarging the tunnel at each side over the platforms, and having a waiting-room and booking-office over ground. After the line leaves City-quay, a branch would be formed through nearly all open ground to Ringsend docks, connected by a cross line with another line of rails along the lower edge of Sir John Rogerson's quay, thus affording accommodation for loading from or discharging vessels into the railway waggons. The cost of the land for the site of the line along the quays would be merely nominal; and after allowing liberally for the cost of the works and the other land, and a wide margin for contingencies and expenses, the whole estimate for this line does not amount to two hundred and twenty thousand pounds. Provision would be made for forming a junction with the Midland and Drogheda lines, and afterwards for constructing from the Carlisle-bridge station a branch partly underground to Rathmines.

WM. BARRINGTON, C.E.

51, George-street, Limerick, 21st Oct., 1863.

TO THE EDITOR OF THE DUBLIN BUILDER.

29, Rutland-square, Oct. 19, 1863.

SIR,—Allow me to suggest through your paper the following scheme for accomplishing the above object, and as every one who proposes a scheme imagines his own to be the best, I may be excused if I claim for my plan a place among the first. The Admiralty are the only parties who can fairly show opposition, and, as to them, I think they would give way if on considering what I propose the citizens would unitedly pronounce in its favour. My idea is to construct a central station with a roadway for passengers and carriages open to the public across the Liffey at the Northumberland Hotel, and extending from Abbey-street on the one side of the river, to Brunswick-street on the other. Through this central station the Dublin and Drogheda, and the Kingstown Railways, could be readily united without disfiguring any of the principal streets of the city. Then as to the other railways, I would suggest that the Great Southern line be extended from the King's-bridge, there crossing the river in a northerly direction, toward the New Cattle Market, in Prussia-street, thence to the line of the Midland Great Western Company, north of Grangegorman Penitentiary, where these two lines might be connected, and run together on the south side of the North Circular-road into the proposed extension of the Drogheda Railway, running in the direction of the new central station, as already described.

The leading Irish railways would by this plan be all united in the cheapest possible manner, while the city would escape the disfigurement which all the other projects would more or less entail.

There might, at the same time, be constructed a small branch from the Drogheda Railway to the terminus of the Liffey branch, which would connect the Great Southern with the river traffic.

ALEX. BOYD.

#### THE CONNECTION OF THE DUBLIN RAILWAYS.

ONE of the many projects having the above object in view, and on the *tapis* at present, is being put forward by Mr. Meldon of this city, solicitor, and provides for a line from Sidney-parade station, running through Donnybrook, where there will be a station to Rathmines, and Harold's Cross, and from thence to a station behind the Castle of Dublin. From that point it is intended to proceed across the Liffey at Wood-quay, and join the Midland Great Western Railway at the Broadstone. This latter branch will be connected by a line passing at the rear of the houses in Abbey-street, with a great central station beside the Post-office in Prince's-street. From the Castle station a branch will run along the back of the houses on the quay to the Great Southern and Western Railway; thus connecting all the suburbs with the central station, and with the existing railway termini.

Two most important features in this design are that

no leading thoroughfare is disfigured or interfered with, and that this route is the shortest and most direct that can be obtained to connect the Midland Railway with Kingstown, Bray, Wicklow. The length of the line will be under six miles; and can be made for a very moderate sum.

It is likewise proposed in connection to have a tramway from the present goods depot of the Midland Great Western Railway Company's Liffey branch, run at the rear of houses to the very farthest point of the North Wall, connected by turning tables with another tramway along the edge of the river to the same point, and back to the Custom House, in order that the whole space may be well available for loading and unloading goods waggons alongside the vessels. Access by rail will, by this line, be effected between the central station with Upper Baginbun-street, Ball's-bridge, and Donnybrook, Rathmines, Rathgar, Roundtown, Clontarf, Clonliffe, and Drumcondra.

#### NEW BUILDINGS AT MOUNTMELICK.

THE new National Bank-house at Mountmellick, lately erected by Mr. James Scanlan, of Listowel, from designs by W. F. Calbeck, Esq., architect, is a large and imposing building, occupying a very prominent and central position in that improving town. On the ground floor is a spacious office, fitted up in the best manner, suitable for an extensive banking business, with a handsome entrance porch on one side, to give access to office and a private room or office for manager, on the other side, and a good hall leading to his apartment, which occupy the two upper storeys of the building, with a large return at the rear, extending to the garden. The portion of the house allotted to the manager contains ample accommodation and convenience, suited for the residence of a private gentleman, with out-offices and garden attached.

The building is well executed, and reflects much credit on the builder. The main portion of the work being of punched limestone of the locality, with chiselled cornices and dressings to doors and windows, and the entire front of first storey of finely-chiselled limestone, from Stradbally quarries. The front is cut off from the general thoroughfare by a handsome palisading of cast iron scroll-work, set in a chiselled limestone base, which adds very much to the appearance of the building.

The National Bank building will be also much improved by the new Town Hall, now in course of erection just beside it, by the same builder, and also from designs by Mr. Calbeck, of Dublin.

#### TIMBER.

THE attendance at Messrs. William Kelly & Co.'s sale on Thursday, the 15th ult., notwithstanding the unfavourable weather, was numerous and highly respectable, and the prices obtained were somewhat in advance of late quotations. We (*Freeman*) give a summary of the sales below:—

10,908 pieces of St. John and Miramichi spruce deals, planks, and battens, from £13 7s. 6d. to £14 17s. 6d. per 120 pieces of 12 feet 9 by 3.

2,000 pieces of first quality Quebec spruce deals, £17 17s. 6d. to £18 per do.

710 pieces of first quality Quebec pine plank, £26 10s. to £28 10s. per do.

62 pieces of second quality Quebec pine, at £21 per do.

687 pieces crown Memel plank, £16 to £27 per do.

849 pieces of second quality crown Memel plank, £22 to £23 10s. per do.

362 pieces of second quality deals, £20 10s.

2,704 pieces of Archangel red deals, £22 to £26 5s. per do.

336 pieces of Archangel red plank deals and battens, short lengths, £20 to £21 per do.

2,739 pieces of Swedish and Norwegian red deals, £18 10s. to £21 per do.

180 pieces of Sundswall timber, £2 12s. 6d. per ton.

100 pieces of crown and best middling Memel, £3 17s. 6d. per do.

Imported per Fortuna, from Memel, 624 pieces timber, 866 pieces deals. Per Zorg and Vryt, from Tenola, 61 logs, 33 log ends of mahogany. Per Achilles, from Dantzic, 279 pieces fir timber, 2,498 sleepers, 8 fathoms lathwood.

#### Public and Private Works.

A new hotel (the Royal Fitzwilliam) has been opened at Rathdrum, and is under the management of the Misses Breslin. The building is said to be commodious, suitably arranged, and well ventilated. There are four and a-half acres of pleasure grounds to be attached. It is also in contemplation to light the town with gas, under the auspices of Mr. Dargan.

New Schools have been erected by the Christian Brothers at Kilkenny. The sum expended on purchase

of land, indemnity to occupiers, erection of schools, &c., was £707 6s. 11d. The improvements in the chapel cost £174 1s. 11d. The purchase of school furniture, the perfection of the sewerage, the construction of a pump, the opening and ornamenting of an entrance, with sundry other minor matters, will still entail very heavy expenditure.

The church of Belturbet, diocese of Kilmore, is shortly to be ornamented with a beautiful font, manufactured out of native marble, by Mr. McCullough, of Armagh.

#### General Items.

Mr. Theed's statue of the late Prince Consort, which has been placed in the principal corridor of Balmoral Castle, was unveiled on Saturday morning in the presence of Her Majesty and several members of the royal family. The statue, which is in marble, represents the Prince in the Highland dress, with a rifle in the left hand, the right resting on the head of a favourite dog. The pedestal bears an inscription, selected by Her Majesty, which declares that the Prince's "Life sprang from a deep inner sympathy with God's will, and therefore with all that is true and beautiful and right."

Lord Palmerston has subscribed £50 towards the building of a new Town Hall and Corn Exchange at Romsey, in Hants. [His lordship is an extensive property owner in Ireland, and we shall only be too happy to record any similar act of generosity extended to the localities of his estates here.—E.D.]

Mr. Humphrey Evatt, A.B., Woodside, Kilkeel, has been appointed Surveyor of Lands for Sierra Leone, on the recommendation of Mr. John Neville, C.E., Surveyor of Louth: salary, £500 per annum.

#### Miscellaneous.

THE TIN WORKS OF SOUTH WALES.—Since the commencement of the American war, the tinplate makers of South Wales have gone through a rather severe ordeal, as the United States was one of their principal markets, and in fact the charcoal plate-makers depended almost entirely on that country for their sales. The consequence was, that several works were stopped, and many others were only partially employed. During the last twelve months, however, there have been indications of returning prosperity, and some of the works that were stopped have again commenced operations, and those that were kept going throughout the depressed times are now more fully employed than before for a long time, and new works are about to be started in different parts of the district. The coke plate, from its cheapness and other circumstances, has of late commanded a more active demand than the charcoal, and the coke plate works are unusually well employed. The average quotations for I C charcoal are 27s. to 28s. at the works, and I C coke 21s. to 22s.

NEW BRIDGE OVER THE BOYNE.—The Bridge Committee met on 22nd ult., for the purpose of opening tenders for the taking down of the present stone structure at Bull-ring, and erecting in its stead a permanent stone bridge of eighty feet span, and also for declaring the contractor. There were only two tenders. The first tender opened was that of Messrs. A. and N. Hammond and Edward Moore, for the sum of £11,000. The other was from Messrs. Maud and Wilson, of Leeds, offering to execute the project for £7,829 18s. 2d. One of the committee inquired whether Messrs. Maud and Wilson had asked for "quantities." In reply to Mr. Neville, C.E., Mr. McClean stated that he had sent them "quantities" and tracings, and also informed them of all the difficulties they had to contend with in reference to the houses. The tender of Messrs. Maud and Wilson was accepted.

ENNISKILLEN, BUNDORAN, AND SLIGO RAILWAY.—The following is from the report of the directors, submitted to the fifth half-yearly ordinary meeting, on the 28th ult.:—The directors found it necessary, under the advice of their engineer, to terminate the contract with Mr. North—a step taken with great reluctance; but since it became inevitable, the directors, with the assistance of their engineer, have entered into negotiations with the eminent contractors, Messrs. Brassey and Field, and succeeded, on the 12th September last, in coming to terms with these gentlemen for the completion of the line to Bundoran, with a probability of their undertaking the remainder of the line to the junction with the Midland Railway at Sligo. All matters of controversy in measurements, valuation, &c., between the late contractor and the company, have been referred by mutual consent to a competent arbitrator, who will treat them according to the *bona fides* of the original contract, and Messrs. Brassey and Field will commence operations under the new contract as soon as the award has been pronounced.

**THE NEW CATTLE MARKET.**—We are happy to say that this great metropolitan market is fast approaching completion, and will be handed over by Mr. Meade, the contractor, to the public in a very short time. All the paving is finished, and the pens for cattle and sheep permanently fixed. The temporary arrangements for supplying the market with water, pending the construction of the corporation works, are all completed. The visitor, on entering the market for the first time, is forcibly struck with its great extent, and on close inspection his admiration must be excited at the excellent provision that has been made for penning the cattle and sheep, and for the accommodation of the public. The great paved principal roads, owing to their arched formation, are dry in the wettest weather, owing to all the rainfall being immediately carried off to the gratings above the drainage pipes which arterially ramify beneath the surface. The smaller paved ways running between the cattle and sheep pens are similarly constructed, so that a person, after walking through the entire market on the busiest days, would not soil a pair of dress boots. The hotel is being fitted up in an elegant and comfortable style, and those who have not as yet seen the new market should pay it a visit, and we promise them they will be not a little pleased and surprised. It was said by many, when the building of the market commenced, that the owners of houses in the neighbourhood would lose heavily. The very opposite of this is the case, as rents in the locality have run up rapidly, and no houses are to be let in the vicinity of the market.—*Freeman*.

**LODGING-HOUSES IN KINGSTOWN.**—We (*Irish Times*) would direct the attention of the Town Commissioners to the necessity for a stringent application of the provisions of the Towns' Improvement Act to the common lodging-houses for the poorer classes in Kingstown. Although the provisions of the Towns' Improvement Act have been adopted in Kingstown, by which the Commissioners are empowered to exercise a strict surveillance over lodging-houses, by making the proprietors register them in the manner prescribed by law, the salutary clauses bearing on common lodging-houses have never been carried into effect; the consequence is,

that abuses frequently occur, although the details connected therewith are seldom made public. For the sake of public morality, it is to be hoped that some judicious supervision will be exercised by the Town Commissioners for the purpose of suppressing scandals in a watering-place which can boast of being frequented by the rank and fashion of the country.

**BOX.**—On Tuesday week last, the men employed by Messrs. Pictor and Sons, at their Bath Stone works, Box and Corsham, to the number of nearly two hundred, were liberally invited to a dinner on the occasion of the coming of age of Mr. C. J. Pictor, and his accession to the firm. A large tent was erected on the lawn in front of Mr. Robert Pictor's house at Boxfield-farm, in which the men sat down to dine. Mr. William Lewis, of Bath, took the chair, and proposed long life, health, and happiness to the new member of the firm, Mr. C. J. Pictor. Mr. C. J. Pictor returned thanks in a few brief and sensible remarks, and Mr. Robert Pictor, in his address, alluded to the absence of all intoxicating drinks, and said what he considered not fit for himself he did not consider fit for them, and he hoped it would prove to them, by the way they had been entertained, that strong drinks were not necessary to promote good feeling or to stimulate enjoyment. Mr. Aust, the master carpenter, spoke of the advantages enjoyed by Mr. C. J. Pictor over his brother Mr. Robert, who had had all the uphill work to do, arranging prices, conciliating differences, and reducing the working of quarries to a system by which disputes are avoided, and men and masters work together in mutual confidence. The men continued to enjoy themselves with music, singing, and conversation till late in the evening, and broke up well pleased with their entertainment.

**IMPROVEMENTS IN THE NATIONAL BANK BUILDINGS, COLLEGE-GREEN.**—The alterations which have been in progress for some time past in the metropolitan establishment of the National Bank being now nearly completed, we are able to judge of the effect, and are bound to say that, in the present case, *alteration and improvement* are synonymous terms. Instead of the comparatively small and gloomy office in which business was formerly done, there is a spacious and well-lighted apartment—the lofty ceiling supported by

pillars, painted in imitation of Aberdeen marble, and so well done as almost to defy detection; while light is admitted by a large window in front, the width of the building in College-green, and also by a dome which forms the roof of the extension at the rear of the original office. All the offices are now on a level, which must be a great convenience to the public, there being no necessity for going up stairs, nor, in fact, out of the one apartment, from any part of which a clerk can, without leaving his desk, point to any place required. There is a mahogany counter running down one side of the front, or cash office, which is a magnificent specimen of what Dublin can produce in the way of cabinet-making; the entire cabinet-making being a very large contract. All these magnificent fittings have been erected without the public or the officials having one moment's inconvenience. The entire is the finest piece of mahogany work that has been done in Dublin for many years, and the finish is as perfect as any drawing-room furniture of the most exquisite description. Either as specimens of wood or as specimens of workmanship, the entire is a credit to Dublin, but particularly so to the well known establishment of Messrs. J. J. Byrne and Sons, of Henry-street. The flooring is encaustic tiling of very handsome pattern, which is not only more lasting, but, at the same time, much handsomer than any other for public buildings. These improvements were designed by Mr. Calbeck, architect, and ably carried out by the builder, Mr. Freeman.—*Irish Times*.

**SURVEY OF DALKEY.**—The Dalkey Town Commissioners have appointed Mr. C. Carmody, C.E., of Capel-street, to make a survey and enlarged map of the township.

DUBLIN BUILDER OFFICE, 42, Mabbot-st.

It is respectfully requested that amounts of accounts for Advertisements may be paid to Mr. PETER ROE, soon as convenient after same being furnished.

Subscriptions to this Journal are in all cases payable in advance.

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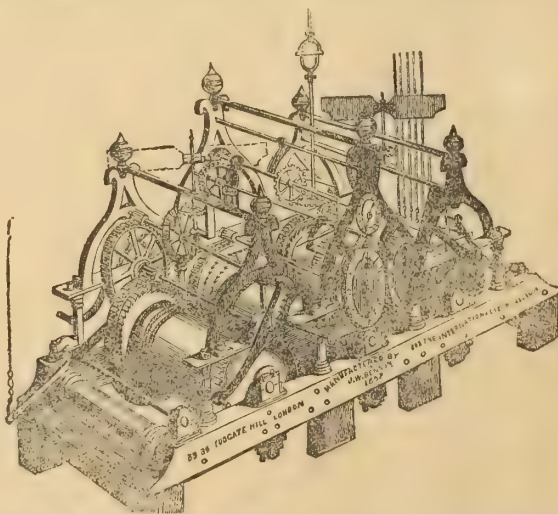
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The *Morning Herald*, October 25rd, speaking of the Plate in the Exhibition, says, "Mr. BENSON, who has a Medal for Plate, exhibits some beautiful things."

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Coffee Services, Waiters, Bread, and Cake Baskets, Candelabra, Dishes of all kinds, Epergnes, Claret Jugs, &c.; and which can be seen at the various Establishments of J. W. BENSON, whose new Show Rooms contain an immense assortment. A Prize Medal was awarded to J. W. BENSON for excellence of manufacture of Argentine and Electro Plate. A Sample Spoon will be sent post-free to any part of the Kingdom on receipt of Thirty Stamps, and an elaborately Illustrated Catalogue, containing Three Hundred Engravings and Price-list of Argentine and Solid Silver Plate, will be sent post-free on receipt of Six Stamps.

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33 & 34, LUDGATE HILL, LONDON. (ESTABLISHED 1749.)

# The Dublin Builder.

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## NEW CARLISLE BRIDGE.

**A**T length (and better late than *never*) there seems to be some action taken towards obtaining partial justice for the numerous competitors who, at great expenditure of time, labour and money, submitted plans for this proposed structure.

We always held that the Committee—though, doubtless with the best intention possible—acted very prematurely in seeking for plans and promising premiums for same, before they saw their way clearly as to the requisite amount being available, either for the erection of the structure itself or for the payment of the premiums to the competing artists. It *may* be that they are quite right in assuming that funds *ought* to be granted for the purpose, out of the hackney-carriage rents of this city, which at present go into the imperial exchequer, and are employed in beautifying the English and not the Irish metropolis—the source from which they are derived; but as the Committee comprises men of business, of worldly experience and acumen, they should have known that there is a difference between “*ought* to be” and “*shall* be,” and that every right claim of Ireland is not recognised as a matter of course at the other side of the channel. That either a modification of the existing structure, or a complete rebuilding, is needed for the accommodation of largely grown and growing traffic, is admitted on all sides, but neither the one nor the other could be effected without an outlay more or less, and therefore it was, to say the least, a very “moonshine” proceeding for a literally penniless Committee to lay a foundation on which there was not even a reasonable hope of their building a superstructure and completing their task. A memorial should have been *first* presented to the Treasury for the funds, and an answer obtained thereto—which, if favorable, would have contributed reasonable grounds for further action towards the accomplishment—or, a public subscription list should have been opened and the Committee patiently wait until the required *thousands* of pounds, not hundreds, were secured before they advertised flourishingly a proposed award of premiums; and then having obtained some seventy sets of really beautiful and elaborate designs, kept the authors in painful suspense for two years or more, their laborious productions being ignominiously consigned most of that time to a dirty store in a back slum, and thence withdrawn to decorate for an indefinite period the walls of the Civic chamber, where still they may be seen.

The Commissioners appointed to investigate the respective merits of the designs so submitted were unprecedentedly tedious in making even a preliminary inspection—forsooth, perhaps, because they *well* knew that the project was eleemosynary, and reference to to them was a mere farce—but the pressure of public odium on the Committee, through the powerful vehicle of the Press, brought them together, *for the first time*, one day last week. Now be it remembered that this Committee advertised for these designs—only now under adjudication—in the DUBLIN BUILDER for February 15th, 1862.

Truly a sufficiency of time for *impartial* consideration! What the nature of their impressions is even so far, of course we do not know; nor indeed—except in the wish that simple faith may be kept with the competitors in the *mere awarding of the premiums*—need we much care, else we should proceed to discuss the questions of the propriety of erecting a stone or a metal structure respectively, of one, two, or three spans as the case might be.

There remains in the hands of the Committee, it is to be presumed, after payment of contingent expenses, a sufficiency to pay the premiums; and, insignificant a consideration as is the mere amount of “a premium”

to a competitor when compared with the prospective advantages to accrue from the conduct of the work itself, nevertheless in this memorable instance the sooner the Commissioners arrive at their decision the better for the honour of the Committee, and for the satisfaction of the injured competitors, who we strongly commend to *make the best of a truly bad bargain*.

## KINGSTOWN NEW ROYAL MARINE HOTEL.

THIS extensive undertaking, which bids fair to open up a new era in the system of hotel keeping in this country, will, we understand, be commenced with the least delay possible after the receipt of the tenders, which are to be lodged at the offices of the company, 113, Grafton-street, on or before the 30th instant.

The great revolution that has taken place in England in this department of our social system, coupled with the profits realized by the shareholders of many of the largest of those establishments, have no doubt tended to generate the feeling that ample room existed for the erection of an hotel at Kingstown on a scale commensurate with the requirements of the day, and adequate to the wants of the vastly increasing passenger traffic between this and the sister country, which, irrespective of the sojourners at the sea side, would require that a comprehensive system of hotel accommodation should be provided inferior, at least in comfort and arrangements, to none of those great establishments in England.

The directors of this company have boldly come forward to supply this want, and ere this day twelve-months we fully expect to see this undertaking a realized fact.

In order to give some idea of the magnitude and amount of accommodation to be provided, some short description of the designs prepared by Mr. M'Curdy for the edifice will, no doubt, be read with interest.

The building is to stand on the plot of ground north-east of the present Royal Hotel facing the harbour, is to have a covered way from the steam-packet pier, and to have a frontage of 145 feet towards the harbour, 175 feet towards the Forty-foot Road and Gresham drive, and 140 feet towards Haighe's Terrace.

The principal entrances will be towards the harbour, and facing the Gresham Drive. The private, or ladies' entrance, towards Haighe's-terrace.

On the ground, or principal reception floor will be a grand coffee-room, 60 feet long, together with library and reading-room, and eleven reception-rooms, also clerk's office. Telegraph and post-office, bar, manager's-room, serving bas from kitchen, &c, added to which there will be billiard and smoking-rooms. A lift room is also provided for persons to ascend to the upper floors: also lifts for luggage, dinner service, &c.

On the first floor is the general drawing-room and ladies' coffee-room, also a spacious dining-room for public dinners or other large entertainments, capable of accommodating two hundred persons.

On the second floor is the ladies' private drawing-room, which, together with some very superior suites of rooms, are set apart for the sole use of ladies, with private staircases, &c. cut off from the other portions of the buildings.

Added to the above there will be 150 first-class bedrooms, with suites of bedrooms and sitting-rooms for visitors, servants, &c.

In the department of *cuisine*, the kitchen and offices connected therewith have been planned and situated so as to avoid the great inconvenience experienced in many of the best English and Continental hotels, in which the never-ending cooking becomes evident at the threshold. A large ventilating shaft, 60 feet in height, will carry off all offensive vapours.

The building will be warmed and ventilated on the most approved principles.

The style adopted by the architect is an admixture of Italian, Gothic, and Renaissance; there is a bold colonnade on the North, surmounted by a tower in which will be a clock, having four illum-

nated dials, and an electric time ball. The external balconies shown on the design will afford an enviable resort during the summer months; there will also be a promenade on top of the high mansard roof that covers the building, from which an imposing view of the bay and surrounding scenery will be had.

All the Gresham-gardens in front of Gresham-terrace, together with all the grounds in front of the Royal Hotel down to the Harbour-road, are—with the exception of the space occupied by the harbour-master's house and grounds—to be converted into pleasure-grounds tastefully laid out in terraces, parterres, plantations, &c., attached to the hotel.

The present Royal Hotel will no be disturbed until the completion of the new building.

## ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

THE session of the Institute has commenced; there was a council meeting on Thursday, the 12th inst. preliminary to the general meeting, which is to take place on the 19th inst. It is to be hoped that fresh vigour will be infused into the proceedings of the Institute henceforward, and that it will be a thing of *reality* and not *ideal* as formerly. Each of the English societies have secured a number of valuable papers for *their* meetings, but, as far as *we* are aware, there is not as much as *one* yet announced as prepared, or *intended* to be prepared for *this*. The conversazione will take place some day next month (not yet named), and we anticipate a brilliant gathering on the occasion; the esteemed president of the Institute having signified his determination to give it in a style befitting his official position and the dignity of the architectural profession.

## THE PROPOSED DROGHEDA WATERWORKS.

APPLICATION is announced to be made next Session of Parliament for a bill to authorise the construction of works for an improved supply of water to the town of Drogheda. Reservoirs are proposed to be constructed respectively at Killineer, on lands belonging to the Rev. B. Adams, and at Mell, on lands belonging to Mr. H. S. Singleton; and the main pipes will pass as follows, viz.:—

*First*—From the watercourse called “the Tober-na-Solais brook” through the townland of Hill of Rath and Killineer.

*Second*—From the watercourse called “the Slate Hill brook” through the townlands of Monasterboice, Killineer, and Balgatharan.

*Third*—From the watercourse called “Liscorry brook” through the townlands of Liscorry and Tullyskar.

*Fourth*—From the watercourse called “the Tullyskar brook” through the townland of Killineer.

*Fifth*—From the Killineer reservoir to the Mell reservoir, and thence through the townlands of Mell and Moneymore, and terminating at or near the Tholsel, which is centrally situated in the town.

Duplicate plans of the proposed works will be deposited with the Clerk of the Peace for Louth at his offices in Drogheda and Dundalk.

## RESTORATION OF ST. PATRICK'S CATHEDRAL.

(From the *Freeman*.)

ON several occasions since the commencement of this great and noble undertaking we reported on the progress which had been made towards its completion, and we are now happy in being able to state that the venerable and time-honoured structure is fast approaching the state of beauty and grandeur in which it stood six hundred years ago, despite the prophecies of “eclectic philosophers” and comic Angelos. Those who have not seen St. Patrick's Cathedral within the last six months have never seen it, and how great will be the surprise of those who only remember it a pile of tottering ruins in the last stage of desolation and decay, when they will observe it now in all its severe and majestic integrity—restored to its charming proportions, and the ravages of time, which subdues all things to itself, repaired, and the not less destructive results of the hands of the Vandal destroyer and would-be restorer made as if they never had been. Those who would wish to form a just conception of the great task which Mr. Benjamin Lee Guinness pro-

posed to himself to accomplish must strive and remember the sad condition to which the great old cathedral was reduced, with its crumbling walls groaning beneath the weight of a roof which they were not competent to carry, and surrounded by the portions of the edifice which had fallen at their bases, and lay in heaps around, speaking with forcible and melancholy truthfulness of the work of destruction which was going on, and making the most sanguine believe that only a very few years would elapse before nothing would remain of a great national Christian monument but the fine old grand massive tower, surmounted by the comic candle extinguisher placed on it by some clerical "eclectic" to serve as a spire. Repair had been deferred so long that all remedy seemed hopeless, and the partial "restorations" (?), which were effected in the Ladie Chapel and its vicinity, only served to show, by contrast, to what a hopeless state of ruin the cathedral was reduced. If the exterior was bad, how much worse was the interior, in which was to be plainly observed that even the choir which alone was used for divine service would soon be a place where it would not be safe for a congregation to assemble. St. Patrick's Cathedral, which looked as if it had been pillaged by savages after it had been bombarded by artillery, was generally regarded as a thing which should be left to its fate, and in after years to be pointed out to the stranger and the tourist as the desolate ruin of the once proud Cathedral of St. Patrick, beneath whose pavement reposed the ashes of heroes, poets, patriots and saints. When it was first stated three short years ago that the cathedral was to be restored, men wise in their generation laughed at the idea, and said "that it was impossible, and that the only restoration that could be effected was the rebuilding of the church from its foundations;" others said, "that if even restoration was possible, where was the enormous sum to come from that would be necessary for so great an undertaking?"—the nation had been appealed to and a subscription list opened headed by the Queen and Prince Albert, still only a few thousands could be realised." The reported intention of restoring the cathedral was regarded as a mere rumour until, in the summer of 1861, a large number of men were seen erecting scaffolding at the exterior of the southern side of the edifice, and then it was believed that the report was no idle rumour but a positive fact. The persons selected by Mr. Guinness to carry out the entire restoration of the sacred edifice were Messrs. Murphy and Son, Amiens-street, and, as they silently progressed with the great work, prophets who never had taken the slightest interest in the venerable pile—though large portions of it were falling weekly for years—now showed the greatest anxiety for the time-honoured fabric, and were loud in their expressions of their fear of the whole structure coming to the ground. Notwithstanding all the prognostications, the work went on famously without accident to life or limb. Old walls were removed and new ones built up without interfering with the roof—ponderous piers were erected in place of those which had become entirely decayed—and when it was observed that the "coming down" fear had been removed, the prophets became critics and found fault with everything that had been done, but to no purpose, as the church grew daily in beauty and grandeur under the hands of the skilled craftsmen who were so anti-eclectic as not to choose at will, but worked from the models which had been supplied to them from the cathedral itself. In the records of individual munificence there is nothing, in our time, to equal that of Mr. Benjamin Lee Guinness. For the construction of the works now completed in the cathedral, he has already expended the princely fortune of over £110,000, and in all probability before he hands over the cathedral to the Dean and Chapter he shall have expended on its restoration £150,000. In our last notice we spoke at length of the restorations at the south side, and referred to the progress of the works in the northern transept, formerly the parochial church of St. Nicholas Without, built on the site of the old transept by "the Board of First Fruits." This unsightly excrescence had to be pulled down and a new transept built similar to the one on the southern side. This portion of the work is now nearly complete externally, and the cathedral restored to its original proportions. It will be remembered that when we were speaking in our last notice of the great west window erected by the late Dean Dawson, we observed that it was not only out of character with the style of the building, but that it sadly interfered with the appearance of the ceiling or roof, which cut off a considerable portion of the upper part of the window, and made it look most unsightly. We suggested that a triple lancet window similar to those in the transepts should be substituted, but there was an objection to that course being adopted, as Mr. Guinness, with praiseworthy delicacy, did not wish to interfere with the window,

as it had been erected by Dean Dawson, and as its removal might not be pleasing to the members of his family. This objection, we are happy to say, was removed by Mrs. Dawson expressing a wish that the window erected by her late husband should not be permitted in any way to interfere with any improvements which Mr. Guinness was making in the cathedral. In consequence of this permission having been obtained, the perpendicular window erected by Dean Dawson was removed and a triple lancet window put in its place. The porches at the north and south sides are nearly all finished, and when the tower is cleaned down and repaired, and the unmeaning and miserable apology for a spire removed, the exterior of old St. Patrick's will look as it did in its palmy days of yore. On the occasion of our visit yesterday, how imposingly grand the mighty pile appeared from Cannon-street, and as we gazed on the solemn majesty of its *ensemble*, and the harmony of its proportions, our thoughts were carried back to a few years before when it was a mass of unsightly ruins, and we thought what a debt of gratitude was due by Irishmen of every denomination to Benjamin Lee Guinness, to whose princely munificence and public spirit they were indebted for the saving from utter ruin and destruction a great and venerable national monument. Before closing our observations on the exterior of the church, we must say a few words on the new approach from the south side which Mr. Guinness is having made to it. This road runs through a portion of the police barrack at Kevin-street, passes through an angle of the Dean's garden, and through a corner of the cemetery, and opens on the space near the southern transept. At either sides of this road massive stone walls are being built, and the removal of the houses in Mitre-alley, which will soon commence, will add much to the appearance of the cathedral, and be a great benefit in a sanitary point of view. From the new road, which is intended to be the principal route to the cathedral, it looks absolutely grand, and calculated to exact unqualified admiration from all. The visitor may anticipate very much indeed, and not be prepared for the solemn majesty of the interior of the cathedral. The choir at the time we wrote our last notice remained in the wretched state in which it had been left by those who imagined they had restored it. All their handiwork has since been removed, and the original design rescued from cumbrous conceits, mannerisms, and stupid attempts at decoration. The graceful arches dividing the choir from its southern aisle have been relieved of the grotesque presence of the Boyle monument, which has been transferred to the nave at the right hand side of the west entrance. The whole of the choir has been entirely reconstructed in accordance with the original plan of the church, and the greatest care has been taken to preserve every feature of the antique decoration to the most minute particular. The five-light lancet window above the place where the high altar stood has been furnished with admirably executed stained glass pictures, manufactured by Messrs. Barff, Potters'-alley. These pictures represent our Saviour in the centre and the evangelists on either side. The stained glass hides the apex of the gable of the Ladie Chapel, which could be seen through the centre ope. Standing beneath the four massive and lofty arches which divide the nave from the choir and transepts, the visitor becomes deeply impressed with a sense of the beauty and harmony of the structure as he sees the arches springing from their columns in graceful succession, sustaining the charmingly finished triforiums furnished with marble shafts, and, looking upwards in the nave, he sees far above the lancet clerestory windows, beautifully decorated in stained glass by Messrs. Ca-ey, Brothers, Marlborough-street; to the north and south his eye wanders along the length of the transepts, and at every point his admiration is excited by the beauty of the details, amongst the most prominent of which is the splendid stained glass with which the clerestory windows are furnished in the southern transept. The designs, which are exquisite, have been suggested to Messrs. Barff by ancient Irish ornaments. The colouring is most harmonious, and the south transept shows what a gorgeous temple St. Patrick's must have been before it was made desolate by the spoiler. The large stained window in this transept, representing the Ascension will be removed to the great window of northern transept, as the light at the south side was too strong for the picture. Another stained glass painting will be executed to replace the one which will be removed. To the south transept the splendid monuments of Archbishop Smith and Lady Doneraile have been removed, and the monuments erected to the 18th Royal Irish regiment have been transferred to a corresponding position in the north transept. The flags of the regiment, about which there was so much controversy, and which were to be placed in the Royal Hospital, are to be suspended above the monuments in the cathedral, the Queen, it is stated,

gave the colours to Colonel Edwards, who directed that they should be hung above the monuments erected to the memory of the officers, non-commissioned officers, &c., of the regiment who fell in action in India and in the Crimea. The partitions which divided the Ladie Chapel from the aisles are removed, with the very best possible results. In the Ladie Chapel the statues of Baron Joy and Dean Dawson are placed in effective positions, and good and prominent places are being provided for the monuments of Swift and Stella in the southern aisle. The original level of the floor of the church has been in every instance observed, but not without much labour and expense. In the sinking for this purpose, a stone coffin, containing the ashes of a bishop, supposed to be the founder of the cathedral, was found. This coffin has been replaced in an arched niche in the southern aisle of the choir, and can be seen by all who visit the church. Beneath the Yorkshire and Mountmellick flags, which will be laid diagonally on the floor, drainage pipes have been placed to carry off any water from beneath. Above these pipes a thick layer of broken stones has been deposited, and above the stones a quantity of vitriol clinkers, has been strewn. On these clinkers the flagging will be constructed, so as to prevent any dampness rising from below. The church will be heated throughout with hot air pipes, and will be lighted with gas, for which purpose mediæval Gothic gas standards will be erected within the arches for 15 lights in each arch. Preparations will be soon made for erecting the great new organ in the northern aisle of the choir. Those who will visit the cathedral should not leave without taking a view of it from the great west door, and he will form a just conception of the great magnitude of the structure, as he sees in the far off distance, through the arch at the east end of the chancel, the five-light window of the Ladie Chapel, three hundred and twenty feet distant from where he is standing. In the foregoing report we have sought to convey, in the space at our disposal, a notion of the great works which have been carried on to a most successful issue by Messrs. Murphy and Son, who are entitled to warm and unqualified praise for the admirable manner in which they discharged the important trusts reposed in them by the princely restorer of St. Patrick's Cathedral, to whom its hallowed walls will be an enduring memorial, and be, when he has passed away, the means by which generations yet unborn will learn to revere the memory and the exalted virtues and patriotisms of Benjamin Lee Guinness. The great work, which through this splendid bounty now draws to its completion, has been produced alone by Irishmen, on whose skill and industry it reflects the highest honour. Men of the greatest eminence in England and on the continent have seen the restored cathedral, and have been loud in their praises of it. In that praise, all possessing genius and taste will join most heartily, and in conclusion we have only to express a hope that the worthy citizen, by whose means the Cathedral of St. Patrick was restored, will long continue to enjoy the splendid fortune which he uses for the promotion of the happiness of his fellow-men, and for the honor of the country which gave him birth.

#### THE CORPORATION CATTLE MARKET.

WITH that punctuality for which the contractor (Mr. Meade) is remarkable, the new Cattle Market on the North Circular-road, of which the Corporation of this city were the promoters, is about to be delivered up in a perfect state. It is to be formally opened by the Lord Mayor, on the 24th inst., and the first market will be held therein on the 26th inst. This establishment (the features of which we have before detailed\*) is a vast one, and a model of excellence of arrangement, fittings and drainage, reflecting the highest credit on its designer, Mr. Parke Neville, C.E., the borough engineer, as also on Mr. Meade for the able manner in which he has fulfilled his contract. This market was "a consummation devoutly to be wished for," Smithfield being inadequate to its purposes in any respect; and when referring to it now as *un fait accompli*, we should not omit to associate with it the name of the chief promoter, Sir John Gray, who, by his preeminent ability and perseverance secured this boon for the citizens, despite the storm of opposition raised by a band of sanguine speculators in another project of similar character elsewhere, and by the limited few interested in the non-removal of the old Smithfield market.

\* Illustrated in Nos. for December 1st and 15th, 1862.

## SCAFFOLDING AND THE TRANSPORT OF MONOLITHS AND OBELISKS.\*

It might be amusing and instructive to consider the means used from time to time, for some centuries, to move and raise to their place huge blocks of granite or marble, and other ponderous materials, particularly as connected with commemorative monuments, and intended to hand down to posterity the remembrance of great men and their deeds. The means used at Liverpool for ordinary buildings are of a most economical description. They do not use so much scaffolding as we do. They first get a platform, 3 ft. wide, fixed on sleepers. On this they raise a central spar, and put a gaff at the top. Cords and guys are also fixed to blocks and heads of immense piles driven into the streets. They are about 10 or 11 ft. apart, and 10 ft. high. They attach certain cords which steady the heads. By means of having capstans driven below they raise the blocks up to an immense height. Having raised the block up to the upper storeys, they swing it round by means of the gaff, so that the are enabled to bring the block into the place they intended. The scaffolding is, therefore, not of that complex character which is generally the case. The Professor explained two diagrams illustrating the methods employed at both Liverpool and Birkenhead.

The lecturer then called attention to the commemorative column erected at Devonport, by Mr. Foulston, architect. This column is built of a beautiful granite from a quarry near the Tamer. The shaft is 11 ft. in diameter, its height from the bottom of the shaft to the top of the capital is 65 ft. 4 in., being nearly six diameters. The column makes, with its inferior and crowning pedestals, a total altitude of 101 ft. 4 in. Its height above the street, including the rock on which it stands, 124 ft. Every stone was hoisted and set without the use of scaffolding. The stones in the foundation, the plinths, and the lower part of the shaft were raised and set with the triangle; those above in the following manner:—The end of the spar, 45 ft. long, was let into the ground, erected and braced by the diagonal pieces, and lashed and strutted to the lower part of shaft, but afterwards removed for the support under, and to fix a second spar; the end or top was secured by guys strained tight by blocks and falls fastened to piles driven into the ground. A gaff with jaws at the lower end, was then slung in the throat by a strong rope or chain, so as to work round the upright spar in the jaws prepared for this movement, at the end or bottom of the gaff, and placed at the height required for raising the stone. As the work proceeded, the second spar was hoisted and placed in the cap supported by a shore under the heel and braced to the column and secured by lashing and guys in a similar manner. When more height was required for hoisting and setting the upper courses, the third spar was hoisted with a shore to lengthen it, and placed in the cap lashed and braced to the shaft of column, then built, and the top secured by guys as before; and the gaff raised and slung at the height required. By the blocks and fall, and the manner of setting the jaws and hanging the gaff, it is easily adjusted and regulated, so as to bring the stone immediately over the spot on which it is to be set; the fall for regulating the gaff, being secured to a cleet fixed in the lower part of the upright spar. The stones are hoisted by a crab or windlass, secured to the pile driven into the ground, and by blocks and falls. By proportionally increasing the size and number of the spars, guys, &c., and having blocks and falls sufficiently strong, stones, statues, &c., of any weight may be raised to the height required.

The York column itself was built twelve months before the statue was ready. The consequence was that the scaffolding had to be taken down, for otherwise it would soon have been rotten. Mr. Westmacott, the sculptor, finished the statue twelve months after the erection of the column, and the clerk of the works erected the scaffolding. The monument itself was a huge mass of granite, out of all proportion, and unsightly. It was 125 ft. high. The Professor then described the principle of the scaffolding which had been put up under the direction of the clerk of the works. This scaffolding cost £500, which was an enormous sum. The statue occupied a whole day in being put up.

There was a statue erected upon the Colonne Vendôme, in Paris, and when the Allied Armies went through the city, they took down the statue at the top, of "Old Bony." Afterwards they put up another statue commemorative of France. However, when Louis came back, he thought he would tickle the fancies of the French people by putting up "Old Bony" in his place again. He therefore invited designs. They put the statue on the Colonne Vendôme. The statue represented Bonaparte with the three-cornered cocked hat, and with a grey coat, and top boots, in which he always appeared

in battle. Among the many systems for raising the statue of Napoleon, there was that used for removing the original statue from the same point, and the scaffolding by which the former one was raised. But the operation in this case was different, inasmuch as the effect of raising or lowering a statue would require different powers and forces, and the former statue was raised by means of the scaffold used in the original construction. The late Monsieur Lepère, the architect of the Colonne Vendôme, therefore, conceived a plan at once original, economical, and scientific. It consisted of a platform based on the cap of the column, and carrying a crab by which the statue would be raised. It had for support the mass of the column itself, and for resistance the weight of the cupola, which is about four times the weight of the statue. There was a plate which rested on the solid construction, and bore all the framing of the scaffolding. Two beams were carried through to the inside of the column, which have for support the wall of the column and the newel in the centre, and these are very important, as they bear the principal part of the weight of the crab. There are two stout pieces of timber at the top of the cupola, so fastened to the upper ring as to keep the scaffolding stiff and secure. There was a platform formed with plank on the lower part of the framing, and another platform on the framing above. The lower framing supports the crab of a height and width sufficient to raise the statue; and the platform on which it stands has such an extent of surface, that the statue when arrived at the requisite height, can be drawn with the crab to the angles of the column. It only required eight minutes to haul the statue from the edge of the platform to the axis of the column. To diminish the friction, the crab was made to move on iron rails, the bottom of the crab being lined with copper, and hauled by a rope which passes through a block at the opposite extremity of the platform, and the crab passes along a tram prepared for the purpose. While the wheel was turning round which the rope was wound as the statue rose, there were two men to hold the other end, and coil it on the platform; the cable passed round a cylinder, at the end of which are two wheels, about 5 ft. in diameter. Eight men were sufficient to raise the statue; they were relieved at short periods, and the time employed to raise the statue from the ground to the level of the platform, was 2 hours and 55 minutes. As a security against any relaxation of the cable or rope, there were two sorts of drags, which being pressed against it acted as a rigid stay, and there were two other subordinate ropes attached to the statue, which were wound up at the same time as the main cable, and ready to act in case of unforeseen danger. The height of the statue is about 11 ft. 6 in. from the sole of the foot to the top of the hat; with the plinth, the total height is 12 ft. 6 in.

Monsieur de Montferrand was employed by the Emperor of Russia in 1829 to erect a column to the memory of his brother Alexander, late emperor of Russia. It consists of a Doric column elevated upon a pedestal somewhat in design like the Trajan Column at Rome and that of the Place Vendôme at Paris. To the top of the statue it is 163 French feet. The principal feature of this monument is the shaft, which was intended to be of one solid block of granite, 12 ft. 6 in. diameter at bottom, 10 ft. 6 in. at top, and 84 ft. high. It was extracted from the quarry of Pyterlaxen, in one of the Bays of the Gulf of Finland, and conveyed to St. Petersburg. It will be now our purpose to consider the mode of its transport from the vessel to its erection in one of the squares of St. Petersburg. I may state that the cost of this monument was ten millions of roubles, or £400,000, and was commenced and completed in two years and a-half. The shaft had only been roughed out, and certain knobs were still left on the surface to afford the opportunity of more easily affixing the cords and pulleys, by which it was eventually to be raised to its permanent situation. An inclined plane had been constructed of timber from the point of debarkation on the Neva to the position of the pillar, 490 ft. long and 100 ft. wide; and, of course, the solidity of its construction increased in proportion to its augmenting elevation or rise, which, at the highest, was 35 ft. During the progress of the monolith on this inclined plane, no movement took place, so as to derange any of the timbers; but the immense weight so compressed the beams as the column passed over them that the sap and juices in the timber were forced out with great violence in jets. The platform went in quite a straight direction for a certain distance on an incline until it reached the height of 35 ft.; it then went at right angles level to the site of the column. The shaft was on a cradle or carriage, and was drawn forward upon a number of rollers by eight capstans; the carriage consisted of two parts, 11 ft. wide, and making together a total length of 82 ft. A solid mass of masonry was constructed

around the pedestal, forming a square, each side of which was 95 ft. long. On the top were thirty blocks of granite to serve as plinths to receive the ends of the upright standards and struts of the principal scaffolding. This scaffolding was 154 ft. high, and consisted of two distinct divisions, separated by a distance of 20 ft. wide for the monolith to act in. There were on each side of this space five principal upright posts, each consisting of four pieces of die square timber, well bolted and strapped together, and also well braced by 28 stays and two sides, and held together by wallings. At the top, these ten principal upright posts were united by five regular king-trusses of very strong timbers and supporting beams; from these were suspended the blocks, through which the ropes or rather cables passed that were to raise the monoliths; and, in fact, they supported the whole weight of the mass of granite and casing during the operation, except that part resting on the carriage, which it drew on as it gradually raised its head. Upon the platform, which rested on the mass of masonry already described as 95 ft. square on each side and surrounding the pedestal, were placed sixty capstans of iron, and each had been proved to resist 60,000 lbs.; and each of the cables, composed of 522 threads, resisted a charge of 93,960 lbs. In order to prove the machinery tackle, Monsieur de Montferrand had a preliminary trial, and raised the column 20 ft., and it was so left for an hour, which succeeded perfectly, so as to assure him that all was right. The cables of the sixty capstans formed so many radii, which tended to the carpentry of the scaffolding, where they passed through sixty pulleys vertically up to the top; here they traversed so many blocks, and were finally attached to the blocks on the monolith. There were sixteen soldiers to turn each of the capstans, five sailors to haul the cable and coil. Eight other soldiers acted as relays, and were changed when required, but so as not to stop the operation; there was a non-commissioned officer to direct the movements and operations at each capstan, making thirty to each. In all, 1,440 soldiers, sixty non-commissioned officers, thirty drummers of the regiments of the guard, 300 sailors, and 15 non-commissioned officers were employed in the operation, with the requisite number of officers of the sappers and miners. Four of the architect's assistants were placed at the angles of the scaffolding, and had the superintendence of the capstans, with the injunction to pay particular regard to the whole of the operation, and be ready to report any defect. On the scaffolding were 100 sailors, who kept the blocks in their proper direction, and hindered the cables from becoming entangled. Sixty of the strongest workmen were upon the shaft itself to keep the blocks in their proper direction; and fifty carpenters were at different heights to attend to any event that might arise. There were also six masons ready to lay the cement on the bed of the pedestal when the shaft was lowered. There was also a man to give the signal by sound of bell; a surgeon in case of accident; and a body of workmen in reserve with instruments and materials in case of need and unforeseen accident. All being prepared, and a brief prayer being offered up for Divine assistance, the signal is given—an instantaneous and united movement takes place, the capstans turn, the cables are drawn tight, and the monolith begins to rise majestically. The motion was twofold—the one ascensional, the head rising by the action of the pulleys, and the lower part horizontal, resting on the carriage and gradually advancing as the head rose. The ascension lasted 100 minutes, or 1 hr. 40 min.; and, at length, the shaft was raised perpendicularly 7 ft. above the pedestal, when it was stopped. It was made to assume its right position by means of certain capstans, which were made to act independently and separately; then the signal was given, the capstans were gradually and gently relaxed, and the column descended to its permanent place on the pedestal without any jerk or the least movement in the carpentry.

The Professor then referred to the Columns of Trajan and Antonine, all the marble of which came from Carrara. The total height of the Trajan Column was 115 ft., and of the Antonine Column 105 ft. 6 in. He also referred to the large bulls from Nineveh, exhibited in the British Museum which were quarried with a lever, with no scientific principles to guide the workmen, but only brute force. Yet they were taken from the pit and conveyed to their destination. The Colossi at Thebes, which were 50 or 60 ft. in height were conveyed down the Nile to their destination, which was truly very wonderful. He then said.—In the erection of commemorative monuments there are some peculiar attributes that we should always keep in mind in order that they may be effective, impressive, and enduring. They should be of a certain size—and here we find an illustration in the Pyramids of Egypt, the Tomb of Mausolus, the Coliseum, the

\* From a lecture in London by Professor Donaldson.

Thermæ of the ancient Romans, St. Peter's at Rome, and Cologne Cathedral. They should be built of enduring materials—as the Pentelic marble of the Parthenon, the granite and basalt of the Egyptian art productions, and the bronze of such columns as those at Paris. And they should be precious, to show that a mean economy has not straitened the object within the narrowest limits of expense; that a generous affluence has provided the means. And, above all, the material should be the best—choice in colour, choice in texture, choice in its treatment, and choice in execution—for it should require the very highest talent to design and carry it out. An Obelisk unites these qualities, if it out-tops the highest which a Pharaoh or a Ptolemy may have erected at Memphis or Thebes, or a Cæsar may have transported to Constantinople or to Rome—if in rarity it equals the deep tones and crystal lustre of the Sienite of the Nile, and if its proportions be such as to give grace to the outline and harmony to the whole group of its accompaniments. The Egyptians had these memorials in abundance before their temples, in the courts of their fanes, and in front of their palaces. Kings vied with kings as to who should put up the loftiest, and record in deepest hieroglyph the triumphs of their reign. They dedicated them to their gods, and valued them so much that Rameses II. lashed the darling son of his love and hopes on the top of one which his architect was about to raise, in order to tax his highest skill and ensure every possible precaution so that no accident should mar the beauty of the monolith, or cause the slightest fracture in the peerless block. Much of the dignity of a monument consists in the colossal scale of its size, but much also in the colossal character of its construction. The Columns of Trajan and Antonine at Rome are of moderate size (we may say) as a whole, and do not exceed our York column—an humble imitation of the antique. But they are constructed of pure marble. The blocks that form the pedestal weigh 50 tons each. Our Monument of London exceeds them in height and diameter; but it is built in stone, in blocks not rising more than 2 ft. each course, a simple, easy, pigmy, every-day construction. But to extract the huge blocks from the marble quarry for the Trajan or Antonine Columns; to transport them to Rome, partly by sea and by the Tiber; to have a scaffold strong enough for such ponderous masses, and machinery of the requisite power to raise them, involve many engineering resources of the highest order of skill. And when we add to this the marvellous fine series of spiral bas-reliefs, which cover the shaft as with a gossamer of beauty, traced by the sculptor's chisel, we then acknowledge the impressiveness derived from the scale of the monument, its massive construction, and its artistic embellishments. The announcement of the subject to which I have ventured to call your attention may have appeared to some of little importance, as we rarely now use colossal blocks for any monumental structural purpose. But it is useful to know some of the difficulties of construction which the architect has occasionally to overcome, and the skill he must bring to bear ere he realizes the creations of his fancy. This is but a very sober and unpretending topic, but one not without its interest, as step by step we see the expedients of successive ages, and the superior skill of recent times.

#### DEATH OF MR. MURRAY, ARCHITECT, OF COVENTRY.

WE (*Building News*) have to announce the death of Mr. James Murray, of Coventry, architect. Mr. Murray was born at Armagh on the 9th of December, 1831. Early displaying the bent of his mind, he was in 1845 articled to Mr. W. Scott, architect, of Liverpool. When he left the office of that gentleman, he commenced practising his profession in the same town, in partnership with Mr. Barry. When that partnership was dissolved, Mr. Murray took that share of the business lying in the neighbourhood of Coventry, where he settled. While here his talents quickly brought him into general notice; and the Royal Institute of British Architects, on the proposition of Mr. G. Gilbert Scott and Mr. P. Hardwick, elected him a Fellow. This was, we believe, in 1856. He was then the youngest man who had the honour of Fellowship. Having removed to London, he, in connection with Mr. E. Welby Pugin, executed many important works both here and on the Continent. But Pugin and Murray were each too fit to lead to work long together harmoniously. Accordingly, dissolving the partnership, Mr. Murray returned to Coventry. And here, at the early age of 32 years, he died on Saturday week.

The deceased gentleman's accomplished works are numerous. Amongst others, we may mention the splendid mansion now erecting for Alderman Gabriel, the stately Gothic warehouse for Messrs.

Bennoch, in Bread-street, City, the new Justice-rooms and Corn Exchange of Coventry, Banbury and St. Albans.

The revolution and regeneration apparent in every part of his own town, Coventry, whose church, chapel, warehouses, factories, villas, terraces, down to barns and cottages, all bear testimony to his wonderful energy and undoubted genius. The churches of Warwick, Bolton, Sunderland, Newcastle, Stratford, Emscote, Birmingham, and Stortford, need only be seen to prove how thoroughly he understood and appreciated ecclesiastical architecture. These are but a few of the many works he individually accomplished, besides the undertakings he carried out in conjunction with Mr. Barry, his first partner, and afterwards with Mr. Welby Pugin.

Mr. Murray was interred in the Coventry Cemetery, according to the rites of the Roman Catholic Church, of which he was always a member. This position (which is most beautiful) was chosen by his widow and his devoted friend, Mr. F. Vaillant, on ascertaining that his last wish, of being buried under the shadow of the late A. Welby Pugin's work, St. Mary's, Kenilworth, could not be complied with.

#### THE ROUND TOWERS.\*

(Continued from page 176.)

"DOCTOR Petrie asserts that some of the towers

"Display in their details a style of architecture universally acknowledged to belong to Christian times,"—(3.)

To this proposition the Doctor attacks much importance, but in fact it is not of the slightest value. Before we proceed to notice some of his reasonings we must premise that it is now impossible to tell, from the style of the details, at what period any tower was constructed. That the towers have been repaired at various periods, is the opinion of many antiquarians; indeed nothing is more probable than that in a country exposed to foreign invaders, and a prey to internal dissensions as Ireland has been for so many centuries, the towers would suffer injury. Dr. Petrie is of this opinion; he thus writes:—

"The destructive ravages of the Danes would have rendered the re-erection or restoration of such structures necessary, especially at the close of the latter century (the tenth), and, as I shall show in the third part of this Inquiry, many of the towers afford sufficient evidence, in the various styles of masonry, and difference of material which they exhibit, that they have been in part rebuilt in times long subsequent to their original foundation."—(389.)

These re-erections, restorations, and rebuildings would render it a vain task to draw conclusions as to the time of the origin of these towers from the style of their details. Even if we admit that certain of the towers are in a style of architecture undoubtedly Christian, that concession is of no value for the Doctor's purpose; the passage we have quoted renders it useless, for if, nine hundred years ago, such important changes were made as the Doctor mentions, who can tell now the difference between the parts restored and the original work? If the restorations were well done, a few years might efface all marks by which the new could be known from the older work. When the towers were "re-erected," totally rebuilt, as he states his opinion that some of them were, who can, from these rebuilt towers, tell at what period the original ones were erected? No one could possibly do so.

By a curious oversight the Doctor promises to prove his assertion in the second volume (389), forgetting that from page 209 to page 239—thirty pages—have been devoted to proving that the doorways of the towers of Kildare and Timahoe—the only two to which his assertion can apply—"are in a style of architecture universally acknowledged to be of Christian times."

He wants to show that the tower of Kildare was, in the twelfth century, considered to be of St. Bridget's time, that is, of the fifth century. This conclusion is deduced from a silly tale related by Giraldus Cambrensis, about a falcon that had lived in the church tower during seven hundred years—a regular ærial Methuselah—and so modest was this bird that every summer he went to his mate among the distant mountains, in order to avoid profaning the sacred edifice by any lewdness, thereby, says Giraldus, setting a good example to all churchmen. But, alas! this venerable and pious bird was cut off in the full vigour of his powers by a rustic's stick, &c. (208).

On reading this ridiculous tale, we naturally supposed that the narrator was imposed on by some wag with this silly invention; in it the Doctor, however, finds much that is valuable; first, that

\* "The Fine Arts and Civilization of Ancient Ireland." By Henry O'Neill.

the "church tower" means the present round tower, doorway and all; second, that this tower was believed, in the time of Giraldus, to be of the fifth century. To this we answer, that there is no proof that the term "church tower" of Giraldus means the Kildare round tower, neither is there any proof that the falcon tale was believed by any one except the credulous writer who penned it.

A shade of doubt seems to have passed through the Doctor's mind that even the learned would not be convinced by the falcon tale, so he tries to show that the round tower of Kildare was in existence—doorway and all—"in the seventh century"; for this purpose he relates a tale about a nun who was located at Kildare, and who had to ring the church bell at midnight, and a chieftain who was in the church took advantage of the lonely hour, and violated her (381). The Doctor's conclusion from this story is, that the bell tower was separate from the church; and the Doctor will have it that the round tower was the place where the bell was hung! How strangely men let their hobbies run away with them.

Even this seventh century proof fails to satisfy the Doctor, so he tries another. This one is about as extraordinary as that about the wonderful falcon; but what concerns us is that in it an "adorned doorway" (199) is mentioned. The narrative, says the Doctor, must have been written before the year 835, and therefore adorned doorways were used in Ireland then, if not much earlier, therefore the adorned doorways of Kildare and Timahoe towers may be so early as the ninth century. All these, we grant, but deny that thereby the eras of the towers are decided; the doorways may be after-works, as we have already shown; the doorways do not fix the eras of the towers, neither do the mere words "adorned doorway" show that the style of the doorway mentioned in the story and the one in the round tower at Kildare, is the same, for the one in the church may have been, according to the story, of any age earlier than the ninth century.

In the story the "adorned doorway" is styled "the ancient door" as well. Observe that the story states it to have been ancient when the narrator lived, that is, not later than the year 835; then if Dr. Petrie's argument prove anything respecting the round tower doorway, it would prove it to be ancient also in 835. Yet the Doctor declares "that the original construction of the tower . . . could not, with any fairness, be referred to a later period than the erection of the ornamented doorway of the church"; the age of the church door being, as we have pointed out, unknown; it is merely stated to be ancient in 835, so, according to this evidence, the tower was ancient in 835.

Let us assume that the falcon story, and the nun story, and the "adorned doorway" story, are true, and see what can be gleaned from them; let us, in short, grant Dr. Petrie all he can ask, so far as his premises are concerned, and still his conclusions are failures. If a falcon frequented the tower of Kildare in the fifth century, that does not show that it was in that century the tower was built; it may have been many centuries old then. And if a bell was hanging in that tower in the seventh century, that does not show when the tower was built. Neither does the statement that there was an adorned doorway in the Kildare church in the ninth century, and the assumption that there was a doorway in the same style to the tower, show when the tower was erected. What we want to know is, When was the tower built? None of these stories answer this question; none of them show the origin of the tower.

It can hardly be credited that after all these vague attempts at fixing the age of these two towers, the Doctor positively asserts that he has shown the Timahoe tower "to be a building not earlier than the ninth or tenth century" (419); and of course, as he considers the Kildare tower to be of the same age as the Timahoe one, the Kildare tower is also, in his estimation, of the ninth or tenth century. It is really distressing to have to wade through such a tangled mass of contradictory and inconsequent arguments and assertions.

Kildare and Timahoe doorways are the only richly-ornamented ones to any of the towers; they are in the style usually called Anglo-Norman; that style is considered to have originated at the end of the eleventh century, but that age does not suit Dr. Petrie. We have seen that he assigns the ninth, the seventh, or the fifth century as the probable time for these towers, which he considers to be "coterminous" (234); he traces the peculiar style of ornamentation to even so early as A.D. 290 (233)—this latter era being a Pagan one, so far as Ireland is concerned—and so overthrows his assertion of the Christian origin of these towers. We beg the reader to bear in mind that there are only these two towers with the Anglo-Norman style of doorways. The re-erection and restoration which the towers underwent after the Danish ravages, are sufficient to account for these exceptional entrances.

Another mode the Doctor uses for proving the origin of the towers is by comparing their architectural details with those of ancient Irish churches. This is a form of proof which is open to serious objections; but we waive them, because the proof which is given is so weak that nothing more is required to upset it than to point out its feebleness. The Doctor informs us that no proof can be had to fix the date of any ancient church, owing to "the general absence of distinct notices of buildings in the ancient lives of the Irish saints, and the extreme meagreness of the Irish annals anterior to the tenth century" (380). Hence he states, "We are without absolutely conclusive historical evidences to prove the age of such churches" (241), for "the annals relating to those early times are so brief and meagre, that they preserve to us little beyond the dates of battles and the deaths of distinguished persons" (221). Under these circumstances, the age of old churches has to be taken on the Doctor's word. Thus Templepatrick can, he thinks, scarcely admit a doubt of its being as old as the time of St. Patrick (164). Again, Rattan church is probably of the same period as Rattoo church, and he does not know at what time Rattoo church was erected (169, 170), so the ages are determined. "There is no reason to doubt," "appears to me," "every reason to believe," "if I am not in error," these are the forms of expression with which he prefaces the ages he assigns to churches. Such expressions are no proofs; the churches may be very ancient, or they may not; but clearly the Doctor can give no proof of the age of any one of the ancient Irish churches, nor have we ever known any person who could; and if the ages of the churches cannot be determined, the ages of towers are, so far as comparison can be used, in the same uncertain state.

That many of the Irish churches which appear to be very ancient, have doorways and also windows of the same style as those of the round towers, is plain; but we deny that these facts prove the two classes of buildings to be of contemporaneous erection. The sloped sides of the doorways of the towers are proper for them, so much so that every tower doorway has sloped sides; but sloped sides are not suitable for an upright-walled building, such as a church; in this case upright sides are proper. Very possibly the sides of church doorways were sloped in imitation of the doorways of towers; we know that mankind are prone to imitation, and more especially to the imitation of what has acquired a sacredness from age and having been used for religious purposes; even now we imitate the heathen styles of Greece and Rome, as well as the Christian styles of "the dark ages." The ancient Irish may naturally be supposed to have been, like ourselves, of an imitative character; if they were, and the towers were very ancient and sacred, the ancient churches would be built in the same style, and so sloped sides be given to church doorways.

Another proof the Doctor brings forward that the towers are of Christian origin, and were erected for bellfries, is, because in some parts of Ireland they are called "clotheachs," that is, he says, bell-houses. The meaning of the word clotheach is not a bell-house; *cloc* signifies a stone. The meaning, therefore, is a stone house or building.

There are many extracts quoted by the Doctor from the ancient records in which the erection and other circumstances connected with clotheachs are mentioned. These, the Doctor insists, relate to round towers, but he admits that he cannot be always certain. Thus a clotheach is mentioned as having been erected at Annadown, in 1238: but as this building is gone, the Doctor cannot tell whether it was round or square; but if he cannot tell whether this Annadown building was a round tower, how can he tell about the others? The name, we see, is no help; even a stone hut or some such building is called a clotheach (372), and a castle or palace is called by the same name (373), clearly showing that a stone house or a stone building is what is meant by the word clotheach. Thus the Doctor's proofs of the Christian origin of the towers are the very reverse of satisfactory.

The uses Dr. Petrie assigns for the towers are bellfries and castles. They would not answer for either purpose. Lynch, who wrote about two hundred years ago, started the idea of their being bellfries. That bells have been hung in some few of them, as at Castledermot and Cloyne, we are aware; but the towers had to be altered to make them answer. Many things will be turned to purposes they were not originally built for, and certainly the towers are not at all adapted for bell-houses; hence we find either separate bell-towers, as at Swords, or else bell-cotes on the gables of the little churches that are found grouped with the towers. The only ground for supposing the towers were erected for bell-houses would be their fitness. And, if they were fit—which they are not—why erect a bell-tower or bell-cote beside them?

For castles, keeps, or places of strength, they are

totally unfit: the doorway has no defence; the doors in them were hung on the inside of the wall, and had little or no fastening; they could have been forced with the utmost ease, and, once forced, what were they like?—mere chimneys; a bundle of straw would set fire to the tower from bottom to top. The Doctor tells us the boys used to light a fire in the one at Cashel when they wanted to smoke out the birds (84). Strange castle, that the smoke of a few brambles and weeds would fill to suffocation!

That the Doctor can make mistakes in his description of churches we have an instance in that of Killaspughrone, a ruined church, situated on a small knoll, on the margin of the Bay of Sligo, in a very lonely and wild locality. Dr. Petrie says that—

"It appears of great antiquity, and may be well supposed to be the original structure erected for Bishop Bronnus by St. Patrick."—(179.)

But the Doctor gives no proof that St. Patrick erected any church there. This is a serious omission; and if this omission were supplied, we should next require a proof that this present church is the ancient one erected in the fifth century.

Dr. Petrie has given an illustration of the doorway; it is plain, vertical-sided, with a semicircular built head. This head is now gone. The doorway is of cut stone, with a reveal six inches in thickness. The wall is three feet thick, and the upper part of the doorway is a built arch of very low curve. Such an arch, we understand, is generally held not to be older than the twelfth century.

The Doctor also says that this church "is of small dimensions." The outside measures are, fifty-five feet long, by twenty-two and a-half feet wide; not a small-sized church for a thinly-peopled locality, in a wild country district.

The Doctor asserts that, with the exception of the doorway, "the church is of rude construction." Such is not the case: the church is very well built, and the eastern window is greatly superior in execution to the doorway: it is, in fact, a very beautiful specimen of cut stone work. On the outside this window consists of four stones, of about four inches in thickness; two large ones from the top and bottom, and two others the sides. The size of the opening is twenty-one inches high, by eight inches wide; the upper stone has a semicircular top for the window cut out of it. On the inside the window splays laterally to a width of thirty inches, and vertically to fifty-eight inches; the head of the window on the inside is semicircular, and is of cut stone. The whole is most beautifully wrought; and, as the stones which form the head are of one size, and the lines of junction radiate to the centre of the semicircular head of the opening, the effect is very good. The material is a hard siliceous sandstone. To us, the doorway seems very commonplace, while this window, from the excellence of its workmanship, and its very small dimensions, is an object of much interest. There are no side windows; there are the remains, very much injured, of a small window at the western end, so that this church must have been nearly dark. Why the Doctor represented the doorway, and overlooked the much better executed window, nay, even asserted that the church was of rude construction, is to us a matter of surprise, and on his part a mistake.

To be continued.

#### ROYAL IRISH ACADEMY.

A MEETING of the academy was held on the 9th inst., in their house, 19, Dawson-street.

The Very Rev. DEAN GRAVES, President of the Academy, in the Chair.

After preliminary business Mr. Samuel Ferguson read a paper "On Inscribed Stones in a Sepulchral Monument in Brittany."

Doctor Wilde, vice-president of the academy, exhibited, and brought under the notice of the meeting a large collection of Irish gold ornaments, which had been purchased for the National Museum under the Treasure Trove regulations during the past year. One of the most remarkable specimens was, he said, a hollow globular gold bead, three and a-half inches in diameter, formed of two hemispheres soldered together, and weighing two oz., seven dwts., ten grs. It formed a portion (and was, probably, one of the largest beads) of the great gold necklace found near Carrick-on-Shannon in 1829, and described in the *Dublin Penny Journal*, and also in the catalogue of the gold articles in the Royal Irish Academy, part III., page 5. It forms the seventh in the academy's collection of the eleven balls originally found, and was for many years in the possession of the late Sir Francis Hopkins, in the county of Westmeath. It was procured through Mr. West, who has always manifested a laudable desire to benefit the academy's museum in every respect. Two large golden fibula, with cup-shaped extremities—the one weighing six ounces fifteen dwts., and measuring five and a-half inches long,

the other five oz. eighteen grs., and six and a-half inches in length. The former massive specimen is in remarkably fine preservation, and was for many years in the possession of the late Mr. Law, of Sackville-street, from whose successors, the Messrs. Johnson, it was procured. The latter was obtained through the Messrs. Neil, of Belfast, who say they purchased it from a dealer. The history of both is unknown. They make the ninth and tenth specimens of this description of ornament in the academy's collections, in the catalogue of which they are described at p. 57, as *Maninillary Fibulae*. A small but very perfect fibula, with flat, circular discs, and a highly decorated bow, similar to that from which figures 598, No. 30, at p. 71 of the museum catalogue was drawn. It weighs 1 oz 7 dwts., and was procured from Mr. Donegan. A similar article without the discs. Three specimens of so-called "Ring money." Several gold filletas, averaging three-eighths of an inch wide, and elaborately tooled upon one surface. Four golden mamillae, three of which have cupped extremities; and were, with the curious gold ornament described at p. 96 of the recently-published catalogue of gold articles, found in the plain beneath the Rock of Cashel. A string of nine tubular gold beads. A gold lunula, similar to these in the academy's collection, and specified in the catalogue, from p. 10 and 19. The two articles of most interest, however, are the Gorey and county of Down Torcs, which have been procured for the academy within the last few weeks, and for which we are indebted to our indefatigable librarian. The history of the Gorey torc is as follows:—In sinking a quarry in that parish for railway purposes, an old ditch was cut through. A short time subsequently some children playing about the mouth of the quarry observed something bright in the face of the ditch, and drew out, in a very perfect state, a fine torc of remarkably yellow gold, and which then must have measured 28 inches in circumference, and probably weighed 14 oz. It consisted of a solid quadrangular bar of gold, twisted like No. 190 in the academy's collection. The hooked extremities were rounded, and the diameter of the article was 7½ inches; so that it was evidently a *muin*, or neck torc of very elegant proportions. The poor man to whom the children brought home this valuable antiquity brought it to a person in Gorey, who pronounced upon the nature of the metal, and, it is said, advised the owner to cut it up in order to conceal it from his landlord or the Crown, and for the greater facility of disposing of it. It was accordingly chopped into nine fragments, eight of which averaged about three inches long, and the ninth was a small fragment cut off the end of one of the circular hooks, weighing not more than a few pennyweights, and which I have reason to believe is still in existence. The torc having been chopped up with a cold chisel was then brought up to Dublin and sold in its mutilated condition to Mr. Donegan, who having been erroneously informed that the academy were not in funds to purchase such articles, committed a fragment of it to the smelting pot. When he was waited upon by our librarian he at once, on the most liberal terms, sold it to the academy. Since then I have had it repaired with great success by Mr. E. Johnson; its present weight is 12 ozs. 10 dwts. Now had the peasant who found this article been acquainted with the Treasure Trove Regulation and brought it in an unutilated state to the police, or to the academy he would have received the full value of the article, both intrinsically and according to its state of preservation, as an article of antiquarian interest, and the academy would have had one of the most beautiful articles of its kind which has yet been discovered. I sincerely hope that this notice of the Gorey torc may be widely circulated in order to prevent the further destruction of valuable articles when found, and in the hope of inducing the finders of such to bring them under the notice of the Government, or directly to the academy, where they may rest assured that they will be fairly and liberally dealt with in receiving the full value of the article, and being moreover secured from any proceeding which might be instituted against them. The last article of this class which I have to bring under the notice of the academy is the Belfast torc (said to have been found in digging an old ditch in the county Down) which the Committee of Antiquities procured through Messrs. Neill, of Belfast. It is by far the most curious article of its class which has as yet been discovered in the country, and substantiates in a most remarkable manner the fact that gold was manufactured in Ireland, for it is still in an unfinished state, and was in fact in process of working when lost. It is a three-leaved torc, which, when brought to the jeweller, consisted of two fragments, but which was further broken in his establishment, and when it came into our hands it was in a very shattered condition. Under the skillful management of Mr. Johnson it now forms a perfect whole, 32 inches in circumference, and about ¾

of an inch wide, and weighs 5 ozs. 12 dwts., 6 grs. The terminal hooks are circular, as there is reason to believe the whole was originally. It was then cut longitudinally and hammered out into three bands or ribbons, each about three-eighths of an inch wide, but retaining their integrity in the centre, as was demonstrated by a careful examination of the sections of the fragments into which it was broken when we became possessed of it, and which did not exhibit in any portion at the junction of these bands the slightest trace of solder or other mode of joining. It was then slightly twisted, and might, in the opinion of our jewellers, be given the same twist as that of the Tara torcs, by filling the triangular space between the fillets with lead or some other ductile metal. When the Tara torcs were first described to the academy it was believed both by antiquarians and jewellers that the leaves or ribbons of which they were composed were soldered together at the inner edges, and then twisted; but after the most careful examination of this county Down torc it is quite apparent that the process of torc making was as I have described it.

The secretary read a paper by F. J. Foot, Esq., "On the Storm of the 29th October, 1863, as observed at Ballinasloe."

The several papers were referred to the Council for publication.

#### ALLIANCE BUILDING SOCIETY.

On the evening of the 9th inst. a public meeting in connexion with this society was held in the theatre of the Mechanics' Institute, at eight o'clock. There was a large attendance on the occasion. Mr. John Noble, jun., attended as a deputation from the head office, London.

The chair was taken by JAMES HAUGHTON, Esq.

The chairman briefly introduced the lecturer to the meeting. In doing so he said he saw from a pamphlet issued by Mr. William Chambers, the great benefits which these societies conveyed to the working classes. They helped working men to help themselves. There were 8,000 houses in Birmingham occupied by working men, who built them through means of these societies. He hoped Irishmen would benefit in a similar manner, by using similar means.

Mr. Noble then proceeded to lay the principles of the society before the meeting. They had three great features—an investing branch for shareholders, who could hold any number of shares on which they paid 2s. 6d. per month per share, or which they might pay up in full; a deposit branch for small savings of 1s. and up to any amount on which they gave 5 per cent. interest, and a loan branch, by which they advanced money to build or buy houses, the amount borrowed to be repaid by easy monthly instalment, spread over any number of years the borrower might select. By this means working men might come to possess their own houses after a very few years, and pay no rent.

Mr. Mowatt stated that they had taken offices at 86, Middle Abbey-street, where shares might be taken daily, and all forms be obtained.

Several shares were taken at the close of the proceedings.

#### THE O'CONNELL MONUMENT.

CANON Pope respectfully presents the following paper for the perusal of the members of the O'Connell Monument Committee:—

##### DIVERSITY OF TASTE.

Imagination or fancy is so inseparably associated with taste, that without imagination there can be no taste; but the imaginations of men vary in proportion to their number. therefore, there are as many different tastes regarding any particular work of art as there are individuals concerned. So true is this that were every individual of a vast population to be guided by his own peculiar taste regarding any work of art, it would probably be found that no two out of the vast number would entirely agree in every minute particular. The measure of their variation will be precisely similar to the relative diversity of the sensibility of their mental faculties, and to the difference of their experience, and the exercise of their judgment on works of art.

##### HOW TO RECONCILE THOSE DIVERSITIES.

There are no preconceptions of our minds we more easily yield to the acknowledged superior experience of others than of those which are formed from taste. No matter what opinion our own imaginations may have previously formed of a painting or piece of sculpture, if a superior artist or an amateur in whose judgment we place confidence point out new beauties, we acknowledge and appreciate them; if he exhibit faults we immediately perceive them, though previously unobserved. Our imaginations often err

in their predilections, but are corrected by our own judgments, or the judgments of others, and it is only then we approach the formation of true taste. In reality, the popular character of works of art is generally formed from the criticisms of superior artists or persons of acknowledged experience. This is as it should be—it is the triumph of judgment over imagination, of common sense over fancy.

##### HOW WE MAY PROCEED.

The foregoing principles may be usefully applied in reconciling the differences between the millions who are now interested in the erection of the National Monument to O'Connell. I take the liberty of recommending that the members of the committee who represent the millions elect from their body a small number of gentlemen whose taste and judgment are most likely to command unlimited confidence. The smaller their number the greater their efficiency. That those gentlemen be commissioned to enter into all negotiations necessary to discover the most appropriate character of monument, and the models thereof that shall exhibit the highest available efforts of artistic genius, the committee reserving to itself the ultimate decision. In the meantime that all discussions in the committee shall cease, and that it devote itself solely to the collection of funds.

##### QUALIFICATIONS.

As the merit of the work and the satisfaction to the public must materially depend upon the aptitude of those gentlemen for the duties imposed upon them, and the confidence they will impart, they should be chosen with deliberation. They should possess taste in some degree—be men of tact and business habits—men of decision; but, above all, men elevated above all prejudices and predilections or attachment to particular artists, ignoring every claim but that which superior genius shall present. If they be wanting in this latter qualification we may transmit to future generations a monument that shall have conferred a favour on a friend and a disgrace on the nation. I shall now state what I consider a decided disqualification, and that is, that any one should be an artist. No artist should be selected. The more eminent his artistic talents the more rigidly would I exclude him. His opinion would be arbitrary and paralyse the free action of the others, as no non-artistic gentleman would venture to contravene his authoritative decision. I beg my many esteemed friends amongst the artists of the city may not take umbrage at my conveying this advice. If I dread them, it is because their superior abilities enable them to wield an overwhelming influence. They are powerful because more gifted than their fellow-men. If, under these circumstances, the committee reject them, it should rather be regarded as complimentary to their professional acquirements. The counsel and advice of artists should by all means be courted.

##### CONDITIONS OF COMPETITION.

Plans, designs, specifications, and estimates are sources of endless misunderstandings, disputations, and contentions, and in no instances are they more liable to originate than in competitions for works of art, if the conditions between the contracting parties be not defined with the utmost exactitude. In soliciting designs, then, for the O'Connell monument, the committee will require to define, with great minuteness, the conditions on which designs shall be admissible for competition, and on which the most meritorious shall be entitled to prizes or other remuneration. Having been defined, determined upon, and published, the conditions should be undeviatingly adhered to, and subsequently enforced with the utmost rigidity. By any deviation from them, the committee may unintentionally allow an unfair advantage to one artist and inflict a positive wrong on another. As an example of the rigidity with which similar conditions were enforced on the occasion of the competition for designs for the Wellington monument, I shall adduce the case of Mr. G. G. Adams, of Sloane-street. After the very successful exercise of his genius—after the employment of much time, labour, and considerable expense, he presented a model which elicited general admiration from the committee and competing artists; but on being measured, it was found that he inadvertently allowed the plinth to project one inch beyond the prescribed dimensions of the reduced scale, and it was consequently pronounced inadmissible. The decision may be regretted on account of the artist; but it must be approved of as just—the conditions limited the dimensions, and he exceeded them by an inch—the rejection of his beautiful model was convincing evidence of a highly business-like transaction.

##### PROBABLE COST.

If the committee determine that a statuary group

shall constitute the monument to O'Connell, the probable expense must then be estimated in proportion to the size and material, and number of figures. There are three sizes of statuary figures known to sculptors as the life size, the heroic size, and the colossal size. The first, or life size, it is unnecessary to explain. The second, or heroic size, is that of any figure between life size and seven and a-half feet, or under eight feet in height. Any figure of any height above eight feet is designated as of the colossal size. If the material be bronze, the gentlemen of the committee will require to satisfy themselves, on competent authority, that it is bronze of superior quality—for bronze, like most materials, varies very considerably in quality and value, and consequently in price. Without professing to estimate with great precision, I calculate that a bronze statue of superior material, and standing from 12 to 15 feet in height, will probably cost £2,500. The supplementary figures, of which there may be four, will cost about £1,000 each; and I think I do not over-estimate the cost of the pedestal in calculating it at £3,000. These, with other incidental expenses, would give £10,000 as the probable cost of the entire work. I am of opinion it would not be prudent at present to speculate on the contributions realising a larger amount than £10,000.

##### EXPRESSION AND GESTURE.

When we may be called upon to make our final decision by selecting one from the various modelled designs that will be presented before us, we should be careful not to commit an error into which many have fallen—that of mistaking a forcible expression of the passions, extraordinary emotion, oratorical excitement, or extravagant gesture, as triumphant proofs of exalted genius. They are false criterions of merit. They are ignored in the school of the antique and classic style. They are never the emanations of the highest culture, but are the creations of a vitiated taste. Calmness and repose are ever the domain of the dignified and sublime. The expression of dignity is ever inseparable from tranquillity. Tranquillity is the middle state between pleasure and pain, and within its limits alone is found the seat of dignity, neither elated by the one, nor depressed by the other. The most remarkable example with which my memory just now serves me, as illustrative of the accuracy of these observations, is that treasure of the antique, that most triumphant effort of Grecian art, the statue of the Laocoon in the Vatican Museum. No effort of the human mind can conceive an accumulation of mental agony and excruciating bodily suffering more revolting, and calculated to convulse the muscles and nerves, than that two enormous hideous serpents should creep up out of the sea, encircle the bodies of the father and his two beautiful sons, crush them within their tortuous coils, gnawing through their very vitals, and emitting their baneful poison into the crimson tide of life. Nevertheless the gigantic genius of the artists, guided by the classic taste of ancient Greece, introduces no extravagant gesture, no distorted writhings, no exaggerated expressions of agony. No, the noble father is represented as if endeavouring to subdue the expressions of excruciating pain, which are involuntarily escaping from the marble countenance, and, by a vigorous effort to preserve tranquillity and calm resignation, display a fortitude which elevates his soul above all his accumulated woes. No expression of suffering or vivid display of the passions could convey so exalted an idea of dignity; and by thus treating their subject they afforded the most convincing proof of their genius, and achieved that greatest triumph of art which has crowned with immortal fame the three artists of Rhodes who executed it—Polydorus, Athenodorus and Agesandrus. Whilst gazing on that prodigy of art, we shudder at the mere idea of being subjected to such a climax of agonizing woe, and at the same time we almost envy the trying condition of the Laocoon, which afforded him an opportunity of manifesting such generous resignation, such dignity of deportment, such nobility, and sublimity of soul! So should it be with the treatment of the monument to the illustrious Tribune, whose memory we intend to transmit to future generations. He spent a lengthened life in vigorous efforts to disengage himself and his Irish children from the tortuous coils of his country's wrongs, which crushed his body and agonized his soul. He should then be represented tranquil, imperturbable, unchangeable under every opposition, indifferent to every favour, immovable under every assault, insensible to every emotion of pleasure or pain, elevated in sedate grandeur above all the fluctuating vicissitudes of his country's destinies arrayed in noble simplicity, displaying in repose a magnanimous fortitude, fearless, unswayed, and ever calmly hopeful of his country's regeneration! I take the liberty of suggesting this as my idea of the true expression of dignity and classic taste.

## CARVING IN WOOD.

WE have on several occasions noticed some excellent specimens of wood carving executed by our townsmen. A few days since we were much pleased with a view of a chimney-piece carved in oak, executed for an enterprising firm in this city, from a design by Mr. Lanyon. As it will shortly have to be removed to its destined quarters, we would strongly recommend patrons of native talent to call on Mr. Henry Jaques, of No. 6, Upper Abbey-street, who will allow an inspection.

## MEMORIAL TO THE LATE ARCHBISHOP WHATELY.

It is proposed to erect a chancel and stained-glass window in the parish church of Stillorgan in memory of the late Most Reverend Richard Whately, D.D., Archbishop of Dublin and Glandelagh.

His grace resided in the parish of Stillorgan for twenty-eight years. The family burying ground is attached to the church.

## THEATRE ROYAL.

## LORD DUNDREARY.

ALL the world of London play-goers were for 396 nights consecutively literally "running after" Mr. Sothorn, the impersonator of an ideal addle-pated, foppish, semi-idiotic nobleman, and as a consequence, this hitherto obscure stock actor has been transformed into a star of the first magnitude—amassing within a comparatively brief space, a large fortune, which many artistes of transcendent abilities in the higher walks of the drama could not, even after years of study, labour, and perseverance, approach to.

The *most* that can be said of Lord Dundreary is, that he is at once intensely original and superlatively ridiculous in his feigned stupidity, but to associate the term *ability* with so ludicrous an impersonation, would, indeed, be a bad compliment to those who aspire to a claim therefor in a more legitimate role. Mr. Sothorn's success must be mainly owing to the degeneracy of the public taste, and the growing predilection for what is termed "humbug," which, the more barefaced it is, goes down all the better. Curiosity here, as in London, drove the people to see him *once* at least, but having judged the performance on its merits how few would care to go *again*? We apprehend that the Dundreary sensation will be short-lived; nevertheless we should be glad to find the lessee well re-compensated for his enterprise in subjecting his lordship to the criticisms of a Dublin audience.

We understand that active preparations are being made for the production of the Christmas pantomime on a magnificent scale.

## RAILWAY NEWS.

**CLONEL AND THURLES RAILWAY.**—A meeting of the General Committee was held in the judge's chamber of the court-house, on Thursday week last. The vice-chairman, William Going, Esq., J.P., occupied the chair, and there was a very full attendance of the other members of the committee. In this district the promoters have received much satisfaction from the liberal manner in which the matter has been supported by the landowners of the district intended to be traversed, and of other persons interested in the formation of the line. The Irish Land Company, who possess large estates in this county, has subscribed for a considerable number of shares. The proprietors have also expressed their intention of taking shares to the full amount of the value of their land, twenty-eight acres, taken for railway purposes. The Mining Company of Ireland, who work the extensive collieries of Slievardagh, will, in a few days, send down their secretary, to make a special report of the advantages that will accrue to their property from the making of the Clonmel and Thurles line. This information is deemed necessary in order that the company may determine to what extent they will support the undertaking. The engineers of the Great Southern and Western and the Clonmel and Thurles railways met lately, for the purpose of considering the best point of junction for the two lines; and they have mutually agreed upon the precise locality, which will avoid any future difficulty in this matter. So far, the prospects of the proposed line are very promising, and we trust are long to be able to congratulate our townsmen on the progress of a work which must inevitably tend to promote our industrial resources and benefit the locality.—*Clonmel Chronicle*.

**TRALEE AND FOYNES RAILWAY.**—The greater part of the proprietors and lessees along the line have already sent in their assents to take the terms

for the purchase of land required by the promoters; and the others outstanding are known to be favourable. At the present sessions held at O'Dorney and in Listowel, resolutions were unanimously adopted in favour of the guarantee of £4,000 a-year, apportioned by the Grand Jury.—*Kerry Evening Post*.

**PROPOSED RAILWAY FROM INNISKEEN TO CARRICKMACROSS.**—The engineer, Mr. James Dillon, C.E., reports that "The length of the proposed line will be only 6½ miles. The country seems to have been almost made for a railway, there being no engineering difficulties of any kind to contend with. There will be no deep cuttings or high embankments, no bogs, no viaducts—so there is nothing to prevent this line, when made, ranking among some of the cheapest lines yet constructed in Ireland. The traffic on the high road between Carrickmacross and Dundalk is so great that it would astonish many people not acquainted with the neighbourhood; but it is well known that it is one of the most thickly populated districts in Ireland, and this may in some degree account for it; but, however large the traffic of a district may be before it is intersected by a railway, experience has shown that in a very few years the effect of the railway is to increase it three, four, five, and in some instances, tenfold. As an illustration, the engineer mentions that the Cork and Bandon line when first opened made only £9 per mile per week, and is now making £17. Your committee some short time ago employed men day and night to collect traffic returns, and the engineer finds on examining them that if the traffic on the high road between Carrickmacross and Dundalk were to pass over the proposed line it would yield the company £2,359 per annum. The returns were taken before the alabaster mines were opened. Therefore, it can scarcely be doubted that the present traffic would double itself in eighteen months after the opening of the line, producing about £4,000 per annum; deduct from this forty per cent. for working and managing expenses would leave a balance sufficient to pay five per cent. on £48,000, a sum we consider more than sufficient to make the line." Mr. Dillon concluded by stating that he had been in communication with Mr. Hemans, C.E., and with Messrs Newton and Armstrong as to the terms upon which the railway would be constructed.

**ARMAGH AND COOKSTOWN RAILWAY.**—This projected line of railway is intended to pass through the parishes of Grange, Clonfeacle, and Killyman, and then form a junction with the Portadown, Dungannon, and Omagh Junction. The proposed line may be regarded as a continuation of the Newry and Armagh line on the one side, which will have its legitimate termination at Greenore on the other.—*Armagh Gazette*.

**LOUGH SWILLY RAILWAY.**—The Government Inspector has been over the line, and has suggested some alterations as to a viaduct instead of a flat crossing.

Notice has been given of a new line of railway starting from Exchequer-street and running through Rathmines, Rathgar and Roundtown, terminating beyond Rathfarnham. That this railway would be of vast importance to the district through which it is intended to run, the most thickly populated of the suburbs of the city, there is no doubt whatever, as places now nearly an hour from the city would be placed within a few minutes' communication of it. It is stated that it can be constructed at a cost of £10,000 per mile. The removal of the very poor class of house property of which Exchequer-street is chiefly composed, and the substitution of wider communication between two principal streets (viz., Grafton-street, Georges-street) via Wicklow-street, would unquestionably be a great civic and sanitary improvement.

## Public and Private Works.

A neat and well-executed monument has been placed in Mount Jerome Cemetery, by the friends and associates of the late Mr. John Dillon, for thirty years an upright and consistent member of the Printers' Society, as a small testimony to the worth of one who, in the various positions it was his lot to fill, endeared himself both to his fellows and to his employers. For the past seventeen years he held the arduous position of overseer of the University Press office in this city.

The church of Raymunderdoney, Co. Donegal, is to be enlarged and improved, under the directions of the architects to the Ecclesiastical Commissioners.

It is intended to enlarge the church of St. Teresa, Clarendon-street, longitudinally, and also to add a transept 46 feet by 30, which will open into the body of the church by a lofty arch 36 feet in height springing from coupled Ionic columns and entablatures. The transept will have an elliptic groined

ceiling springing from trussed brackets. Adjoining the transept will be a spacious entrance porch, sacristy, hall, oratory, &c., with a neat campanile rising to a height of 80 feet, surmounted by a large cross. Over the transept and the extension of the church will be continued the corridors and apartments as in the present construction, Mr. Bourke is the architect.

## General Items.

We have seen a beautiful specimen of photographic engraving on steel—in other words a photographic picture on steel—effected solely by the agency of light acting on certain chemicals. The specimen (it is stated by Mr. Fox Talbot) is quite untouched. It represents an exquisite scene in Java, a ravine and rivulet fringed with banana trees. Not the least wonderful circumstance connected with it is, that at least 5,000 copies can be taken before the plate deteriorates.—*Athenæum*.

A Glasgow paper announces "for sale, by private bargain, the wonderful organ of James Watt, the illustrious inventor of steam, made by his own hands for his own amusement, in the city of Glasgow, nearly a hundred years ago."

The Annual Exhibition of Modern Art has been open for the last few weeks in the saloons of the *Societa Promotrice*, at Florence. This is the nineteenth exhibition of the Society, and it is by no means discreditably to Italian Art. A large proportion of the pictures are full of promise, even while crude and sketchy in tone, and not a few are of no common degree of merit both as to conception and execution.

The new telegraph line by Cape Clear came into operation for the first time on the 8th inst. The officials of the Magnetic Telegraph Company boarded the Inman extra steamer the City of Limerick, off Cape Clear, and telegraphed the intelligence. This new line virtually places New York six hours nearer to London.

In connexion with the proposal for forming a proper harbour of refuge in the neighbourhood of Kingstown, it is important to know that Mr. Nimmo, the celebrated engineer, expressed his opinion that the harbour should be constructed at Dalkey, the pier being constructed on the islands and passing round a large space until it reached Bullock. The space thus enclosed would have held all the ships in her Majesty's navy, there would have been a great depth of water at all times, and the holding ground is excellent.

A course of lectures on Zoology is to be delivered in the Theatre of the Museum of Irish Industry, Stephen's-green, by John Morgan, F.R.C.S.I., commencing on Monday 23rd inst.

## Miscellaneous.

**PATENT.**—We understand it is in contemplation by a gentleman in this city to take out a patent for what he calls the pneumatic propeller, by which he proposes to accelerate cars, carriages, and waggons carrying a burthen of from one to three or four tons. If he can bring it into successful operation, the cabs, cars, hackney coaches, and coal drays will be propelled through our streets by air. He seems confident that he will succeed.

**BELTUBBET CHURCH.**—A new front, the gift of the Rev. Andrew M'Craith, has been placed in this church. It is a handsome specimen of Armagh marble, obtained in a quarry belonging to his Grace the Lord Primate, and executed at the establishment of Mr. M'Cullough, of that city. The style is perpendicular Gothic, with bold mouldings, and rich cusped pannels, highly polished. The colour of the marble is a darkish red.

**KINGSTOWN HARBOUR.**—The house for the Light-keeper on the West pier has just been completed, and reflects much credit on the contractor, Mr. Charles Stapleton. It is constructed of granite, procured and worked on the spot.

**PRINCE CONSORT MEMORIAL.**—A meeting of the committee was held on the 13th inst., at 35, Dawson-street. Present—The Right Hon. the Lord Chancellor, the Right Hon. Joseph Napier, the Right Hon. J. D. Fitzgerald, Very Rev. Dean Graves, Captain Lindsay, D.L.; F. W. Brady, Q.C. A letter in reply to one written by order of the committee was received from Mr. Foley, R.A. stating that he would use his best endeavours to carry out the execution of the memorial in a manner worthy of the high character of the subject. He would visit Dublin at the earliest possible time, and avail himself of an interview with the committee.

**MOUNTMELICK.**—In our last number we gave illustrations of the new National Bank-house, and of the Town-hall, in this town; from our contemporary, the *Leinster Express* we take the following additional particulars;—"Many years ago the above town was celebrated for its manufactures and other branches of trade—at one period, we believe, there were upwards of 1,000 laboring weavers residing in it)—but through various causes it fell into a chronic state of decline. Latterly, however, through the exertions of some members of the Society of Friends, ably seconded by F. J. Power, Esq., manager of the National Bank, it has shown symptoms of revival. A "Mutual Instruction and Library Association," established many years since, has contributed to the intellectual development of its members; and it must be no small gratification to its founders to feel that they have successfully aided in the diffusion of knowledge amongst all classes of their fellow-townsmen. The library of the institution is well stored with works on subjects which have attracted general attention. Taking advantage of the introduction of the "Towns' Improvement Act" into Mountmellick, a gas company has been established on the limited liability principle, and the speculation has proved most remunerative in a monetary point of view. The new National Bank, in the main or market street, is a handsome and ornamental building, adding greatly to the beauty of the town; and is generally admired for its massive, but elegant, style of architecture. Following the example set them by the bank directors, and anxious to improve their town, a few gentlemen of Mountmellick formed themselves into a company under the chairmanship of Mr. Power, and they have erected a new town-hall, which is a tasteful and classic building, and will be found most convenient for all public purposes. The Mountmellick reading-room is already amalgamated with the town-hall; and it is proposed to open communication with the different public lecturers in Ireland to deliver from time to time courses of lectures on subjects connected with social progress and intellectual advancement. The erection of the new National Bank and new town-hall, which have been

built under the superintendence of Mr. Caldbeck, architect, of Harcourt-street, Dublin, by Mr. James Scanlan, of Listowel, who has certainly completed his contracts in a most satisfactory manner, has so earned for the latter the approval of the bank directors they have entrusted to him the erection of their new bank-house at Roscrea.

**CHRISTIAN BROTHERS' SCHOOL OF ART CORK.**—The annual examination and distribution of prizes in this school took place on Thursday last. The distribution of prizes was made by his Worship the Mayor, and the proceedings were attended by a large and fashionable assemblage, in which, we believe, every section of the community was represented. The examinations were held in the new art school, upon the walls of which were arranged the works of the pupils in the present and past years. These works were very numerous, and formed no inconsiderable ornament to the room. They were inspected with great interest by the visitors. At the upper end of the room, upon a raised platform, were placed several beautifully executed diagrams, used to illustrate the subjects of the examinations, and upon a table in front were displayed the prizes to be distributed. They consisted of handsome books, and, principally, of valuable cases of drawing instruments, palettes and brushes, boxes of paints, &c. The proceedings commenced at one o'clock, but before that hour the room was crowded to excess by visitors. The mayor occupied the chair.

**NEW DIVING APPARATUS.**—At the last sitting of the French Academy of Sciences, a new apparatus for enabling persons to remain under water, or in places filled with deleterious gases, was described. The apparatus consists of a piece of wood having the form and dimensions of the human mouth when open. To this piece of wood two india-rubber tubes are fixed, of any length, according to the exigencies of the case. The man engaged in the operation is further provided with a nose-pincher, or instrument for compressing the nostrils, so as to prevent the introduction of the deleterious gas or of water, as the case may be. The operator puts the piece of wood into his mouth, and puts on the nose-pincher; he stops up one of the orifices with his tongue and

inhales pure air from the other; after which he shifts his tongue to the latter orifice, and inhales his breath through the other. He continues thus regularly shifting his tongue from one orifice to the other in the order of the inspirations and expirations; but even a mistake would be of little consequence.

**WASHING ESTABLISHMENTS IN PARIS.**—The following are the details of a plan proposed for the founding of these establishments: Four large buildings are to be erected at the extremities of Paris, so situated as to afford an easy communication with a portion of the city, and a hundred receiving-houses are to be established throughout the various quarters of Paris to receive the linen to be washed. A service of covered vans is to take the linen from the depots to the washing houses. There the linen is to be washed, dried, and returned to the depots within twenty-four hours. In case of any complaint, a book is always to be kept at each depot to receive it, and an inspector is to attend daily to investigate it. The servants in the depots are to be forbidden to receive money, but are to be paid for the washing in stamps, to be called washing stamps. The washing is to be performed in the best possible manner, under the eye of special inspectors, who will take care that no injurious ingredient is used, or any process employed calculated to injure the linen given to be washed.

**TELEGRAPH STATION AT ATHY.**—The Town Commissioners have taken steps to have a telegraph station re-opened at Athy.—*Leinster Express*.

To soothe the sufferings of humanity and ameliorate the pangs of disease, are the grand objects of medical science. This is efficiently demonstrated in the curative virtues of LEA'S GOUT AND RHEUMATIC PILLS, advertised in our columns. The cures effected by this invaluable medicine would fill volumes.—*Daily Telegraph*.

DUBLIN BUILDER OFFICE, 42, Mabbot-st.

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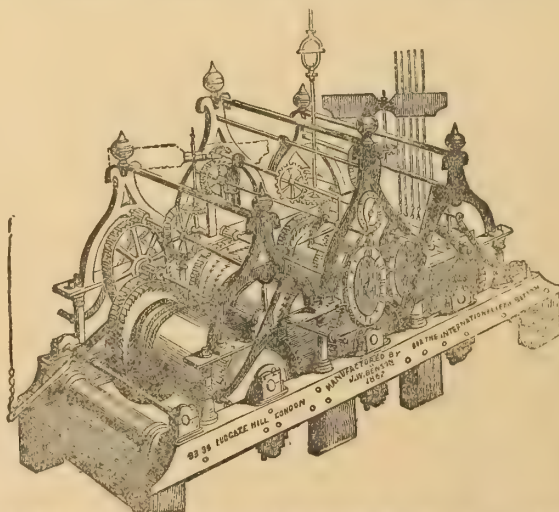
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### BENSON'S ARGENTINE SILVER.

The *Morning Herald*, October 23rd, speaking of the Plate in the Exhibition, says, "Mr. Benson, who has a Medal for Plate, exhibits some beautiful things."

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Coffee Services, Waiters, Bread, and Cake Baskets, Candelabra, Dishes of all kinds, Epergnes, Claret Jugs, &c.; and which can be seen at the various Establishments of J. W. Benson, whose new Show Rooms contain an immense assortment. A Prize Medal was awarded to J. W. Benson for excellence of manufacture of Argentine and Electro Plate. A Sample Spoon will be sent post-free to any part of the Kingdom on receipt of Thirty Stamps, and an elaborately illustrated Catalogue, containing Three Hundred Engravings and Price-list of Argentine and Solid Silver Plate, will be sent post-free on receipt of Six Stamps.

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# The Dublin Builder.

VOL. V.—No. 95.

## THE DUBLIN IMPROVEMENT BILL.

**H**ITHERTO the powers vested in the Corporation for effecting improvements in the Irish metropolis, for the proper maintenance of its great thoroughfares in respect to lighting, cleansing, draining, flagging, paving, &c., for the removal of street obstructions, for the regulation of its markets, its slaughterhouses, &c., for the razing of its dilapidated and dangerous dwellings have, it seems, been singularly limited and defective. By a bill proposed to be submitted to Parliament next session, it is sought to enlarge those powers in the above, as well as in other regards, and to enable the Corporation to deal more definitely and completely with all matters appertaining thereto. The preamble sets out by stating that, "leave will be applied for for a bill to alter, amend, and enlarge; and if necessary to repeal and consolidate all, or some of the provisions of the Dublin Improvement Act, 1849, and the acts incorporated therewith; and the Dublin Improvement Amendment Act, 1861, to confer further powers, &c."

It also proposed to vest in the Corporation the rights, privileges, &c., now exercisable by the city grand jury, excepting as far their duties in criminal cases are concerned, in finding bills of indictment, &c.

The establishment of properly appointed meat, fish, poultry, and vegetable markets (the want of which have been frequently treated in the columns of the DUBLIN BUILDER), also of improved slaughterhouses *within* the borough (but we hope *outside* the city) will follow as natural consequences of the passing of this bill.

The appointment of a Deputy Surveyor to act during the illness or absence of the City Surveyor is likewise in contemplation; and we need hardly add that such an officer would be indispensable to assist the latter in the discharge not only of his present too onerous duties, but of those proposed to be imposed on him under an enlarged sphere of corporate action. We shall not forestall the judgment of the town council as to the class of men *best suited* for the holder of such appointment, but we apprehend that when the matter comes under consideration due regard will be had not only to competency, but likewise to deserved claims for consideration for public services hitherto rendered to the city in those very departments which will come within the range of his official duty.

Amongst numerous other provisions the bill is intended—

"To regulate the proceedings to be taken on the City Surveyor's report relative to dangerous structures and buildings, and authorise the Lord Mayor to cause such structures or buildings to be shored up, or otherwise secured and lighted for the protection of passengers, and to compel the owner or occupier to secure, take down, remove or repair same, with power on the default of such owner or occupier to the Corporation to do so, and recover expenses incurred by the Corporation in such proceedings from such owner or occupier by civil bill or action.

"To empower the Lord Mayor, in cases where a structure has been certified by the City Surveyor to be dangerous to its inmates, to cause such inmates to be removed therefrom, and, if necessary, received into Union Workhouse.

"To make and enforce further regulations respecting the removal of dangerous and inflammable structures and buildings, and of thatch and other inflammable roofs of buildings, and hay, straw, and other ricks, and to define the relative powers, rights and duties of the Corporation and other bodies and individuals, in respect of the said several matters and the expenses thereof.

"To compel owners of lands and buildings to

sewer and drain the same, and provide sanitary conveniences thereto.

"To make and enforce regulations respecting the condition and occupation of common and other lodging houses, cellars, and underground apartments, the prevention and mitigation of disease, and other sanitary arrangements and improvements."

There are numerous projecting excrescences beyond the defined boundary line of the frontage of some of our most leading thoroughfares (already pointed out by us), which we hope the Corporation will, under the new act, have power to remove; and if not, that they will at least ensure the symmetry of the city façades from being spoiled by such like in future. Altogether we hope, for many previously palpable wants to be supplied by this proposed "Dublin Improvement Bill," and we wish its promoters a smooth path through both Houses of Parliament.

## THE WATERFORD AND WEXFORD RAILWAY AND ROSLARE HARBOUR.

**WE** (*Wexford Independent*) do not recollect any project that has excited such general interest as this; because it is looked on not only as a question calculated to develop the resources of the southern districts of Ireland, but as one of national importance. It has been initiated under the most favorable auspices, and the measure will be supported by the Dublin, Wicklow and Wexford Railway Co., and that Prince of enterprise and self-reliance—William Dargan. The Wexford Harbour Commissioners will also give it their best support, and lately placed their steamer at the service of Mr. Bower, the chief engineer, to take soundings in the vicinity of Greenore, the site of the contemplated harbour. The general design is to establish a line of steamers, connecting the new Roslare Harbour with Fishguard; and to construct lines connecting the different railways in the south and south-east and west of Ireland with each other, so as to take the traffic between these portions of Ireland and England. The Waterford and Wexford Railway and Roslare Harbour (for the latter about £100,000 will be included in the capital) is the first instalment of the great design which extends to Fermoy and Youghal, adopting existing lines of communication, and connecting them with each other into a common point of junction at Waterford River—for the present by a steam ferry, under the powers of the Waterford and Passage Railway Act, and ultimately by a high level bridge at Ballyhack—making one complete system of communication and connection with the Wexford and Fishguard route between England and Ireland. The proprietors, who are English capitalists, do not ask for a single shilling from this country. From all we can learn, there will be no Parliamentary opposition to the measure. Indeed, we do not see how the most ingenious opposition could frame a *locus standi* of any colorable feasibility. To the engineer in chief, Mr. Bower, to Mr. Wellington Purdon, and the staff under their guidance much credit is due for the able manner in which they have executed the high trust confided to them.

## RIVAL METROPOLITAN JUNCTION RAILWAY SCHEMES.

As "it is an ill wind that blows nobody good," we apprehend that some persons will have profitable pickings out of the many projects now on the *tapis*, for uniting, in a central terminus, the railways branching from Dublin—whether they come to a consummation or not. Engineers will not make the requisite surveys and maps for nothing, lawyers are too astute to incur all the trouble and expenditure of preparing "a bill," without being secured in their costs; lithographers, draughtsmen, scribes, &c., must be paid, and so we should not find fault with any legitimate scheme that circulates money amongst those classes, however doubtful we may be as to the want that exists at all for a central railway station, or the soundness of the speculation in a commercial point of view. We have first a scheme for which Mr. R. D. Kane is solicitor, of which the following are the main features:—"a double junction line with the Great Southern and Western Railway, 157 yards east of the King's-bridge terminus, passing, on the one side, through Back-lane, 170 yards distant from Nicholas-street, thence terminating by a junction with the Midland Great Western Railway, 63 yards north of the Broadstone; and on the other through Fishamble-street, near Castle-street across the city to the Dublin, Wicklow, and Wexford Railway, 53 yards from the turn-table under the terminus roof. Communication will be effected between the Midland Great Western and Dublin and Drogheda railways by a junction line with the

Liffey Branch, 6 yards south of Newcomen bridge, to a point 240 yards north-east of lattice bridge over Royal Canal. Tramways are also proposed to be laid down in connection with this line through City-quay, Sir John's-quay, Shaw street, Hanover-quay, Hanover-street, and Creighton-street; Cardiff's-lane, Forbes-street, &c. The terminus is proposed to be bounded as follows, viz.:—On the north by the southern sides of Aston's-quay, Crampton-quay, Wellington-quay, and Essex-street; on the east by the western side of Lee's-lane, Parliament-row, Anglesea-street, and Temple-lane; on the west by the eastern side of Sycamore-alley and Eastace-street; and on the south by the northern side of Cope-street and Dame-street.

The next scheme for which Alderman Hudson is solicitor, provides for a junction with the Dublin and Drogheda line near the centre pier of the two span bridge at last wall, and the Liffey branch line 207 yards east of Clonliffe-bridge, thence proceeding in a south-westerly direction within 24 yards of the house, No. 53, Upr. Dominick-street; for a junction with Midland Great Western Railway 102 yards north of terminus platform, passing through Grange-gorman and on to the central terminus at Crampton-quay, with rere to Fownes-street and Cope-st.; for a junction with Great Southern and Western Railway at the north abutment of the new bridge over Long-lane, on through Parliament-st., Essex-street, &c.; for a junction with the three W.'s lines 22 yards south-east of the turn table of Harcourt-street station; for one junction with the Kingstown branch near the north abutment of the Dodder-bridge; for another junction with same line near the western abutment of the bridge over Grand Canal-quay, and terminating on Sir John's-quay. This company applies for powers to alter the levels and approaches of Essex-bridge.

A third scheme, for which Messrs. Kernaghan and Saunders are solicitors, and entitled the "Dublin Trunk Connecting Railway," provides for a line from the goods depot of Great Southern and Western Railway with the Kingstown Railway 350 yards beyond Serpentine-avenue; for a line from the Midland Great Western Railway, commencing about 10 chains distant from the Circular-road bridge; for a line commencing by a junction near the Whitworth Hospital; for a junction south-east of the North Strand, on through Fort Crystal, Church-road, &c., and terminating on the slob lands of Dublin bay, by a junction with the Dublin and Drogheda Railway; for tramways along East-road, Sheriff-street, at Bath-avenue, Beggar's-bush, &c., Donnybrook, &c.

## THE DUBLIN, RATHMINES, RATHGAR, ROUNDTOWN, RATHFARNHAM, AND RATHCOOLE RAILWAY.

A BILL is to be presented to Parliament early next session for connecting Dublin with Balinglas by a railway passing through the richest and most populous suburbs of Dublin.

The Dublin terminus will be in Trinity-street, adjoining Dame-street and College-green, and almost at the door of the Bank of Ireland. In addition to the principal station in Trinity-street there will be a station at Peter-street to accommodate the south-western portion of the city. Stations also will be erected on the South Circular-road, Leinster-road, Rathgar-road, near Roundtown; at Bushy Park, Rathfarnham, Ballyroan, Templeogue, Tallaght, Sagart, Brittas, and Rathcoole. We (*Irish Times*) know of no project for its extent, which will be in all about 15 miles, superior to this, either in a commercial or social point of view.

The main line will also have a double junction with the Bray and Wicklow line, near the city, so as to afford a direct communication by the latter railway with Dame-street, at the principal station in Trinity-street.

The bill is promoted by Dillon Meldon, Esq., of Ormond-quay, with whom are associated Messrs. Edwards and Co., of Westminster. The names of these parties are a sufficient guarantee that no mistake has been made in the calculations of the cost or profit. We are informed that a considerable amount of the necessary capital has already been subscribed.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE second ordinary general meeting of the session was held on Monday Evening, 16th ult. Mr. Thomas L. Donaldson, President, in the chair. After the transaction of the preliminary business, the president read a brief obituary notice of Mr. J. B. Bunning, late architect to the Corporation of London, of whom the learned president spoke as having, in the many works in the city with which his name was associated, combined the higher branches of architectural skill with ability in the

designs he carried out. The president also took occasion to refer to the recent decease of Mr. Wm. Cubitt, as one of the heads of that class with whom, as architects, they were so intimately associated—viz., the builders.—Discussions were made as to the great works carried out by the late Mr. Cubitt in conjunction with his brother Thomas at Pimlico, and by himself personally in Belgravia and in the Isle of Dogs, and who had left behind him, in the palatial residences of Eaton-place and in the less pretentious buildings of Cubitt's-town, monuments of individual enterprise, which, for extent and utilitarian character, had rarely, if ever, been excelled; to the judicious exercise of that spirit of enterprise, Mr. Cubitt's great success in life was attributable.

Mr. Sydney Smirke, R.A., then read a Paper entitled, "Some Account of the Professional Life and Character of the late Professor E. R. Cockerell, R.A., Fellow and late President of the Royal Institute of British Architects." In advertising to the services which Mr. Cockerell had rendered to the archaeology, Mr. Smirke alluded to his discoveries of Ægean sculptures in 1841, without any aid from the government, at a time when the disturbed state of Greece made such a pursuit hazardous. That this country had failed to be the possessors of these treasures of ancient art, was, he said, to be deplored. He explained the circumstances under which they had passed into the hands of a foreign country. Having spoken at further length of Mr. Cockerell's researches in Sicily, Syracuse, Greece, and Italy, his visit to the Seven Churches of Asia Minor, and the admirable drawings which illustrated those researches, together with his great work on the temples of Ægina and Phigaleia, having also sketched the merits of Mr. Cockerell as a writer—the same spirit of refinement characterizing alike his writings and his drawings—Mr. Smirke concluded by remarking that, if occasion required it, he could open the penetralia of Mr. Cockerell's private life, and could speak of his universal kindness of disposition, the warmth and enduring character of his friendships, and the generosity of his heart; but panegyric on such a subject was unnecessary, as those who were best acquainted with him could best appreciate those qualities of mind and heart which gained for him a larger sphere of friendships than usually fell to the lot of man.

On the motion of Mr. W. Tite, M.P., past president, seconded by Mr. G. Gilbert Scott, R.A., a vote of thanks was passed to Mr. Smirke for his very able Paper, and the meeting adjourned till 30th ult.

#### IMPROVEMENTS IN DUNGARVAN.

DURING the last ten years few towns of its size has made such rapid strides towards improvement as the old watering place of Dungarvan. The progress which street architecture has been making amongst us of late years, we are happy to say, is in a right direction. Scarcely a month passes over, but we witness some new public office or place of mercantile business, adding materially to the beauty of the town. The old dingy shops, furnished with windows calculated to give the smallest possible amount of light, are fast disappearing. Plate glass windows take the places of murky little panes, and convey light, sunshine and cheerfulness into apartments, where, heretofore, the rays of the sun were so parsimoniously economised as to do little more than to "make darkness visible." Amongst the new buildings erected may be mentioned the Town Hall, a magnificent structure, with granite front and plate glass windows, the large room of which is intended for public entertainments, such as lectures, concerts, &c., and though not entirely finished, is a splendid apartment. One of the basement storeys is at present used as a telegraph office, for which it is admirably adapted. A public reading-room is about being opened in the town for the use of the merchants, traders and shopkeepers, to be supported by an annual subscription of one pound from each member. It is also in contemplation to establish a Farming Society, to be called the Dungarvan Union Farming Society. Gas works have lately been established, and the town is very well lighted, there being no less than sixty lamps erected in the principal streets, a large number for a town like Dungarvan; and during the last session of parliament, a bill was passed authorising the Town Commissioners to act as Harbour Commissioners, and empowering them to borrow a sum of money for the purpose of deepening and removing obstructions in the harbour, the necessary works of which will be commenced next spring. A short time since a beautiful edifice was erected as an office for the National Bank, which bestows much credit on that prosperous establishment. This office is one of the most perfect things in its way that we have had the good fortune to see in a country town. As to private enterprise in Dungarvan, generally speaking, the principal business establishments will stand comparison in beauty, showy appearance, and comfort of internal ar-

rangements with those of similar establishments in any provincial town in Ireland. There are a steam-mill, two breweries, two convents, a Christian Brother's school, and though last, not least, in a commercial point of view, a printing office has been established, and a very tastefully got up stationer's shop, a want long felt in such a business and rising town as Dungarvan. Very few towns like Dungarvan possess so fine a brewery as that of Mr. J. R. Dower's, J.P., and every stranger passing must have been struck with the artistic taste displayed on the exterior of the entrance, as well as with the evidence of enterprise and spirit presented by a visit to the interior; indeed, if there were a few more spirited men like the worthy proprietor, Dungarvan would shortly become one of the leading provincial towns in the south of Ireland.—*Freeman.*

#### THE ROYAL IRISH ACADEMY.

A STATED general meeting of the members of the Royal Irish Academy was held last evening at the Academy House, Dawson-street.

The Very Rev. DEAN GRAVES presided.

Mr. J. B. Jukes read a paper by Mr. G. H. Kinahan, on the crannoges in Lough Rea, a lake situated south of Athenry, in the county of Galway. Several of these crannoges were the subject of examination by Mr. Kinahan, the results of which were detailed in the paper brought forward by Mr. Jukes. The principal of these was that iron was in use in Ireland at the remote period when crannoges were constructed, and that when the crannoges referred to in the paper were erected, the surface of Lough Rea was seven feet lower than at present.

The paper was referred to the council for publication.

The Rev. Wm. Reeves, D.D., read a paper on the "Bell of Armagh," which was a learned and interesting essay, historical and speculative in reference to the celebrated relic of Ireland's patron saint. The extreme beauty of the workmanship of the shrine in which the bell was inclosed attracted the warm admiration of the members present.

The paper of the Rev. Dr. Reeves was referred to the council for publication.

The following letter on the non cyclonic character of the storm of the 29th Oct., 1863, was read:—

Trinity College, Dublin, 30th Nov., 1863.

DEAR DR. REEVES:—As Mr. Frost's paper on the storm of the 29th Oct., during which the iron-clad Prince Consort nearly foundered at sea, appears to have attracted the notice of some meteorologists, I think it may prove of some interest to lay before the academy two letters—one from the Rev. Dr. Robinson, and the other from Mr. Mettane, who keeps the records of the magnetical observatory at Trinity College. These letters give an account of the observations on the wind made at Armagh and Dublin during the gale, and it appears to me that they completely establish the non-cyclonic character of the storm of the 29th October. The wind in Dublin blew steadily from the S.W. during and long after the gale, while in Armagh (as appears from Dr. Robinson's letter, or from the accompanying drawing, which I have made to represent the observations), it seems to have shifted through 132 deg. from 10 a.m. to 2 p.m. The gale in Dublin was at its height at 11 a.m., when the wind travelled at the rate of 16 miles per hour. Perpendiculars drawn to the directions of the wind at this town from Dublin, Armagh, and Ballinasloe nearly intersect Lough Melvin, in the county of Fermanagh, a circumstance which at first sight would seem to prove that the storm was a cyclone. But if a line B A be drawn parallel to the bisector of the angle between the wind directions of Armagh at 10 a.m. and 1 p.m., it is well known that the gale of a cyclone must have travelled along the line B A. If this had been the case, the centre of the storm should have passed near Ballinasloe, where the wind should have changed through 180 deg. As the supposition is completely at variance with the facts observed at Ballinasloe, we are entitled to conclude that the gale was not a cyclone. I am, yours sincerely,

SAMUEL HAUGHTON.

The letter was referred to the council for publication.

Dr. Wilde, vice-president, stated that upon the next night of meeting he would exhibit the ancient Irish shield recently found in the county of Leitrim. In the meantime he presented to the library and museum of the academy the following antiquities which have been committed to his care:—From Lady Otho Fitzgerald, miscellaneous graphia, an illustrated catalogue of the antiquities in the possession of the late Lord Londesborough—one of the finest works now printed in England, and which possessed a special interest to the academy from its containing an account of the gold ornaments found at New Grange, and also of the bell of St. Mura, of Innishowen, and other Irish antiquities which had passed into the collection of his lordship. From his brother Census Commissioners and himself, the census reports of 1861, consisting of the volumes of the townland census, two volumes of the report and table on ages and education, and the report upon vital statistics, part I., "Status of Disease." The Doctor stated that he hoped shortly to present the volumes upon religious professions in Ireland, together with the remaining portions of the census for 1861. From Lord Farnham, the constant donor to the museum, a large narrow celt of grey rock slate found in the county Fermanagh. A thin broad celt of shale, believed to have been found in the same locality. A bronze broad-bladed axe-shaped celt, a

lenkitted celt, and palstone, all from the county of Fermanagh. From Dr. Malcomson, of Cavan, a very perfect bronze spear head, found ten feet beneath the surface in Kilmore bog, barony of Castlerahan, county Cavan. From the same locality, the fragment of a bronze sword, much contorted, apparently by fire, and an ancient bronze spur; found in the foundation of an old wall in the townland of Killafinlagh, barony of Castlerahan, county Cavan. From Charles Cheyne, Esq., C.E., the oaken model or representation of a carved sword, sixteen inches long in the blade, and probably used for casting weapons of the same form; found in the townland of Leabeg, in the King's Co., between Clara and Firbane, embedded in blue clay seven feet below the surface, about half a mile to the north of the River Brusna, and along with the bones of ruminant animals, also a narrow spear head of bronze, found in the townland of Leamore, parish of Gallen, King's Co., in blue clay, five feet beneath the surface, near the old Castle of Cool, on the banks of the River Brusna. From William Kirwan, Esq., a small antique iron horse shoe, without groove or cocks, and having six large square nail holes in it, probably the shoe of one of the hobbies which John Dymmock noticed in his description of Ireland in the time of Elizabeth. It was found at Blindwell, county of Galway. From Thomas Byrne, road ganger, employed upon the Drogheda line, a brass shilling of James II., in very good preservation.

The unanimous thanks of the meeting was presented to the respective donors, and the academy then adjourned.

#### STEPHEN'S GREEN AS A PUBLIC PARK.

THE bill about to be submitted to Parliament proposes "to vest in the Commissioners of Public Works in Ireland, or in the Lord Mayor, Aldermen, and Burgesses of Dublin (called 'The Corporation') or in the Lord Mayor of the city of Dublin and the representatives in Parliament for the said city, all for the time being, together with his Grace the Duke of Leinster, the Right Hon. John Prendergast Vereker, now Lord Mayor of Dublin; Peter Paul M'Swaine Esq., Lord Mayor elect for 1864; Sir Colman M. O'Loughlin, Bart., M.P.; Sir John Gray, Benjamin Lee Guinness, William Dargan, George W. Maunsell, James Haughton, and Laurence E. Knox, Esquires, all of the said city, or some of them, and other persons to be named Commissioners by the said bill, to be thereby constituted for the purposes thereof, the land or ground and hereditaments in the interior of the said square called Saint Stephen's-green, situate in the Parishes of St. Anne and St. Peter, in the city of Dublin, for the purpose of being maintained by the said Commissioners of Public Works, the Corporation, or the said Commissioners so to be constituted as aforesaid, as a park or pleasure ground for the benefit and recreation of the inhabitants of the said city of Dublin and its neighbourhood.

#### THE O'CONNELL STATUE.

THE sub-committee have passed a resolution to the effect:—"That inasmuch as the first-class artists would not send in competing designs, the principle of competition for the design could not be advantageously adhered to." The Very Rev. Monsignor O'Connell then moved, and Alderman Carroll seconded, a resolution:—"That Sir John Gray be requested to confer with Mr. Foley on the subject, to communicate the result of his interview to the sub-committee, and to arrange for a conference between Mr. Foley and the sub-committee at a future period."

GEOLOGICAL DISCOVERY.—We understand that the gentleman employed on the Geological Survey at Loughrea, Mr. Kinahan, has just made an interesting discovery. In examining the islands in the lake of Loughrea he has discovered the remains of some ancient residences. At the depth of five or six feet from the surface he found a wicker work floor, composed of branches, very ingeniously and minutely interwoven, and filled with earth. This was evidently the floor of a mansion as it existed in ancient times, and near it were found some spear heads and other weapons of antiquity, showing that at one time there were habitations on those islands. It is a conceded fact that those islands are artificial, having been constructed for the purposes of defence several centuries before Strongbow or the Norman Knights set foot on "the Emerald Isle." The relics discovered were inspected by Mr. Foote, of Somerset Villa, the able and talented conductor of the Geological Survey at Ballinasloe, and we understand they will be forwarded as a contribution to the Museum of the Royal Irish Academy.—*Western Star.*

## THE ROUND TOWERS.\*

(Continued from page 187.)

TRADITION is one of the sources from which Dr. Petrie derives his proofs of much that he asserts: this is a kind of proof which, while it is most unsatisfactory, is also most difficult to sift, and impossible to disprove. Thus, the Doctor tells us that tradition asserts that Goban Saer built many of the towers; for this we are wholly dependent on the Doctor's word; and if Parson Ledwich has "supported an erroneous hypothesis by false assertions," who can say that a layman may not err in the same way? Tradition is his proof for the age of the church in Lough Corrib, for Templepatrick, for Glendalough Church, for the Church of St. Fechin, &c. Tradition, according to him, universally supports the theory that the towers were built for bell-houses: thus it is that when proper proof is not to be had, tradition is made to supply its place, but, What is this tradition? The statement of the first ignorant peasant you may chance to meet whose story coincides with your fancy. We don't know why the peasant, or, if preferable, "the old inhabitants," should be assumed to know the truth about what occurred centuries before they were born; we don't find it easy to get at the truth respecting events which have occurred within their own experience, and look upon it as a sad picture of misdirected zeal to see the greatest antiquarian in Ireland going about collecting such unreliable stories, and then seriously placing them before the Royal Irish Academy as proofs which can "scarcely admit a doubt" (164). Such proofs are so very doubtful to us, that we think they should be rejected altogether. This is the opinion of Dr. Petrie himself when the tradition does not suit him. Thus, there is a tradition, or as the Doctor now terms it, "a hear-say story," that a Pagan urn was found in Timahoe tower about fifty years ago, but this tradition does not agree with the Doctor's theory of the Christian origin of the towers, so he rejects it at once (419).

To admit tradition, or "hear-say," as the Doctor expressively characterises it, for proof, would be to open a wide way for knavery. Any unprincipled person who wanted to bolster up his theory could do so with a tradition of his own framing, and who could venture to say it was a knave's invention? Such a mode of proof is unworthy of Dr. Petrie and of the Royal Irish Academy.

An obvious mode to prove that the round towers were castles would be to point out their means for defence against a foe; their strong walls, well-defended entrances, loophole-windows, embattled walls, machicolations, and other means for defence or offence; and when history mentions them, to show what sieges they endured, what hosts of invaders they repelled, what fearful injuries those who dared to attack these strongholds were made to endure. Dr. Petrie has not done any of these things, for this good reason, that a round tower has no means either for defence or offence beyond the fact that a tower is of stone, and has its doorway a few feet above the ground level. A building could hardly be devised less like a stronghold; and herein history has rightly spoken of them, for, though the Doctor has given many extracts from ancient annals, not one of them amounts to more than that the towers were not the least protection, for in order to establish his assertion that the towers were built as places for the ecclesiastics to secure themselves and their treasures in from sudden predatory attacks, he gives extracts from the Annals, in which persons and objects are stated to have been concealed in towers during such events, and in which the towers proved no security (373-376). This proof is, if possible, worse even than tradition.

In the absence of the proofs we have mentioned, Dr. Petrie resorts to a course which is as singular as it is fallacious; and, what is still more to be deplored, is based upon facts which have been sadly perverted by the influence of an inventive imagination.

He wishes to prove that there is a "remarkable agreement of the British castles with Irish Round Towers" (367); and selects from King's "Monumenta Antiqua," as an example, the Castle of Brunless, of which he says:—

"If we restore the outline of this castle to its probable original height, it will be found to be almost identical, in most of its features, with several of our Irish towers."—(367.)

What a strange argument this is! If the Brunless Castle, he says, were somewhat higher, it would be almost identical in most of its features with several of our towers; and, of course, these towers would be all castles! Many of the towers in Ireland are somewhat higher than Brunless Castle, and there is an identity in almost every feature between all the

round towers in Ireland, and yet these correspondences do not make castles of them; and how an identity between an Irish tower and a Welch tower should do what mere Irish identity won't do is a problem we leave to be solved by others, it is too much for us. Identity must have magical powers, if it can effect for two towers, on opposite sides of the Channel, what it cannot do for half a hundred towers in Ireland, namely, make castles of them.

The truth is, the Brunless tower is a castle, or stronghold; no Irish tower is so. The identities between Irish towers and Brunless Castle are very few, and unimportant; but the differences are important: these the Doctor omitted to notice.

The "features" of agreement between Irish towers and Brunless tower are, being built of stone, being round, and having the entrance above the ground level: just three features.

King has not given a scale to his plan and view of the Welch tower, but he mentions that the inner diameter is seventeen feet; this gives us a scale from which we can find out any measure we wish.

The Irish towers which Dr. Petrie has selected for comparison are two, the one at Clondalkin, and Roscarberry tower, one demolished we know not how long since—if there was ever this structure—and for which his authority is an old engraving copied from a very old seal. As there is no knowing what were the measurements of this questionable Roscarberry tower, we will confine ourselves to a comparison between the Clondalkin and the Brunless towers, as we can give the measurements of both.

	BRUNLESS.	CLONDALKIN.
Thickness of the wall at the base.	13 ft.	34 ft.
Diameter at the ground.	52 "	14 "
The doorway is up	30 "	13 "

Besides these enormous differences, there are others. Brunless Castle has its ground-floor lighted by three loopholes. No Irish tower has its ground-floor lighted in any way, nor have the Irish towers loopholes anywhere. Brunless Castle has stairs in its very thick walls. We need hardly say that no Irish tower can possibly have stairs in its thin walls. The upper part of Brunless Castle is gone, but it is most likely had a machicolated battlement; but, independent of this, we have shown quite enough of difference between the Brunless tower and the Clondalkin one to satisfy our readers that the identity which Dr. Petrie has alleged has no foundation in facts.

There is a conical base to the Welch castle, which extends up to a height of about thirty feet. Some sixty or seventy years ago, Mr. Caldwell, in order to protect the lower part of the tower at Clondalkin, added about two feet in thickness of walling round it to a height of thirteen feet, and, at the same time, put some projecting stones, which serve as steps, to get access to the doorway. This additional protection to this tower has a sort of miniature resemblance to the immense base of Brunless Castle. There is no other Irish tower with such an addition; yet Dr. Petrie, with a perverse neglect of fact, has selected this tower of Clondalkin as his representative one, where he ought to have rejected it, because it is exceptional. Mr. Walkenan, in his "Handbook of Irish Antiquities," has stated truly that such "projection is not found in any other instance." This is the admission of a pupil and an acknowledged disciple of Dr. Petrie. Indeed, could the Doctor have found a second example with which to sustain his bold and baseless assertion of the identity of Brunless Castle "with several of our Irish towers," he need not have resorted to the very doubtful testimony of an old engraving from an older seal for a second example of a tower with a base, for it is well known that such seals are not to be depended on for correctness; and copies—such as the engraving from the seal—are likewise liable to error. Of this liability we have an instance in the Doctor's copy from the old engraving; he has, in it, made the conical base, which is a sort of clumsy ring in the engraving, into a regular cone in his copy. By this mistake he has made the base more like that of Brunless Castle, but it is at the expense of accuracy.

Thus, then, the "several" towers with which Brunless Castle is "almost identical in most of its features," dwindle down into one, that still remains, and another that is gone. And the "most of its features," we find, are two or three of a non-essential character, while in almost every respect there is as much difference between Brunless Castle and an Irish tower as there is between a mature giant and a suckling infant.

King has represented Brunless Castle about eighty-five feet high; Petrie represents it about one hundred and thirty-five feet high! By this change the stumpy castle is made to look more like a slender Irish tower. This inaccuracy, of course, supports the Doctor's assertion respecting the identity of the Irish towers and the Welch castle.

We have, almost at random, given some examples

of Dr. Petrie's mistakes and fallacies; we feel that, perhaps, there are too many for the reader's patience. We do not pretend to explain why so many mistakes have been made, nor why such transparent fallacies have been urged. "To err is human;" and, influenced by this truth, we must cease to wonder that the Royal Irish Academy could have declared the Doctor's Essay "satisfactory," and have given the high sanction of their approval to a work which, from the many errors it contains, is not trustworthy.

That the learned author of this book of many errors conceived himself "possessed of accurate skill in the science of architectural antiquities" he himself covertly informs us. But there is a higher skill than he has shown in his Essay, the skill of adhering strictly to facts, and of deducing conclusions properly from them. This simple mode of proceeding will give value to a work, while the results of searching through manuscripts, collecting traditions, and giving hundreds of artistic illustrations, without an attention to accuracy, though it may be successful for a short time, will surely prove a failure at last. And so we now see that Dr. Petrie has failed to show that the towers are of Christian origin, to show when they were built, or that they were for belfries or castles.

The Doctor asserts that the use of lime cement was unknown to the Pagan Irish (129). This bold assertion is made to overthrow the alleged Pagan origin of the towers, which are all built with lime cement: it is thus stated:—

"Not the slightest evidence has ever been adduced to prove that the Irish were acquainted with the art of building with lime cement before they received the Christian faith."—(34.)

We ask with surprise, Did the Royal Irish Academy suffer this sophism to receive their approval? Every tyro in logic, and every one with the plainest common sense, knows that the absence of proof of any given proposition does not necessarily establish the correctness of the negative of the proposition. It does not follow, because Lanigan "or any other man" fails to show that, in Finn Mac Coul's days, houses were built with mortar, therefore, none of the Pagan Irish used mortar. This failure only shows that Lanigan did not know what he was talking about, and leaves the question unsettled. But Dr. Petrie endeavours to show that St. Patrick introduced the use of mortar into Ireland; and, in proof, gives us the names of his three masons who made stone houses (141). To these the fancy of Dr. Petrie adds the mortar, and this fancy is his proof that St. Patrick introduced the use of mortar into Ireland!

To convince Dr. Petrie of the irrationality of deducing a reverse proposition from one which is not proved, let us just take the instance of the Fifth Proposition of the First Book of Euclid. Many persons have failed to cross that "pons asinorum;" but, if all the world had failed, would the reverse of that proposition be true? Certainly not. Every assertion must be proved by facts. Dr. Petrie has not proved that St. Patrick introduced the use of mortar into Ireland; neither has Lanigan proved that the Pagan Irish used mortar; but when we have, in the Irish towers, buildings of unknown origin, and of no use in Christian practices, but for which we can assign a probable use among Pagans, and can find that such buildings have been used by Pagans, we have established a strong probability that they are of Pagan origin; and thence can fairly deduce that the Irish did not learn the use of mortar from St. Patrick's three stonemasons. To which we may add, that we give no credit to these tales, for this simple reason, that the writers of them were, as Jocelyn says of himself, men who could use "the tongs, the extinguisher, and the oil-cruise, in order to clear away the superfluous, extinguish the false, and illuminate the obscure;" or, in less figurative language, who could clip, suppress, or add to, as they thought proper; and who have proved themselves so well skilled in the science of doctoring their evidence, that their works are, but a collection of outrageous falsehoods, got up to serve some special purpose.

The theory of O'Brien is the one which Dr. Petrie slanders; he sneered at it, as not deserving his notice (359), and "utterly absurd" (109). O'Brien's book throws much light on Phallic worship, but the poor fellow wrote it in a few months, and lost his reason and his life after the over-exertion: it bears evidence of haste. We have many proofs in support of O'Brien's theory, but we wish to write at leisure, and will, therefore, not introduce them in the present work.

That the Prize Essay is a failure, we have satisfactorily shown; yet its talented author applied learning, research, and zeal to his task. Could any man have succeeded in proving that the round towers are of Christian origin, he would have done so: his work is exhaustive of that theory: his want

\* "The Fine Arts and Civilization of Ancient Ireland" By Henry O'Neill.

of success is not owing to want of fitness or of application, but to want of proof. After this failure we cannot think that the Irish round towers had their origin in Christian times, and were built for a Christian priesthood's use: we cannot think that the similar towers which Lord Valentia saw in India, and which he was told were of an extreme antiquity, and belonged to a people whose religion was as mysterious as those ancient towers, we cannot believe that those were erected for a Christian priesthood's use. And the similar towers which the Pagan writer Lucian describes as being in his native land before the Pagan temple in Syria, these towers surely were not of Christian origin. They were never raised by Christian hands; neither were the Irish towers. We are convinced they belong to those distant ages when Paganism was dominant, when devotees prayed in high places, that, by getting nearer to the gods, they might be better heard by them. The grey mystery of thousands of years hangs over these strange buildings. Is it not probable that, when the Egyptians of old were erecting the stupendous pyramids, the Irish of old were constructing these slender and graceful towers? Twin-horn of time, the eastern structures are gigantic, ungraceful marvels; the western ones, though comparatively small, are incomparably more elegant. Thirty centuries have probably passed away since some of the Irish towers were erected; many more centuries may have elapsed since that form of building was originated. That they were for religious purposes seems beyond a doubt; but they have no use in Christian requirements: they are assuredly Pagan, and it seems equally certain that they can vie in antiquity with the buildings of ancient Egypt, and belong to a creed as old as any that was taught in those sacred structures whose ruins still give a glory to the banks of the Nile.

And so, reader, these mysterious monuments belong to the night of time: they are like humanity turned to stone, but they are not wholly dumb: like Memnon's vocal statue, they utter significant sounds when intellectual sunlight falls upon them. They tell us of a people of rare practical skill, and of a strange creed; a skill equal to any of their fellow-men, and a creed which we abhor, but which was once sacred to nearly all mankind, and is held by many, at the present day, and which—stranger still—has mingled with our own purer faith, and has existed broadly, unmistakably, in Christian lands even so late as to the end of the last century. But we can only whisper these secrets now; some other time they may be fully revealed.

#### LIFE OF ST. DYMUNA.\*

THIS work has been presented to us, with request "for early literary notice," but we must remark, with every courteous feeling towards the reverend author—with every respect for his zeal, and every appreciation of the ability with which he treats his subject, that to review the merits of a book of any religious character *whatsoever* would be quite outside our province. For the purpose, however, of impressing on the minds of that class of our readers most interested a better knowledge of the *existence* of such a book, we quote therefrom a paragraph relative to the architecture of the church dedicated to the above-named saint and martyr:—

"The architecture of the present church of St. Dymna, according to the opinion of a writer who had maturely considered his subject, would seem to denote that this fine building had been commenced in the twelfth century. A difference, remarked in the style, leads to a supposition, that the great nave and northern aisle might have been built at this period, whilst the southern aisle's construction was of a later date. The columns of the two former parts are not adorned with capitals, whilst those of the southern aisle are ornamented with foliated friezes and octagon supports, which indicate their connection with the fourteenth century. Windows in this latter aisle are much larger than those on the opposite side, and are divided into four compartments. Two large transept windows, with various other mullioned panes, above the great choir and around its side chapels, serve admirably to light with sombre effect the interior of this noble pile. There are five clerestory windows on either side of the nave, and five also on either side of the aisles, in the church of St. Dymna.

"The structure of St. Dymna's arched roof is very remarkable: the vaults are formed by intersecting ogees, considerably elevated, and built with brick. At the intersection of the transepts, choir and nave, a cross-surmounted spire dominates over the roof, to a very considerable elevation. Two massive towers flank the principal entrance door,

opening into the nave; they only ascend, however, to the parapet of the adjoining roof. Towards the close of A.D. 1539, a hurricane swept away the tower of St. Dymna's church, which destroyed by its fall the adjoining house for infirm persons. The portal remained intact; and in the year 1859, a rebuilding of the fallen tower was completed, as we see it left at the present day.

"It was only in the twelfth century that the construction of ogee roofs became common, through the invention of columnar supports and flying buttresses. Hence, it may be concluded, that the church of St. Dymna was one of the first ecclesiastical structures built in this style. It is certainly one of the most interesting within the Turnhout *arrondissement*, whether we regard its antiquity or its architecture.\* On the outside, although St. Dymna's temple is imposing in size and appearance, the restorations effected have greatly marred its architectural beauty, for they appear to have been a work of mere necessity, without exhibiting any pretensions to structural taste or uniformity. In the Rev. Mr. Kuyt's work, a beautiful engraving represents an exterior side-view of St. Dymna's Church, drawn to a scale of fifty metres. A correct ground plan of the nave, choir, transepts, aisles, chapels, altars, &c., accompanies this view on the opposite page. A critically historical and minutely architectural description of St. Dymna's Church is given by the accomplished author.† On the exterior, and attached to one of the front towers of St. Dymna's Church, may be seen the house, in which novenas are recited, to obtain deliverance from various maladies. A large enclosed space, around the church, is used for the purposes of a public cemetery."

#### GLASGOW ARCHITECTURAL SOCIETY.

THE annual *conversazione* and exhibition of the Glasgow Architectural Society took place on Monday, 13th ult., in the Scottish Exhibition Rooms, Bath-street, Glasgow. There were numerous architectural drawings and paintings, a large collection of beautiful photographs of celebrated buildings, or portions of such, and a considerable number of choice specimens of sculpture and statuary. Numerous other works of art, of a miscellaneous character, were scattered up and down the room, and a good deal of space was devoted to the exhibition of hangings, carpetings, furniture, and appliances for the heating and ventilation of buildings. The attractions of the exhibition were enhanced by the performances of a band.

The President, Mr. Wm. Clark, having taken the chair, supported by Sheriff Bell and the Rev. Mr. Batchelor, Mr. Wm. Maclean, hon. secretary, read the report.

The Chairman then congratulated the members on the acquisition of the library, and after alluding to the object sought to be attained by the society, proceeded to notice the early history and progress of the art.

The Rev. Mr. Batchelor next addressed the meeting, dwelling, among other topics, on the importance of a knowledge of architecture as a means of culture to persons following other professions.

Sheriff Bell, having referred at length to the importance of architecture in modern times, said—He had heard that it has suggested itself to at least some of the members of this society that it might be right in Glasgow, looking at the progress of architecture amongst them, and looking at the many eminent architects who are now starting up amongst them, to consider whether there should not be a chartered body of architects in Glasgow—a corporation who would admit to the privileges of their body only after stringent examinations, and would exact a knowledge of their subject from the parties who had the honour of becoming members of the corporation.

On the motion of Mr. Alex. Thomson a vote of thanks was accorded to Sheriff Bell and Mr. Batchelor.—After an interval of twenty minutes, during which the company were invited to partake of refreshments,

Mr. J. J. Stevenson briefly addressed the meeting. Counsellor Salmon also delivered a short address upon the position of architecture throughout the country.

#### MANCHESTER ARCHITECTURAL ASSOCIATION.

THE opening meeting of the session was held at the Rooms, 15, Dickenson-street, on Wednesday evening, the 4th inst. The President delivered the

\* See Stroobant's *Notice Historique sur le Chapitre Collégial de Sainte-Dymna, a Gheel*, p. 11. This writer supposes that St. Dymna's Church was never a parochial one, because it bears the name of chapel in several ancient documents. The Abbé Kuyt entertains a different opinion, and believes St. Dymna's to have been the ancient parish church of Gheel.

† See, *Gheel vermaerd door den eerdienst der Heilige Dymna*, &c., pp. 108 to 157.

opening address, and in the course of it alluded briefly to the many points of interest which would probably arise during the ensuing season, and congratulated the members on so hopeful a prospect of renewed vigour and activity, as indicated by the list of papers in preparation for the winter.

The Hon. Secretary then explained the means adopted by the committee, and their success in obtaining papers of more than ordinary interest, and of such scope as to meet the requirements of all members. Among the last may be noticed the following:—"The Characteristics of a New Style;" "The Beauty of Art in Gothic Architecture;" "Detail in its Inherent and Relative Proportions;" "Symbolism;" "Church Architecture of the Present Day—its Position and Requirements;" "Competitions; with a Proposed Plan for Obviating the Evils at Present Resulting therefrom;" "Colour in relation to Architectural Decoration;" "A Proposed Plan for Equalizing the various Systems of Measurement now in use;" "On the Transfer of Land, and the Law of Contracts;" "Stained Glass," &c., &c.

After an animated discussion on the various subjects brought forward in the President's address, and a vote of thanks to the chairman, the meeting closed.

#### DWELLINGS FOR THE POOR.\*

THERE are two distinct classes of dwellings for the poor which deserve our consideration—viz., urban or town dwellings, and suburban dwellings or cottages. Although the leading features of construction and detailed arrangements are the same in both, perhaps it may be well to describe first those which I consider are peculiarly applicable to town dwellings, intended for working-men, whose wages range from 12s. to 24s. per week. Hitherto, workmen of this class have been strangers, not only to the comforts and conveniences which render home attractive, but to the barest accommodation necessary to render social life tolerably decent; and, although it may appear a strange assertion to make, it is nevertheless true, that the nearer an improved dwelling approaches its miserable predecessor in general aspect and character, the more popular it will be. The difficulty, therefore, in designing new homes for the poor consists in the introduction of improvements which shall lead to the gradual abandonment of injurious habits, and give no sudden offence to jealously cherished prejudices. To do this effectively, it is desirable to ascertain as accurately as possible the leading requirements and peculiarities of the inhabitants of the district in which it is proposed to build. If a labouring man be taken from one low small room, in which he has been accustomed to live with his wife and four or five small children, and be placed in a dwelling which he cannot afford to furnish or keep clean, and where he is not comfortable and at ease, he will consider himself badly treated, and wish that he had been left alone. No symmetrical or beautiful building will ever compensate him for the loss of a cabin which was convenient to him, and where he felt himself at home.

I consider that a poor man's town dwelling should consist of a living-room and bedroom, with provision for additional bedrooms when required; that it should possess a plentiful and accessible supply of water, both for ablution and cooking; a water-closet, sink, and lavatory distinct, but not far removed from his tenement; a washhouse, with the means of drying clothes in any weather without artificial heat; and, lastly, where practicable, a playground for his children.

In my opinion the living-room should be 12 ft. by 10 ft. in the clear—i.e., that this area of 120 square ft. should not be obstructed by fire-places, cupboards, or other similar projections; that its walls should be square, by which I mean that there should not be more than four angles or corners on its ground plan. Rooms of a regular shape are more easily kept clean, are less expensive to furnish (especially when a carpet or other covering is required for the floor), and, what is of no little importance, much more capable of being made comfortable than rooms with a varied outline. The entrance-door should open into a porch or vestibule, and be placed at one end of the wall, opposite to the window, so that when both are open, the air in the dwelling may be effectively changed. The window should be situated in the centre of its own wall, and sufficiently large to light every part of the room. It should be a sash window, to ensure top and bottom ventilation, and its sill should not be more than 2 ft. 9 in. from the floor, otherwise high furniture may be placed beneath, and the difficulty of reaching it will cause it to be seldom opened. If it be glazed with tolerably large panes of glass, the probability is that there will be fewer breakages than if the panes are small. The fireplace should

\* By H. Darbishire, Esq., F.R.I.B.A.

\* "The Life of St. Dymna," by the Rev. John O'Hanlon, C.C. Dublin: James Duffy.

also be, if possible, in the centre of its own wall, and be furnished with a range containing boiler, with a cock of the best description, fixed 2 in. above the bottom; an oven, and cooking-place at least 10 in. wide from side to side, with sliding-bars, flap, and catch, all of which ought to be of wrought iron. The living-room should be further provided with a good serviceable closet, containing shelves for cooking utensils and cookery, clothes-pins, and a large covered box for coal. It should be the entire height of the room, having its front flush with the chimney breast, and it should be lighted by a small casement window, hung upon centres, and easily opened. The bed-rooms should be 12 ft. by 8 ft., and, like the living-rooms, at least 8 ft. high. They should communicate with the latter by a door in the wall opposite to the fireplace at the end nearest to the window, so that sufficient wall space may be secured for the bed. As the bedrooms are supplied with warmth from the living-room, fireplaces are not much required; and although they are valuable additions, I do not consider their introduction necessary, where space is limited, or where expense is of much importance.

It is very desirable that the walls of the dwelling should have neither plaster nor paper. If they are well-built with sound stock bricks, and coloured with two coats of well-sized distemper colour, of a warm and cheerful tint, they present a good and comfortable-looking surface; they offer no harbour for vermin; they are uninjured when picture-nails are driven into them, and their freshness and colour are easily renewed at a trifling expense. These cannot be regarded as unimportant advantages by those who recollect that it is almost impossible for the working man to avoid bringing creepers into his home; that he will surround himself with pictures whenever he has an opportunity; and that he very much objects to taking a dwelling whose walls are covered with the half-dirty paper of a previous occupant. If vermin succeed in hiding themselves in plaster they increase and multiply so quickly that their banishment becomes almost impossible. If nails are driven into papered walls and afterwards carelessly removed, they tear the paper and leave holes which, besides being unsightly, offer the most convenient nests to the creeping things we have alluded to. The workman's pictures are not often satisfied with one nail, they require half-a-dozen at least to keep them straight. I consider the average number of nails per picture to be ten, and the average number of pictures, large and small, to be ten: a little calculation will soon show how many holes may be left in paper and plaster when these ten pictures are removed to adorn another habitation.

The working man is a Nomad, as much so as the Arab of the desert. The nature of his employment compels him to wander from place to place like an unquiet spirit. He cannot, therefore, be regarded, under any circumstances, as a permanent tenant; and, as the improvement of his habits and tastes is one of the objects most desired by those who undertake to improve his home, it is of importance that, when he first takes possession of it, he should find it clean and fit for immediate use. Now if dirty walls are to be re-papered every time a new tenant objects to their appearance, it is evident that much time and money must be most profitlessly consumed; whereas, if the walls are merely coloured, a couple of hours and a pailful of colour suffice to restore them to their original freshness. I have dwelt, perhaps tediously, upon the surface covering of the walls, because without having seen them, persons suppose that what they term "bare walls" must present a prison-like and comfortless aspect. A visit to some of the dwellings in London would, I think, remove this impression, for it would prove that a look of cheeriness and comfort could be obtained even in those tenements where the walls were uncovered by engravings and coloured prints.

After having entered into so strong a protest against plaster, perhaps it may appear inconsistent to recommend it as the most suitable material for the ceiling. I do this, however, for two reasons—first, because it has a finished and clean appearance and, being almost out of reach, its liabilities to injury are few; and, secondly, because it is a preventive against the spread of fire. The construction of fire-proof ceilings is often unsightly without being effective, and requires a concealment which increases its expense.

I forget who has called man a "destructive animal;" but I think that there can be no doubt that children are destructive little animals. A hatchet or a hammer is a valuable instrument for evil in their hands, and their contentment is perfect when anything to be hacked or hammered is placed within their reach. All that I have hitherto specified as desirable additions to a workman's dwelling have been of a tolerably solid description, but I have said nothing of the floor. Wood is certainly not very hard; it is inviting for nails; is apt to get dirty and tolerably difficult to clean, and yet, in my

opinion, a wood floor is the best that can be constructed for our purpose. If it be not very hard, it is not very rigid, and its elasticity enables it to bear heavy and sudden blows without injury. If firewood or coal be broken upon any other floor than a wooden one, the concussion is much more injurious. If nails are driven into the joints or the boards themselves, they are easily extracted, and leave no mark behind them; and if an extra amount of scrubbing is necessary to keep them clean, no one will deny that visible cleanliness is better than hidden dirt. Tile and asphalt floors have often been recommended as the best; but though the former have a clean appearance they are cold to the feet when uncovered by a carpet; they are more liable to injury than floor-boards, and they are more troublesome to repair and replace when defective. Asphalt and cement floors have, I consider, in addition to these disadvantages, another which ought not to be overlooked. Their efficiency, in a great measure, depends upon a rigid foundation, consisting either of brick arches or concrete supported by iron joists. I have already said that this kind of construction is expensive; the insurance offices object to it on other grounds; they consider that it is not fire-proof. In case of fire, after the iron becomes heated and exposed to the action of water, fracture ensues and ruin speedily follows; whereas a substantial wood floor, with plaster ceiling, will, in small tenements like those I am describing, resist the spread of fire for a considerable time. Having attempted thus far to describe what I believe every working man would acknowledge to be contributive to his comfort and convenience, I will say one word upon an item affecting his domestic economy, in favour of which his approbation is much less certain. I allude to ventilation.

If there is anything in the world that a poor man hates, or a poor man's children are educated to hate with cordial, sincere, and unquenchable hatred, it is fresh air. No preaching, reasoning, expostulation, or cajolement, will induce him to breathe freely among his own Penates, if he can help it. So successful is he in excluding every breath of air from his dwelling, that his very fire remonstrates and smokes vigorously. If its cloudy signs be disregarded—which they invariably are—of course, after a time, it collapses and expires. Its death, however, offers no warning; windows and doors remain closed, and to be stifled without a fire is preferable to easy respiration with one. No one will deny that dwellings must be ventilated, but few will be able to say how it is to be done. Beyond supplying doors that do not fit too close, windows that will open at the top and bottom, and fireplaces with air channels underneath the floor, it is extremely difficult to know how to proceed further without detection. A ventilator, once discovered, instantly becomes useless. It is pasted over if small, and if large is made the receptacle of every cast-off garment, from a bonnet to an old shoe. The most successful ventilators that I have tried are some perforated bricks, so adapted that they will admit the external air, without causing a draft. I have introduced them throughout the length of the wall in which the windows are placed, and in that opposite to it; and the air is so diffused by its passage through the narrow channels with which the bricks are provided, that the paste-brush is seldom considered necessary. I think that you will admit this to be a point, of no little consequence, in their favour. Still I am obliged, in a great degree, to trust to doors, windows, and fireplaces, and endeavour, by their arrangement and accessibility to fresh air currents, to tempt the boon which the workman despises.

I cannot leave the subject of ventilation without adverting to one intimately connected with it—I mean drainage. I consider that, after the foundations, no portion of a building deserves more attention than its drains. In dwellings provided for persons who are not remarkable for the care they bestow upon the property of others, it is especially desirable that the drain-pipes should be of the best description, and that their diameters should be larger than those employed under ordinary circumstances, because their liabilities to obstruction are very much greater. Boots, brushes, bones, and pieces of old furniture, and even pieces of old clothes, are not unfrequently found in the drains of poor neighbourhoods. That these and similarly unwelcome intruders may be easily removed, it is desirable that the main drains should be external to the building; that they should be supplied with examination holes at certain intervals for the purposes of repair and cleansing; and that they should possess the means of being regularly flushed with water. None but the inferior drains should be laid within the building, and these should take the shortest possible course to the main drains. In all situations where the site of the building is spongy, or soft, or consists of made ground, the drains, both large and small, should be laid upon beds of concrete, in order that their proper falls may be

preserved, for upon this the efficient drainage of a building mainly depends. Soil and other pipes connected with the drains should be ventilated, as far as practicable, by being taken above the roof; and no precaution whatever should be omitted to ensure the healthfulness and purity of the building. In addition to the living-room and bedroom and their requirements, which have taken up so much time in their description, I consider that, to every poor man's town dwelling, a lavatory should be attached. This should contain a water-closet, fitted with Lambert's strong galvanized iron valves; a lead trough, supplied with one of Chrimes' high-pressure loose valve-cocks, and furnished with an enamel and iron basin for ablution; and a smaller lead trough or waste, for the discharge of dirty water, with an inch service cock above it for the supply of pails and kettles. The walls of the lavatory should be finished and coloured as those of the dwellings; but to the height of 18 inches above each trough, they should be painted with four good coats of oil colour, that they may be frequently and easily washed. The floor should be tiled with thick 9 in. square tiles which bear a good deal of wear and tear, and sloping in one spot without injury. The lavatory should be lighted by two windows at least, one in the external wall of the water-closet, and one at the furthest end of the wall at right angles to it. The door should be at one end of the wall opposite to that which contains the closet window, so that there may be no possibility of stagnant air remaining in the place.

Botanists tell us that roses and other beautiful flowers are partial to soap-suds; but I know of no class of naturalists that has alluded to their powers of attraction for the workman's wife. It is not probable that if there be no tub and water, her sighs after the suds will be either frequent or deep; but give her these and a small copper in addition, and her latent love and powers to scrub rise up like Astarte's ghost. Every bit of rag she can find, must be washed: not half-washed, but washed in every stage of washing—soaped, rinsed, and boiled over and over again—until there is more wash left, than rag. To attach a laundry then, to the dwellings of those born with this affection, is a positive duty; and it is well to consider how it may be gratified in the most efficient and practical manner.

In my opinion it is important that the accommodation should be as simple as possible, that the supply of water should be near at hand, and that all artificial means of drying, excepting, of course, clothes-wringers, should be avoided. The furniture should consist of a washing-tub and a rinsing-tub, about 3 ft. 3 in. long by 1 ft. 9 in. wide, with washer, plug, and chain, and a separate cold water service to each. The top of the tubs should be 3 ft. 6 in. above the floor if footboards are provided, 3 in. less if there are no footboards. There should be a ten-gallon copper, furnished with a cold water service and tin ladle. Especial care should be taken in the construction and arrangement of the flue to ensure the heat being well distributed over the sides and bottom of the copper, and to afford facility for regulating the heat and cleaning. Childs' American wringers should be provided when hydrometers are not used; they are easily attached to the tubs, are effective and simple in their action, and can be procured at a moderate price.

It is desirable that the cistern, or source from which the water supply is obtained, should be as close to the laundry as possible, in order that the piping may be short, require few joints and bends, and be free from the risks which attend a variety of levels. Perhaps I ought to observe that in all matters relating to water supply, more attention should be paid to the dimensions of the iron piping and the nature and position of the services, than they usually receive. For instance, means should be provided for filling, emptying, and cleaning the cistern, tank, or whatever the main supply may be, at any moment, also for regulating the supply in such a manner, that when any portion of the piping is under repair, the water may be partially or entirely excluded from it. Every rising main should be furnished with at least two cocks; and where the building is peculiarly liable to fire, there should be an additional cock, 2 ft. above each floor level, for the supply of buckets and for the connection of hose. The first cock should be fixed in the junction between the rising main and the company's street main, so as to regulate the entire supply of the building. The second should be fixed at the bottom of the rising main, so as to release the water which remains in the pipe after the cistern is full, otherwise the main will be liable to injury from frost, especially in exposed situations.

The artificial means of drying clothes, which are adopted with advantage in the public washhouses, are to be avoided in small laundries, because they require fuel, machinery, and supervision, which cannot be supplied and maintained without considerable expense, and which do not secure advantages at all commensurate with their attendant risk

and cost. As far as my experience teaches, I find that clothes are easily and effectively dried if they are protected from rain and suspended in strong cross-currents of air, and that, wherever spaces suitable for this purpose can be obtained, other expedients are not required.

The last item on my list of contributions to the comfort of a workman's town dwelling, is a playground for his children. A few square yards are of inestimable value where house-room is limited; their value, however, increases their scarcity; and in London, the miserable little space which the Act requires to be in the rear of each dwelling is all that the landlord can afford to allow to his overcharged and overcrowded tenants. I consider that a great portion of the success which has attended the erection of large blocks of dwellings for the poor in towns, and especially in London, is attributable to the playgrounds, which are placed at the disposal of the inmates. One large playground to one large building is of much greater use than many small yards to as many cottages.

To be continued.

### IRISH SLATE QUARRIES.

THE demand for slate has of late years increased to so extraordinary an extent, that the existing quarries are utterly inadequate to meet it, and it is said that orders are frequently on the books of the principal quarry proprietors from eighteen to thirty months before they can be executed. This state of things, though advantageous to the quarry owners, is most pernicious to customers, especially to those who take contracts to execute large works at a fixed price, and who are naturally anxious to see energetic attempts made to increase the production. The work at the Valencia Quarries, Kerry, have been carried on by a few individuals for about 14 years, with an outlay of upwards of £40,000, which has been expended partly in opening the quarries, and to a greater extent in erecting the mills and costly machinery. An error has been committed in spending over much of this capital upon the machinery, mills, &c., and an insufficient sum upon the quarries. It is now therefore proposed by a joint-stock company to commence two new openings, so as to fully occupy the extensive machinery, and thus treble the production, which, from the one opening alone, was upwards of 2,000 tons in the last year; also to extend the present opening, which is 120 feet wide, running into the mountain about the same depth, and uncovering a succession of platforms of slate of various widths. The quarries are situated upon the side of a mountain, and are 420 feet above the sea level, with ample room for the deposit of waste. The slabs are covered by wedges instead of by blasting, thus avoiding the amount of waste occasioned by the latter process. The waste from the slate blocks is made into roofing slates, for which there is ample local demand. The slabs are said to possess extraordinary strength, are free from impurities, and are used extensively for enamelling. For this latter purpose no less than £11,000 worth have been recently employed at one public building—they have been used at the Nottingham, Derby, Rugby, and Leicester Stations, where they give great satisfaction, and a large quantity is now being prepared for the Charing-cross, Blackfriars, and Waterloo Stations.

### DUBLIN JUNCTION RAILWAYS.

It is a great mistake to imagine that, to subject the citizens of Dublin to a very disagreeable species of annoyance, such as a snorting engine in the dead hour of the night—in order that a very few persons may pass directly north to south, or vice versa, without being troubled to change carriages, and go from one station to another, is a great public convenience. Some attention and consideration should be paid to the requirements and convenience of the Dublin people. Dublin requires, at the present time, to effect some street improvements. City railways will, hereafter, very effectively interfere with projected improvements in their neighbourhood. Therefore, now is the time for a full consideration of the improvements which should be effected, in conjunction with the construction of the new metropolitan railways. The council should be satisfied as to what is best to be done, that the public may be no losers by a private project, promoted for the purpose of individual profit. As the right way to begin is always the cheapest way to end, railway promotion should aim at this also, and so bring the council with them. In the consideration of subjects of the kind, scientific principles should guide the way, violations of which are always attended with serious financial consequences. Keeping these points in view, and regarding the question as one for the public convenience and accommodation, I submit the following outline of a scheme, which will, if adopted, meet the requirements of the case. Before describ-

ing it, it may be well to direct attention to a few circumstances of importance. Little, if any, street improvement could be effected to the east of a straight line drawn from the Harcourt-street station to the Broadstone station. To the east of this line, which would intersect the Castle, are all the regular and more beautiful streets of the most beautiful city in the British empire. To the west of this limit of beauty we find the streets narrow, short, and irregular. This is a field for metropolitan improvement. The great irregularities in the streets, &c., are found in a belt extending north and south between the Meath Hospital and the North Dublin Union Workhouse. The eastern boundaries of this belt would be Augier-street, Parliament-street, and Capel-street; the western boundaries being Patrick-street, Nicholas-street, and Church-street. To the improvement of this belt the railway promoters, and the council, should give particular attention at the present time.

For railway purposes I propose that a new branch, from the Drogheda line at the Clontarf road, should pass between Richmond and Ballybough-road, and be continued almost direct to Brien's-bridge, where a station should be erected. From this station the line to curve with a half mile radius, and come into junction with the "Great Western" between Constitution-hill and Queen's-inns. From this point the common line should be made through the Linen-hall; and following the line of one of the small streets, between the Hall and Ormond-quay, be carried over the Liffey to the block of buildings between Christ Church and Wood-quay. This line I would continue between Patrick-street and Werburgh-street, keeping to the east of St. Patrick's, to cross at the junction of Bride-street and Long-lane, and pass over Camden-street; to be continued between Charlotte-street and Harcourt-street, and come into junction with the "Wicklow" line, near the Canal-bridge, Charlemont-place. From the King's-bridge terminus I propose a line almost direct, to form a junction with the above traces city line, at the present block of buildings, already alluded to, on Wood-quay. This would be the point of a general junction, and the central station. For all railway purposes it is not important to form a junction with the Kingstown line in or at the city. It would be preferable to make this junction say between Rathdrum and Kingstown, or some other point on the Kingstown line. The streets of Dublin radiate from a central surface between the Castle and the Courts, in the middle of which would be my proposed central station. To make this locality serve for the new purposes, I propose to add to the beauty of the city, by forming an open square on Wood-quay, between Fishamble-street and Wintavern-street, into which Dame-street from Parliament-street, and Thomas-street from South Bridge-street, would be opened direct; by forming new and commodious streets over the new square the railway would be carried into the central station on its south side. By continuing Ship-street to Augier-street, Stephen's-green part of the city would be opened to the central station. The improvements effected, in conjunction with the railway scheme I propose, would, I am satisfied, be highly advantageous to the city and the railway proprietors. I suggest that they should be carried out in any case, so that the proposition is one of metropolitan improvement, as well as railway projection. The extent and description of property to be dealt with would be advantageous to the promoters, so that fewer difficulties would be encountered in connection with this scheme than with most others irregularly, or regularly before the railway people and the public. I desire to draw attention to the features of this scheme, and therefore request to be favoured with a space in your valuable and select columns.

J. A. SMITH, C.E.

Belfast, Nov. 13, 1863.

### ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A GENERAL meeting of the institute was held on Thursday evening, the 19th ultimo, in the board-room of the Royal Hibernian Academy.

GEORGE WILKINSON, Esq., in the chair.

Present.—Messrs. W. F. Caldwell, E. T. Owen, J. Bell, C.E.; J. J. Lyons (Assistant Secretary); S. Symes, W. Tallard, W. H. Lynn, T. Drew, J. J. McCarthy, R.E.A.; F. V. Clarendon, C. D. Astley, J. E. Cammell, W. J. Welland, E. P. Gibson, H. Byrne, N. Montgomery, W. Fogarty, G. C. Ashlin, C. Papworth, E. H. Carson, W. Longfield, C. Goughgan, F. Franklin, and J. H. Owen, Hon. Sec. The minutes of the previous meeting were read and confirmed.

Letters having been read from the president, Charles Lanyon, Esq., R.E.A., and from one of the vice-presidents, Jacob Owen, Esq., suggesting that

their respective offices might be more worthily filled by some other gentleman, it was, on the recommendation of the Chairman, unanimously resolved, to request those gentlemen to favour the Institute by retaining their offices during the ensuing year.

Mr. James Owen submitted to the Institute a section to a large scale of the roof of the great sugar store in the Custom House docks, Dublin, and explained the means which had been adopted for its restoration to its original position by the use of screw-jacks, and an alteration of the position of the timbers, &c., at the suggestion of Col. M'Kerlie, R.E., Commissioner of Public Works.

In the discussion which followed, Mr. Clarendon, Mr. Symes, Mr. Caldwell, Mr. Lyons, and others took part.

The President conveyed the thanks of the Institute to Mr. Owen for his communication. He hoped the members would follow Mr. Owen's example, by affording similar opportunities for the discussion of difficult points in their professional practice.

Mr. Clarendon brought forward a resolution to the effect that "for the purpose of ensuring the more regular attendance of the council members at the meetings of the Institute, a record be kept during the session of the attendance of each, and that any member who should be unable to assign proper cause for frequent absence should be ineligible for re-election." Mr. Lyons said he felt much pleasure in seconding that resolution.

The Secretary read a letter from the Secretary of the Royal Hibernian Academy, granting the use of the board-room of the Academy for the meetings of the Institute, when not otherwise occupied.

The scrutineers reported that the following had been elected as the officers of the Institute for the ensuing year:—

Patron—His Excellency the Earl of Carlisle, K.G. President—Charles Lanyon, Esq., R.H.A. Vice-Presidents—Jacob Owen Esq.; P. Byrne, Esq., R.H.A.; Sir Thomas Deane, R.H.A. Council—Sir John Benson, F. Darley, F. V. Clarendon, G. Wilkinson, S. Symes, J. J. McCarthy, R.H.A.; Park Neville, W. J. Barre, J. R. Carroll, and G. Ashlin, Esq. Hon. Secretary—James H. Owen, Esq., M.A. Assistant Secretary—J. J. Lyons, Esq. Treasurer—W. G. Murray, Esq., R.H.A. Auditors—N. Montgomery and J. McCarthy, Esqs.

The following gentlemen were also elected:—J. C. Burne, and J. Alfred Adams, Esq., as Fellows of the Institute; and Henry Wilmott and Francis Nolan, Esqs., as students.

### BELFAST.

THE Harbour Commissioners have accepted the tender of Messrs. Monck & Co., for construction of the new *graving dock*, but, subject to certain conditions; that of Mr. George Adamson, of Edinburgh (which was lower), being held over for further consideration in the interim of final arrangement. Four tenders have been selected out of the lot sent in for the *floating dock*, and Messrs. Brown, Kent, and Smith (a firm composed of Belfast men) are the successful competitors; the work to be completed in three years from January next. We are enabled to give particulars of a few of the tenders in both cases as follows:—

	Float dock.	Grav. dock.	Total
Connor & Co. -- --	£37,762	£28,000	£65,762
Monck & Co. -- --	88,232	25,337	113,569
Brown, Kent, and Smith	83,011	30,500	113,511
George Adamson --	80,371	25,638	106,009

The floating dock will be 1,500 feet in length, 500 do. over top of slope, with an area of about 14 acres, 25 feet of water to be always in dock, walls 15 feet thick at base and 5 feet at top. The *graving dock* to be about half the size of the foregoing.

Steps are being taken with the view of forming a line of railway, about ten and a-half miles long, between Kesh and Fleetwood, and Garsington. The cost is to be raised by 6,000 £10 shares.

An underground railway, for connecting, in a central terminus, the several lines branching from Belfast, is projected, on a design by Mr. Coddington, C.E. The project seems to be in favour.

Mr. M'Lincoln, at a recent meeting of the Water Commissioners, to whom he had himself previously submitted a plan for an improved water supply, complained "that that needless, extravagant set, the present Water Commissioners and their predecessors, had actually spent £86,000 on speculations and plans for getting water into the town, and that nothing had ever come off all the expenditure in the way of much benefit to the town. The Water Commissioners had now bargained to give Sir John Macneill £11,800 for surveys if the proposed bill be carried, and £1,200 if it be thrown out. Sir John had already got £200."

A correspondent of a local journal addresses the following pertinent observations on the same subject:—

\* There were also a number of votes recorded for Messrs. Carson, Caldwell, and Goughgan, as Council members.

"I have an idea that there is as much water to be had at Whitehouse as would supply the town with water seven days in the week for a long time to come. There has been as much water running past to waste, of no use to any one, as would have filled the town dams every week; and, after heavy rains, the rush of water is something enormous, and even in the dry months of summer there is a large and constant run of perfectly clean water.

"This water could be lifted at an elevation sufficiently high to make it run into the present dams by making a pipe, say a couple of miles long, so that there would be no outlay for new dams. All the engineering expense would be the making of the pipe, which would not be very costly; and, as far as I can understand, there are only two interests to be bought up, neither of which would be difficult to deal with, so that this scheme has the appearance of cheapness, and is well worthy the attention and examination of those interested in the matter."

A new cemetery is proposed to be formed at Deerpark, to relieve the present fearfully over-crowded graveyards of Belfast; that of Friar's Bush especially, where it is stated that "the spade is still, day after day, thrust into soil saturated and stained with the remains of what was once human. Still are the bones of the dead 'scattered at the grave's mouth, as when one cutteth and cleaveth wood on the earth.' In the other graveyards of the town similar and almost equal abuses are nearly as frequent." The cost of the 150 acres available would be at the rate of £80 per acre—a large figure truly. The Corporation only require 44 acres, yet they are urged to take 150.

Portions of the Shankhill Cemetery, and of the New Burial Ground on the Antrim road, are, as yet, wholly untenanted, while in other parts old coffins and corpses are disturbed to make room for every fresh arrival.

Excepting a few new warehouses in the immediate town of Belfast, and some house building in the suburbs—which are extending rapidly—there is nothing of much importance to note in that line.

A new Wesleyan Chapel is about to be erected on the Botanic Road, at a cost of about £2,500. The design, by Mr. W. J. Barre, was chosen in a select competition. The style of the building is Venetian, and is to be executed principally in brickwork. The principal feature is a tower, about 100 feet high.

## TOWNS' SURVEY.

### NEWTONARDS

In a previous brief notice of this town we congratulated the inhabitants on its extremely cleanly aspect, and the freedom from mud and slush so observable in its streets; but it seems that since that period the householders have discovered that they were not liable to pay rates. They have literally "kicked against" contributing to corporate funds, and the consequence is, that the streets now remain unscaevaged, and during a continuance of wet weather—such as has prevailed recently—one has to wade through mud, ankle deep. To the fairer portion of the towns' people—the character of whose attire does not admit of their wearing the protecting "leggings" now so generally worn by "the lords of the creation"—this must prove most annoying, and indeed such a state of things is, to say the least, a great slur on the gallantry of the Newtonards gents. They have every right in other respects to be proud of their town; it is well laid out with spacious streets, and has a market square and market house, second to none in Ireland, and vastly superior to many with double its population, which is about 10,000 inhabitants. The commercial houses are numerous and well kept, evidencing a "very well to do" position of their owners in spite of the recent protracted depression of trade, owing to the American war. We learn with great pleasure that there is now constant employment for the poor of both sexes in weaving and spinning, although the average earnings are admittedly low, being about five shillings per week per adult. In many parts of the town the habitations of the poor are miserable and dirty, but not generally so bad as we have noticed elsewhere. The position of the railway station has been changed, and is now more centrally situated on an elevated site at the termination of a short street at the back of the market house. A few works of minor importance have been done in connection with the Presbyterian and Methodist church structures, and the court-house has been enlarged and generally remodelled. For this latter Mr. H. Smith was the architect, and that gentleman is also engaged on various private works in the locality, in which he is ably assisted by his local charge d'affairs, Mr. Chappell. It is but justice to the lord of the town, the Marquis of Londonderry, to record, that everywhere on his estate his laudable exertions to better his tenantry are appreciated; and we must express a hope that—although his lordship's intelligent and

energetic agent is faithfully carrying out his noble master's well-known principles of liberality and improvement—his lordship himself may speedily be relieved from an illness (we trust only temporary), and again be enabled to assume the reins of direction. Chiefly through the encouragement afforded by the noble Marquess, an entirely new thoroughfare, named "Court-street (leading from the old court-house), has been opened up within the last ten years, and presents substantially erected two-storey dwellings on either side. Some very pretentious houses are in course of completion in Francis-street, and at the rear of same, a block of commercial houses of attractive design, in variegated bricks, were finished some time since under Mr. Chappell's directions. The Model-school, which is a large establishment, and presents an uncommonly pretty front in the Jacobean style, was erected after designs by Mr. F. Darley, late architect to the Board of National Education. A strong drawback to the comfort of the inhabitants is the absence of that now almost indispensable necessary in the public streets of "gas." Why it should be wanting is accounted for by the absence of the public rates referred to, but as there are excellently-adapted gas works in the town, and as from the private consumption of the article, the shareholders are deriving a profit of ten per cent. on their invested capital, we trust that the inhabitants and the company will speedily arrive at some arrangement to secure street lamps. The outlets of Newtonards are much frequented for their pleasing scenery, and the excellent sea bathing afforded along the Carrickfergus shore.

## Correspondence.

### IMPROVEMENT OF THE CITY.

#### Earl of Meath's Liberty.

SIR,—I beg to call the attention of the corporate authorities to the state of this neighbourhood, from the continual overflowing of the Pimlico River, flooding Pimlico, Ardee-street, to Cork-street, the top of the Coombe, to Meath-street. The passers-by have to walk in water and mud every winter, but for the last two months the above localities are covered over with water. Now that the Corporation are in an improving mood all over the city, I trust that in justice and fair play they will forthwith cast a tender look towards this once flourishing but now deserted and neglected Liberty; and if it were no other than in a humane and sanitary point of view, this open gulf of human destruction should be put an end to.

#### A RATEPAYER AND INHABITANT.

### CARLISLE BRIDGE.

#### TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Has it ever occurred to any of your fellow-citizens that Carlisle-bridge might be widened in the following manner, at a very small cost?

Let the present bridge be entirely devoted to horse and carriage traffic, and on each side throw across a light iron footway—say twenty feet in width—supported by iron buttresses, affixed to the bridge. This footway would, of course, be made in sections of cast iron, and therefore could be constructed at a very small cost. Pathways similar to these have been constructed on each side of Lambeth-bridge, in London, beneath which the gas-pipes are placed, which act as supports to the footways, and are easily altered or enlarged, if necessary, without disturbing the bridge itself. The same might be done here, and the whole of the work might be effected without stopping up Carlisle-bridge for a single day.

N. H. R.

[This suggestion was made long since, and plans prepared by Mr. Sloane, C.E., and others.—ED.]

## Public and Private Works.

Plans by Mr. W. J. Barre, architect, have been approved of for the erection of a new Wesleyan church and schools at Enniskillen, at a cost of about £2,000, and is to be proceeded with immediately.

The committee of the grand jury of the county Tyrone have given instructions to Mr. Barre, of Belfast, for the preparation of plans for extensive alterations and additions to the court-house at Omagh; and for the purpose have purchased some property adjoining, upon which the new county offices are to be erected.

The Church of Ballymoy, diocese of Armagh, is to have a new chancel, with memorial window, by Hardman, and to be fitted up with stone reredos, and carved wooden stalls; the floor in encaustic tiles, by Minton. The chancel arch to be formed in stone, with responds of polished marbles, and the rail in wrought iron and brass. The nave to have new floors (the aisle's being in Minton's tiles), and

to be fitted up with open benches, in deal. New stone windows, with stained glass, are also designed for the nave; the old wooden frames to be removed. Several other matters connected with the church have been provided for, in order to make a complete restoration of the building, which are to be carried out under the directions of Mr. Barre.

An extensive spinning mill is in course of erection at Comber, near Newtonards.

The Right Honn John Wynne is about to erect a glebe house at Ballaghamechan, near Manorhamilton. The works are to commence early in the spring, from plans made by the diocesan architect, Mr. J. F. Fuller.

Mr. M'Curdy, architect, having been instructed to prepare plans for the new building for the Hospital for Incurables, they were finally approved of, and tenders were directed to be taken from eight eminent builders. The extension is calculated to accommodate twenty-eight consumptive patients, and a long covered piazza for all the patients, and is to be completed by 1st July next. The total sum received towards the extension was reported to be £395, less than half the sum required for the erection.

It is proposed to construct an iron or stone pier with all proper works, tramroads, approaches and other conveniences connected therewith, at Ard-glass harbour, for the embarking and landing of passengers, goods, and merchandise; to improve the existing harbour, and to erect and maintain a new lighthouse or beacon. Also to construct, in connection with same, quays, wharfs, jetties, landing places, approaches, warehouses, offices, sheds, weighing machines, and other works and conveniences.

A stone quay, with wooden pier and landing stage attached, is to be erected at Carrickfergus harbour; plans to be seen at the office of Messrs. Bowman and Campbell, Belfast.

The Church of Raymunderdoney, county Donegal, is to be enlarged and improved, after plans by the architects to the Ecclesiastical Commissioners.

Registry offices and strong closets are to be built at the Ballinrobe, Ballymahon, Byle, Carrickmacross, Balrothery, Donegal, Dunshaughlin, Carrick-on-Suir, Castleross, Dingle, Fermoy, Gort, Navan, Granard, Kilmallock, Mohill, Nass, Nenagh, Parsonstown, Roscrea, Scariff, Strokestown, and Youghal Union Workhouses respectively.

A new Dominican Priory is to be built at Tal-lagh, county Dublin, according to plans and specifications by Mr. J. J. McCarthy, R.H.A., architect.

## General Items.

A correspondent of the *Nenagh Guardian* states that it is generally reported that the Messrs. Malcomson are about to establish a flax factory at Kilmalloe, on the banks of the river, and that the railway is to be extended to the deep water of the Shannon, so that steam packets and vessels of every tonnage can come up to the railway station.

The Board of Trade have lately caused the works of the harbour of Portpatrick to be actively prosecuted, and a short time will complete them; and as the harbour of Donaghadee is completed, and the railway open to both ports, the route will shortly be opened for traffic.

A large public house, styled the "Three Wheat Sheaves," in Islington, London, suddenly collapsed on Thursday morning while a number of men were employed in altering the premises. Several of the unfortunate fellows were buried in the ruins, and it is feared that two of them will not survive.

Engineers were in the neighbourhood of Waterford last week, surveying the estuary of Waterford Harbour, with a view to decide upon the positions of massive pillars on which to fix an enormous railway bridge between the hill of Passage and that of Ballyhack. The expense of the bridge is estimated at £100,000, and, if this link of railway were complete, it would connect the Waterford and Limerick line, and its branches and extensions, which, when completed, will form an unbroken line from the terminus to Galway, and thus reach the American packets, with Wexford.

A curious and interesting discovery has recently been made in California of a pyramid very similar in construction to the Egyptian pyramids, only very much smaller. The stones composing the courses average 6 ft. in length, and from 1 ft. to 3 ft. in thickness.

The road leading from Victoria Wharf, at Kingstown, passing the Royal Irish Yacht Club, over which the ponderous conduit pipes of the Dublin waterworks were carried to be loaded in trucks for transit for the Dublin and Wicklow Railway to the works, having been found to be much cut up, the Public Works commenced lately laying down a temporary tramway on which the waggons are in future to travel.

## Miscellaneous.

**THE NEW DEERPARK CEMETERY. BELFAST.**  
—In the particulars of extent and situation, the ground proposed for the new cemetery is suitable for its purpose. But other points have to be considered. Among them is the question of price and if it be true that the Water Commissioners are entitled, under their act, to the water of the Deepark streams, it will be needful to make some fresh arrangement with them, or to abandon the Deepark scheme altogether. The water which has been filtered through a cemetery is not likely to be palatable to taste or the imagination. The nature of the soil must also be taken into account. These are points on which satisfactory information and explanation should be given, in the absence of which advocacy, or opposition to, the project would be premature. — *Whig*.

The *Morning Herald*, October 23, 1862, speaking of the Plate in the Exhibition, says, "Mr. Benson, who has a medal for plate, exhibits some beautiful things." Benson's Argentine is a splendid material composed of various metals, with a heavy deposit of pure Silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of Silver, at a fraction of its cost. When the Argentine and the real Silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the Public, that its manufacture has been extended to all those articles usually made in Silver, viz., Spoons, Forks, Dinner, Tea, and Coffee Services, Waiters, Bread and Cake Baskets, Candelabra, Dishes of all kinds, Epergnes, Claret Jugs, &c., &c., &c. A Sample Spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps; and an Illustrated Catalogue containing 300 Engravings and full Price-list of the various manufactures, both in Argentine and solid Silver, will be sent to any address on receipt of six stamps. A Prize Medal was awarded to J. W. Benson for "Excellence of manufacture, Argentine and Electro Plate." Post-office Orders and Cheques should be made payable to James W. Benson, Branch Establishments, 46, 47, and 63, Cornhill. All communications should be addressed to the Principal Establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

**BIG BEN.**—"Big Ben" is once more announcing the time from the clock-tower of Westminster Palace. It was discovered, on examination by the founders, Messrs. Mears, that it was not so cracked as people imagined, and consequently it has been again set to work. The crack did not pass completely through the metal, and though the tones are rather subdued, it performs its functions in the most exemplary manner, proclaiming the passing hours to distant parts of the metropolis.

**CRYSTAL PALACE.**—Nadar's Great Balloon, with the lower (or compensator) balloon, has at length been fully inflated and fixed in the Centre Transept. Mons. Nadar, who has very nearly recovered from the effects of his accident—only walking slightly lame—is daily at the Palace, superintending its exhibition. The nacelle (or car) has been fitted with its various appliances, and visitors are allowed to ascend into it and examine the various ingenious contrivances arranged by M. Nadar for the purpose of more easy and complete aerial navigation. From the interest shown by the public in this vast aerial machine, the Crystal Palace Directors have concluded an arrangement with M. Nadar to continue the exhibition of the balloons at the Palace over the Great Metropolitan Cattle Show, which will be held in the second week in December.

**BUILDING A DAIRY.**—"A Subscriber and Small Farmer."—As I intend to build a small dairy, about 12 feet square, having six to eight cows, next spring, the present one being damp and cold this time of year, inform me if it is better to have the ceiling flat or the laths nailed on the rafters. If flat, it would, I think, be cooler in summer, as there would be more room from the slates. What is the best kind of floor—Portland cement, lime ashes, tiles, or any other? Would white glazed earthenware tiles be better for the walls from the pans to the ceiling, than plaster? Would rough plate glass be better for the windows than common glass, as I believe much light is not required or beneficial? I intend to have a stove in the present dairy, the new one to be built outside, with a door between, and a metal pipe from the stove to go through into a flue in the end of the new one. The churning and butter to be made in the present dairy, and only milk and cream to be kept in the new one. If the side walls

are between seven and eight feet high, or upwards, a flat ceiling will be best; if not, it will be necessary to cover the sides of the rafters, and then lath and plaster the collar braces. The best sort of floor is either thick slate flags or encaustic tiles. The others named are too absorbent of liquids to suit a dairy, and the walls, from the pans up to about two feet high, are best lined with white delph tiles; above that height good common plaster will suffice. Rough plate glass will answer for the windows, but good clear glass will answer equally well, particularly if the aspect is a northern one, which it should be. But the windows of a dairy should be furnished with three sliding sashes—one of glass for medium weather, one of a frame of wood for cold weather, in addition to the glass, and one covered with coarse open canvas for warm weather, which should be in use when the other two are let down in grooves, so as to admit as much air as possible in hot weather. The canvas can also be wet occasionally, which will cool the atmosphere when required. The stove, when properly arranged, would be of great service in the winter, as you can raise the temperature at pleasure, but it would be more cleanly done, and with more effect, by hot water pipes connected with the dairy boiler.—*Furner's Gazette*.

The *Daily News* of May 29th, in its description of Benson's Great Clock, says: "The entire finish is of the highest cast." Benson's new Show Rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bed room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world to select a clock. Also a short pamphlet on Cathedral and public clocks, free for one stamp. J. W. Benson received a Prize Medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H. R. H. the Prince of Wales.

**TIMBER.**—At Messrs. Martin's timber sale, on Thursday last, there was a good attendance of the trade, and though there was a very large stock of prime timber and deals offered, yet buyers showed no disposition to purchase except for immediate requirements. The following is an abstract of the sale:—

165	pieces of Quebec yellow pine, fresh	52s 6d to 62 6d
180	" Large fresh red pine ..	65s to 75s
72	" Sundswall ..	47s 6d
20	" St. John's pine ..	47s 6d
11	" birch ..	47s 6d
2	" Quebec oak ..	80s
7,600	" St. John's spruce deals	
	£12 2s 6d to £14, average ..	£13 2s 6d
990	" Damaged spruce ..	£10 4s

Imported per Empire Queen, from Quebec, 52 pieces oak, 126 do. birch, 469 do. red pine, 286 do. white pine, 776 do. spruce deals, 9,889 pipe staves, 7,200 w. p. staves, 6 cords lathwood; per Hum-berston from Quebec, 7,248 deals, 1,596 staves.

**ANNEALED LAMP CHIMNEYS.**—A source of great expense and trouble to those who burn petroleum is the glass chimneys of the lamps. The term "brittle as glass" may be truly applied to them. They really appear to be manufactured for the purpose of being easily broken, so as to increase the demand for them upon their makers. It would be for the interest of dealers in petroleum to attend to this subject, as the great brittleness of these chimneys is due to their not being annealed. It would add but little to their original cost to anneal them properly, but would add much to the economical side of the question on the part of those who use them. As the case now stands, they are blown, and sent forth to market, tender as mushrooms, and just as long-lived.

**NEW LIGHTHOUSE AT ARRANMORE.**—During many years past, the north-west coast of Donegal has been the scene of lamentable losses both of life and property. This has been caused, to a great extent, by the lighthouse on the Island of Arranmore being abandoned. A new lighthouse has just been completed there, at an expense of close upon £10,000. The structure is of granite. Messrs. W. Crowe and Sons, of Dublin, were the contractors. The lamp about to be erected is the first that has been constructed by an Irish establishment, Messrs. Edmundson and Co., of Dublin. The new light is to be a flash-revolving one of the first class.

**THE DUBLIN AND KINGSTOWN STEAMPACKET COMPANY.**—A dividend of 7 percent. will be payable at the Dublin and Kingstown Company's office, 29, Eden-quay, Dublin, on and after the 1st of December, between twelve and three o'clock. The directors having contracted with Messrs. Walpole and Webb, of the iron ship-building yard of this city, have decided on a further issue of shares.

**THE ALLIANCE BUILDING SOCIETY.**—Arrangements have been made for holding a public meeting, in connexion with this society, on next Thursday evening, in the Temperance Hall, Kingstown, at which James Barrett, Esq., J.P., chairman of the Town Commissioners, has intimated his intention of presiding. The institution offers many advantages to investors and borrowers, and brings its operations within the reach of all classes. The shares are £25, and the subscription 2s. 6d. per share per month, to accumulate at compound interest. It is stated that the operations of this society will not in any wise affect the already established and well-conducted local ones at present existing here. In Birmingham alone 9,000 houses have been built by the operative classes through this means, and it is hoped that Kingstown may experience a proportionate benefit.

**THE NEW CATTLE MARKET.**—The business heretofore carried on for so lengthened a period at Smithfield was, on the 26th ult., transferred for the first time to the "New Dublin Cattle Market," North Circular-road. There was a very large attendance of vendors and buyers, and at an early hour the supply of cattle and sheep in the market was extensive. A vast amount of business was transacted, and the arrangements seemed to be generally of a satisfactory character.

The *Illustrated London News*, November 8, speaking of Benson's Watches in the Exhibition, says—"Ranged around the base of the clock were the Watches which Mr. Benson exhibited, and which have been universally admired for the beauty and elegance of the designs engraved upon them. The movements are of the finest quality which the art of horology is at present capable of producing." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's Illustrated Pamphlet on Watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Class 33, Honourable Mention, Class 15; 33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

**BUILDING SOCIETIES AT KINGSTOWN.**—Perhaps it may not be generally known that there exist in Kingstown at present three benefit building societies, each managed by local committees and trustees. The first of these societies was founded in the year 1853, under the name of "The Kingstown Tradesmen's Benefit Building Association." This society numbers one hundred members, and each member is entitled to £100 on account of his share. The second was founded in 1860, as a branch of the foregoing, and also numbers 100 members, and, in like manner, each member is entitled to £100 on account of his share. The third is called "The St. Joseph's Building Society of Kingstown," was founded in 1857, and numbers 100 members, each of whom is entitled to £50 on account of his share. Great benefits have attended the formation of these societies in Kingstown, proving what can be accomplished by earnest local men, who work with zeal, integrity, and prudence in discharge of self-imposed duties for the benefit of their fellow-townsmen.—*Irish Times*.

To soothe the sufferings of humanity and ameliorate the pangs of disease, are the grand objects of medical science. This is efficiently demonstrated in the curative virtues of LEA'S GOUT AND RHEUMATIC PILLS, advertised in our columns. The cures effected by this invaluable medicine would fill volumes.—*Daily Telegraph*.

DUBLIN BUILDER OFFICE, 42, Mabbot-st.

It is respectfully requested that amounts of accounts for Advertisements may be paid to Mr. PETER ROE, soon as convenient after same being furnished.

Subscriptions to this Journal are in all cases payable in advance.

# The Dublin Builder.

VOL. V.—No. 96.

## THE CONCLUSION OF OUR VOLUME.

**H**EREWITH we close our *fifth* volume and our *ninety-sixth* number!

During the course of the year of which we are now about to take final leave, it has been our pleasing duty to give place to many valuable papers and original matter on a variety of topics connected more or less with Architecture and the kindred Arts and Sciences; also to record numerous items of building improvements and general artistic and industrial progress. In our investigations to the latter end, we have not confined ourselves to proceedings in the metropolis alone, but the conductor of this journal—Mr. Lyons—has *personally* visited some important towns in each of the four provinces, and given to our readers the results of his observations thereat. Believing that pursuit of a similar course during the ensuing year will contribute largely to increased appreciation, and tend to a great *Public benefit* by exposing *wants, defects, and misgivings* connected with the management of towns, while also chronicling their recommendatory and general characteristics, *this series* will be continued at such intervals as the Editor's avocations will admit. Perhaps it may not be inappropriate here to suggest, that on "Public grounds" (*and those only*) we trust to an extension from railway and other companies of the courtesy of affording facilities for our locomotion hitherto extended to us almost unexceptionally.

We have also to acknowledge the uniform kindness of our brethren of the Press, of all shades (the *Irish Times*, the *Freeman*, the *Saunders*, the *Mail*, and the *Morning News* especially) in lending a helping hand to our mission whenever occasion admitted, and in quoting freely from our columns.

With every earnest desire to merit a continuance of good will and support, and with grateful appreciation of the *many, very many* substantial acts of kindness shown by valued friends and the patrons generally, we write **FINIS** to the DUBLIN BUILDER for

**1863!**

## THE NATIONAL SCHOOLS' PLAYGROUND.

CONSIDERING the large expenditure of public money incurred in the erection of the extensive blocks of buildings forming the Metropolitan Central Model National Schools, we must remark, that it so far appears that a "penny wise (?) pound foolish" policy has been pursued with reference to the boys' playground, which has been left in a very incomplete state. The large area at the rear of Lower Gardiner-street, devoted to that purpose, exhibits a *patch* of flagging thereupon, while the remainder is covered with *debris* from the recently erected buildings, resembling in its crudeness the metal surface usually prepared as a preliminary

for an intended new roadway. This is highly objectionable in more regards than one; boys in play are wont to get an occasional "toss," and should such a casualty occur on this shingly surface, the consequences might be serious hurt and disfigurement; they are also apt to indulge in a *sham* or a *real* fight when supplied with ammunition, and not unfrequently to test the precision of their aim at neighbouring window panes. Frequent complaints of broken glass by reason of missiles flung from this playground have been made of late by the inhabitants of Lower Gardiner-street, whose windows look into the boys' playground; and as either chance or design recently sent *ourselves* an unwelcome visitor of this class, we may be excused—we trust—for drawing the *very special* attention of both the Commissioners of Education and of Public Works to the subject, who ought to adopt more precautionary measures in future against a repetition of the offence, than is afforded by the presence on the grounds of a (presumed to be) ubiquitous policeman.

## ARCHITECTURE AND ENGINEERING.

ARCHITECTURE may be considered as divided into three branches—the first, Civil; the second, Military, or Fortification; the third, Naval or Ship-building. Civil Architecture is again subdivided into Civil architecture proper, and Civil engineering. The first of these latter, viz., Civil Architecture proper, is alone generally supposed to be a fine art and susceptible of beauty.

But they are all I conceive, in different degrees, susceptible of that quality, and ought so to receive it. In the pursuits of the naval architect and civil and military engineer it is, of course, more important that the physical laws of matter should be consulted than the principles of æsthetic beauty. But beauty is a quality that cannot be ignored—nay, that should be earnestly sought in them. Man, having æsthetic and spiritual wants, as well as physical, every object he builds, and that is daily before his eyes, should be made as beautiful as it is capable of being, by which, as it serves two purposes, it becomes doubly interesting and valuable. Architecture is the art of the beautiful in building—building of any kind, and there is no structure into which the fine-art essence, the spirit of beauty, will not enter. She is capable of revealing herself more or less in every form which the physical wants of man, wants arising out of his nature and constitution, dictate, and which ascends into the sphere of architecture in proportion as it has received her impress.

This spirit of beauty can float over the sea in a ship, which is susceptible of a fairy-like grace, and of all the charms that carved decoration and painting may lavish. She can span the river in a bridge as well as pierce the clouds in a spire, or emulate the firmament in a dome, and even throw a veil of enchantment over the threatening war-tower, or lonely beacon and lighthouse; for even buildings erected solely for offence, or warning of danger, may have beauty of form and proportion without impairing strength or interfering with scientific principles of distribution, as the towers of Caernarvon and Conway, and the Eddystone lighthouse will testify.

As to the works of the civil engineer, they are in a still greater degree susceptible of beauty. Nay, in any broad view of architecture little distinction can be seen between Civil Architecture proper and Civil Engineering; the latter melts into the finer art, and is embraced along with it in any true theory of the art. Bridges, whether of brick, or stone, or iron, may be as beautiful as houses; bridges, and mills, and aqueducts, and warehouses, and factories, every thing erected by man upon the face of the earth, may, like the works of nature, have its own species or order of beauty.

It is, however, Civil Architecture proper that is pre-eminently a fine art, susceptible of the highest order of beauty, inasmuch as it embraces that class of structures to which man is naturally most inclined to give beauty, which most loudly calls for it, or to which it is most essential—structures wherein are the scenes of his enjoyment and sufferings, and which are hallowed in his associations and memory by the occurrences of birth and death, as well as those which he raises to the memory of his departed dear or great ones, or dedicates to the honour of his Maker, to mark and symbolise his relations to the Infinite—the hospitable mansion, the sumptuous palace, the triumphal pillar—the august and solemn temple. It is this branch which is emphatically the art of the beautiful in building. It is the art of idealising the great physical exigence of shelter, and enclosing space by forms that shall possess fitness, durability, and delight. It is the art of con-

structing the beautiful, the sublime, of transfixing the melody, of petrifying the poem—by its arcuated and columnar perspectives, its mysterious recesses, its fretted vaults, its majestic domes. It is the creator of the enrythmical mass, the symmetrical and harmonious utility, the gorgeous palace, the cloud-capped tower, the solemn fane. It is in a word, the tent, the cave the hut, exalted from the lowly vale of material necessity to the ethereal regions of art and beauty.

This is the branch which we are about to exhibit historically in its numerous and various styles or modes—the phases it has assumed among different nations and in different times.

That these styles or modes should be numerous and diverse was from the very nature of architecture to be expected. As the geographical distribution of plants in the vegetable world is influenced by conditions of soil, heat, moisture, light, and many other causes, so the geographical arrangement of architectural styles is ordered by conditions of climate, scenery, &c.; by the political and social state of communities, the quality of their mental organisation, their literary and scientific status, their pecuniary resources, their religious belief, and national propensities. Without these there is no reason why styles of architecture should not be identical, or why the style of one country should differ from that of its neighbour or any other. On the other hand, if all these conditions were fixed and unalterable, a style of architecture once formed would never change. Some of the conditions are so. But since others alter with the course of time, as the political and social state of communities, for instance, their literary and scientific grade, pecuniary means, and sometimes their religious creed, it follows that architecture not only differs in different countries, but is unlike in unlike ages in the same country, and changes is each with the mutations of society, participating in the revolutions in man's political, social, and intellectual condition, and running like an organic structure through a continuous variation of phases from its birth to its decline and dissolution.

## EGYPTIAN.

Of the origin of Egyptian architecture we know nothing. It is lost in the night of time, beyond the ken of historic or monumental record. For aught we know to the contrary, Egypt was the cradle from whence fine-art-building or architecture, properly so called, first rose into being—where it first reached technic and æsthetic excellence, and became truly and indissolubly wedded to the sister arts. By the Egyptian temple-and-palace-builders, who are now generally admitted to have been at least the most perfect masons that have existed, was laid the cornerstone of the architecture of the world, for through its parental relationship to Greek, Egyptian architecture is the progenitor of all Roman, Byzantine, Gothic, and other styles—the root of the main trunk of architectural history. If it be not the Adam of the architectural world, it is the Noah—the father of the present, and the orphan of a past one, of which no vestige remains, its parent, if it had one, having perished. We can trace the Greek to the Egyptian, the Roman to the Greek, the Gothic to the Romanesque and Roman; but of the Egyptian none can point to the origin. No style we may say, however, bears more unmistakable marks of being of native growth and invention; the architecture of Egypt is evidently *Egyptian* architecture; while, on the other hand, we may trace its influence, and detect something of its cast and colour in the systems of all succeeding times.

The earliest known form of the style is supposed to be that presented in the structural tombs and buildings around the pyramids of Gizeh, which, as remarked by Mr. Fergusson, shows symptoms of having had a wooden original. In this style appears the cove-cornice and angle-roll, so characteristic of Egyptian architecture in all its successive stages. With the first great Theban dynasty a new style of art, evidently from its showing the same angle-ornament and cornice, arising out of the old Memphian one, makes its appearance in the sanctuary of Karnac, and, though shortly afterwards arrested in its career for some centuries, evidently the same style that illustrated the works of the Pharaohs. The earliest form of Egyptian column is the plain square pier, which afterwards assumed first a polygonal and then the cylindrical form, crowned by capitals of varied shape, from the lotus-bud and papyrus-caps of Beni-hassan and Karnac, to the Isis-heads of Dendera. In order that uninterrupted surfaces might be left for sculptural and pictorial decoration, mouldings were sparingly employed. The crowning cornice, so characteristic of the style, consisted invariably of a plain face or frieze, surmounted by a torus, deep cavetto, and a fillet; and this simply-formed feature was alone employed from the period of the sixth dynasty, when it first appeared, to the extinction of the style under the Romans, varied only its surface-enrichment and relative size.

With these few and simple member.—column,

architrave, cornice—which, so far as we know, the Egyptians invented, and which the Greeks afterwards perfected and idealised in form and expression—with these, along with elements of decoration furnished by sculpture and painting, Architecture in this early period, twenty centuries before our era, and a thousand years before the earliest known works of the Greeks, exhibited on the banks of the Nile, the true elements of the sublime and beautiful in architecture.

The Egyptian style is embodied in two distinct kinds of edifices besides the rock-cut temples—viz., palaces or palace-temples, and temples strictly so called. We say strictly so called: for while the later edifices of the valley of the Nile, which were erected by the Egyptians under the Greeks and Romans, such as those of Esne, Edfou, Philæ, and Dendera, are temples only, those of the ruined cities of the Pharaohs, built chiefly during the great 18th dynasty, being for regal residence and pomp, and having royal apartments attached to them, have been termed palace-temples. Such are the great temples of Karnac and Luxor, as is also that of Amenophis III., generally called the Memnonium.

Among the first things that strike us in these edifices is the number of varied and artistically-pregnant features of which they are each of them composed: sculpture-formed alleys of approach, colonnaded courts, porticoes and halls, not to mention obelisks, colossi, and other adjuncts, elements of plan which are susceptible not only of the greatest conceivable grandeur in themselves, but of such varied modes of combination as to be capable of producing an all but infinite diversity of examples or distinct works.

And this general affluence of resource, while it gave the greatest scope for variety in disposition and proportion, both horizontally and vertically, enabled the architect to produce the most imposing *ensemble* and the most striking and solemn architectural vistas perhaps ever formed. The peristylar court, fronted by the twin towers or moles, which are characteristic of the Egyptian temple, is itself a feature of great beauty; and gives an advantage, by the mode in which it combines and is brought into play, over most subsequent temples. The Greek temple, it is true, had its peribolus, which must have presented a scene of great beauty; but this was not a part of the edifice itself, as was the Egyptian court, but was a sort of superior enclosure, analogous to that formed by balustrades in modern buildings. The hall of columns is another somewhat peculiar feature of these edifices, and enters into the composition both of the temple and palace; that of the palace-temple of Karnac was perhaps the greatest apartment ever formed by man, as was its Caryatic and other courts in all probability the grandest of quadrangles. But even the sublime structure of which these are parts, and which is celebrated for its glorious perspectives generally, does not fully illustrate the merit and capabilities of the Egyptian system, as it does not exhibit all its great elements of plan. This is better done by the later edifices—temples only, where the court is succeeded, and the hall preceded, by the deep and awful pronaos, a feature wanting in the great palace-temples, and which together form perhaps the most impressive architectural spectacle that the art can boast.

Again, the position of the adytum, or sanctum sanctorum, threw more sanctity around the statue and symbols of the deity than it generally did in the classic temple. The adytum was the last and most sacred portion, beyond which the imagination of the vulgar and uninitiated might penetrate, completing a scheme of arrangement the idea of which is carried to the utmost degree of intensity in those temples where courts and porticoes and halls have been erected, and the sacred cell or sekos, excavated out of the living rock. In short, the whole is an arrangement of plan embodying an abstractedly grand architectural idea to which all after temple-builders, whether to the known or to an unknown god, are largely indebted. The obligation of Greece is evident; and the most perfect structures ever reared to Christian worship—I mean the mediæval cathedrals—are closer to the Egyptian than to the Greek type; while the former also more nearly answers to the description of the fore-Christian church, the temple of Solomon, the holiest place of which was, as in the Egyptian temple, separated from the external world by outer apartments and courts of intermediate degrees of holiness, the successive divisions of increasing sanctity corresponding to the supposed qualifications of the several grades of worshippers.

The variety in elements of plan was an advantage no less to exterior design than to interior. In the Greek temples there could be little or no diversity in general composition of exterior, but a rather wearisome sameness. The portico front was everything in Greece; in Egypt it was but one of the elements, which were wrought up by the architect, in a masterly manner, into a composition which showed much of imposing and picture-que grandeur externally. By the admission of different relative heights and sizes in the component masses, they were enabled to break the sky-line in each individual edifice, and to

introduce a great diversity in artistic composition into the class of works, which probably had a direct influence upon Roman architecture to the furthering and encouraging its departure from Greek monotony of plan. Picturesqueness of composition was very much aided by that pyramidal spirit to which the Egyptian, from whatever cause originally, seemed to be singularly attached. The fundamental idea of the Egyptian erected temple was probably caught by its architects from the excavated temple or tomb, and its external form imitated that of the exterior of the rock out of which the latter was hewn; a form that the flatness of their country, which they never lost sight of, along with a desire to emulate nature in the expression of the enduring, led the Egyptians to give to their edifices, and thus apply them to a purpose, similar to one at least, answered by the pyramids, which may be regarded as artificial hills to relieve the aspect of the surrounding desert, and which indeed rejoice in a degree of strength that may render them coeval with the everlasting hills of nature.

Whether the pyramidal principle of their architecture so originated or not, it was no doubt adhered to for æsthetic reasons, otherwise it would not have been so universally applied as it was. I say universally; for while all their temples and palaces were pyramidal in general form and tendency, they were compounded of features which were individually so also. They were entered between truncated pyramids, the frequent occurrence of which in the great palace temple harmoniously wedded and blended the perpendicular and horizontal principles, and rendered the edifices models of picturesque composition, of which the Island of Philæ presents us with examples, equal to anything in any style. And this was further heightened by dromos of sphinxes, obelisks, and colossi; and whatever may be thought of the rather monotonous pole-ornament of the cornice and wall-angle, it must have had a wonderful effect in binding all the different masses of a building together; while sameness was prevented by the variety of its sculptural decorations.

One peculiarity of Egyptian edifices, and one that asserts an important principle in architecture, is its being chiefly interior. In both temples and palaces we see the predominance in beauty of form and architectural decoration, of interior over exterior, which right reason, the legitimate object of architecture, which is to enclose and adorn a portion of space, and which analogy between the material and moral world, dictates it should have. This is consonant with the intellectual and refined nature and conception of art, and more especially applicable to ecclesiastical architecture,—to the temple of religion, which, if symbolism be admitted at all, should, like “the king’s daughter,” be “all glorious within.” A building, beautiful on the exterior only, is but half a work of architecture, if it be one at all; whereas one beautiful only within, though so far imperfect, would be real architecture as far as it went, and would be more likely to be found in every sense commensurate with its purpose. There is no comparison between their artistic value. The beauty of the latter envelops the occupant, and is a never-ceasing charm; the former but ornaments the landscape like a tree or flower.

The principle I am here endeavouring to enunciate was still more vividly embodied by the rock-excavators, in whose works, indeed, interior was all, and exterior nothing, or comparatively nothing, for it was confined to a mere facade. It is an exaggeration, it is true, but the principle is invariable; and no building is, I consider, perfect, in which the graces of architectural adornment have not been drawn upon within to a far greater extent than without—in which interior service and beauty have not been the ruling idea of the whole.

In the greatest palaces of modern times there is much that is mere building—mere utilitarian prose; but those of Egypt are all fine-art work, all embodied poetry; the plans are arranged throughout for the production of artistic qualities, for greatness and grandeur of effect, and power over the mind of the worshipper, and, to my mind, embody the entire essence of architecture as a fine art, and yield the completest possible idea of a temple or a palace. With the exception of the arch and dome, we find in Egypt the elements of all that is great in architecture—the portico and peristyle of Greece, the long-drawn aisle of Gothic—succeeding times having added but little that is really great, and nothing that is essential to a sublime creation, in structural art.

In Egyptian edifices—in the columnar grandeur of the portico and hall, and in the loftiness of the propylæum—we have the seed of the great attributes both of the Greek and the Gothic—the grandest and most magnificent of courts—the noblest of porticoes—the sublimest of halls; defended by the most time-defying of towers, and approached between objects the most striking and significant. You could not have a grander portico than that of Esne, nor enter it from a more glorious court than that of Edfou, nor pass it to a sublimer hall than that of Karnac; and the architect who would design a building abstractly

great, must look not to Greece or Rome for inspiration and suggestions as to principles of distribution and design, but to Egypt—to the temples and palaces of the Nile, the plans of which I look upon as the most ambitious ever drawn. They had but one limited kind of beauty, I grant, to which every other was sacrificed. The graces had no place among the gods of the Egyptians; and grace was not a quality sought for as an essential in their architectural works: they immolated it on the altar of the sublime. They did not range the whole circle of nature, and express in their works that infinity of beauty which is revealed to the artist who lays himself open to the influence of the surrounding universe. But it belonged to their purpose so to confine themselves—a purpose to which they subordinated their genius, and which is written in indelible characters on all they did. Their love for nature may have been unrestricted and impartial—indeed, their works prove the ardour of their love for all that was beautiful in creation; but their religion, or the policy of its priesthood, demanded the material expression of the solemn, the awful—the character for which their temples were so remarkable. Though lovers of universal nature, they wooed her only in reference to this, and moulded her images and types in their minds to their peculiar religious purpose, to which their fine sense of the beautiful and poetic, and vast imaginative and conceptive power, was made completely subordinate. The temple, besides being entirely fitted to the services of their religion, which, I would observe, must, at some epochs of their history, have embraced doctrines of deep and solemn import, and contained elements of high spirituality and power if not of purity, was in its entire aspect æsthetically a symbol of their theology, a reflex of their religious creed, with which its (the temple’s) broad effects of light and shade, and vast mural masses, promising an almost immortality of duration, were doubtless in perfect harmony. If the Egyptians did not range through and occupy the whole sphere of the beautiful they went far in the direction they took; for these temples and palaces of the Pharaonic age are at least models of sublimity and power, and embody the most impressive qualities that were ever communicated to one. By an awful severity of linear expression and a general greatness of treatment a power and grandeur was produced that has never been equalled. The Egyptian temple, with its court beyond court, its sphinx-lined avenues, its colossi-guarded portals, stand in my imagination for the most solemn temple ever reared to a deity, true or false, Jehovah, Jove, or Lord; and certainly no aggregation of art-elements assists us more to an abstract idea of a great edifice. In the possession to so unrivalled an extent of these highest of qualities, sublimity and grandeur, Egyptian architecture was a worthy prelude, and preparation for that purity of detail and universal perfection which belongs alone to the design of Greece, to which it stood in the same relation that the Lombard and Norman occupied to the pointed Gothic. But it was more than this: I look upon Egyptian architecture as the complement of the antique or classic circle—as that which completes the elements of the *beau idéal* of architecture, and the study of which would supply what was wanting to reach the full conception of all that was great and lovely—all that could be conceived of sublime and beautiful in the structural art. And though an over-awing power and sublimity are the qualities aimed at and carried to such perfection, yet it is not without grace and refinement, so far as these qualities would not interfere with the former: they were shown in the details, which, however inferior to those of Greece, were exactly suited to the architecture to which they belonged, so that the whole was perfect as regards the intended expression and purpose.

The Egyptian temples no doubt, like all other edifices, owe something of their impressiveness to their greatness of size, which is essential to grandeur; but they, as all intelligent observers of them agree in asserting, had an effect of greatness and magnitude beyond what results from their actual size; for great as is their scale, they look larger than they are. Their visual dimensions were increased by the architect in a degree beyond anything done since. This is one of the merits of Egyptian temples; one in which they have the advantage over most modern ones, which in many instances look smaller than they are. And to that closeness of columnar disposition, to which this was in some measure owing, they were, I believe, not driven by any constructive exigency, as dearth of skill or material, but mainly by artistic feeling. I do not believe that their columns were so thickly placed because they were ignorant of framed trusses; I believe they were thoroughly masters of columnar architecture, understood its every capability, and used the thick-set disposition, as well as that singular irregularity of arrangement observable in the hall of Karnac, with a clear conception of its exact value in hiding the limits of the hall, and making what was really so great seem greater.—“*The Course and Current of Architecture*,” by Samuel Huggins.

## DWELLINGS FOR THE POOR.\*

(Continued from page 196.)

THE consideration of this subject has brought me to a point where my description of details may terminate with advantage in favour of one relating to buildings designed to contain several dwellings, and of these I shall say a few words before I conclude. The site for a block of associated dwellings should be as open, and in a situation as public, as possible, not only to secure the advantages of light and ventilation, but because it is desirable that it should be easily accessible and easily found, and that the residents may have frequent opportunity of contact with neighbours whose habits and appearance are superior to their own. The ends of the site should face north and south, so that its east and west sides may have the morning and evening sun. It should offer every facility for good drainage, and it should not be near an exhausted gravel-pit which has been filled up with dead or decaying animal or vegetable refuse. If the site has been long unoccupied by buildings, the nature of its subsoil should be well ascertained, as it not unfrequently happens in neighbourhoods where new dwellings are most required, and where scavengers and sanitary commissioners are rarely seen, that vacant plots of ground are regarded by the inhabitants as special provisions for their convenience, and are appropriated accordingly, as economical dustholes that require no cleaning. Owing to the increasing value of land in towns, large building sites are not to be obtained except at considerable cost. It is necessary, therefore, to ascertain what area and shapes are most desirable, and to distribute every foot of space to the best advantage.

The most economical dimensions for a site, within the jurisdiction of the Metropolitan Board of Works, are 108 ft. by 60 ft., as they will accommodate a building 108 ft. long by 34 ft. wide, and admit of a play-ground 26 ft. deep in its rear. The multiple of 108 by 34 (3,600 in round numbers) is the area allowed by the arbitrary act by which we are governed, to a building containing several distinct tenements, and possessing only one entrance and staircase. It is therefore of consequence, that its distribution into tenements, lavatories, laundries, bath-rooms, staircases, and passages should be such as to secure the greatest convenience and comfort with the least possible loss. To do this effectually, it is requisite that the building should be of a certain height, which I consider should not exceed 46 ft. from the ground line to the eaves of the roof. This dimension admits as many storeys of dwellings as can be occupied with comfort to the tenants, and it requires no unnecessary thickness of walls. If it be expedient, as I have already suggested, to consult the wishes of one resident living alone, it certainly becomes much more so, to comply, as far as possible, with those of several residents when congregated under the same roof; and very high buildings offer obstacles to the accomplishment of this very desirable end too serious to be disregarded. To avoid all envyings and grumbings, the plan should be arranged so as to distribute the advantages of residence in tolerably equal proportions to all, and, therefore, the subdivision of the allotted superficies of 3,600 ft., and the prescribed height of 46 ft., which I propose, is as follows: whether it be the best, will, I hope, be decided by-and-bye.

Dwellings, whose floor level is below the general ground line, are objectionable as residences; and, as they are certainly not popular, I provide no accommodation in the basement, but a small cellar, to which reference will be made hereafter. The ground, first, second, and third floor plans are divided throughout their entire length into two equal portions by a corridor of 4 ft. 2 in. wide, each side of which is occupied by dwellings of the dimensions, and possessing the accommodation already described. In the centre of one side of the corridor, on the ground plan, is the principal entrance, and immediately opposite to it, on the other side, is the staircase. By giving these a central position, equal facilities of access are afforded to every part of the building. The entrance is 5 ft. 6 in. wide, and is furnished with external and internal folding doors, under the immediate supervision of the porter, whose office it adjoins.

The staircase is 8 ft. wide, with solid square stone steps, having a 10-in. tread, and an average rise of 7 in. It is partially enclosed—i. e., the side furthest from the corridor contains an arch 7 ft. wide, and extending from the ground line to within a few feet of the eaves of the roof. It is separated from the corridor by two arches, whose centre pier contains a dust shaft traversing the entire height of the building. This is 14 in. square within, open above the roof for ventilation, is furnished with a hopper at each floor level, and communicates with a dust cellar in the basement, to which reference has already been made, and which is approached by a small ex-

ternal staircase underneath the first landing of the principal staircase, but distinct from it, so that the dust may be removed without causing annoyance to the tenants. In all the plans I have mentioned, the lavatories adjoin the staircase—those for men's use are on one side, those for the women on the other. This position is central, and will be found to possess other advantages of importance.

The arrangement of the fourth or topmost floor differs from those below it, inasmuch as it contains no dwellings, and is a source of no pecuniary profit. It has the following accommodation, viz.:—A laundry, about 22 ft. long by 12 ft. wide, open to the roof, furnished with No. 8 sets of wash-tubs, separated by slate partitions; No. 8 ten-gallon coppers; No. 8 Childs' clothes-wringers, or one of Alliot's patent hydrometers; trellis-framed standing boards; stools for clothes-baskets, soap-boxes, and lades. Of this furniture there is nothing to remark, except that the slate partitions are supplied to ensure a privacy to the washer, which is very desirable; the ragged condition of the clothes, which some of the poor women bring to be washed, being such as would excite remark and ridicule were they not concealed from general observation. Low stools are supplied for the clothes-baskets in preference to tables, because they are most convenient as being easily removed by the washers themselves. In addition to the laundry, this floor contains a men's and a women's bath-room, situated on each side of the staircase, and immediately above the lavatories. Each is furnished with one of Rufford and Finch's baths and a service of cold water. As they are near the laundry, hot water can be supplied without difficulty or delay when it is required. A cistern adjoins each bath-room, lined with lead, and supplying the range of lavatories below it. This position secures a direct fall to the several services, and avoids the necessity for frequent bends and joints, which are liable to get out of order. The remaining portion of this storey is unobstructed, except by chimneys and the standards which help to support the tie-beams of the roof, and which serve as clothes-posts for the washers. It is lighted by a range of small casements, capable of admitting air sufficient to remove any vapours or unpleasantness that might arise from the laundry, and to thoroughly dry all the clothes in the building. The drainage is simple, and barely deserves notice; the main drains are external to the building, and are 12 in. or 9 in. in diameter; the smaller drains are as short as possible, and are 6 in. or 4 in. in diameter, according to their requirements. The ventilation afforded by the plan I have described, is, in my opinion, one of its principal recommendations. It is secured by the wide corridor which divides the building, and which serves as a reservoir for the supply of air to the dwellings whenever their entrance doors are opened. A window at each end of it, and the open staircase in its centre, do not fail to establish ever-changing currents, which forbid stagnation and remove impurities; and notwithstanding all the tenant's opposition, his old hats, boots, paste, and brown paper united, cannot entirely exclude the benefits which lie for admittance at his door. To forestall the inquiry as to the number of families which can be accommodated in a building covering 3,600 superficial feet and five storeys high, I may mention that the number of dwellings will be from 40 to 45; the number of latrines 16, or rather less than one-half to each dwelling; 8 lavatories, or about a fifth to each dwelling; and the same number and proportion of wash-tubs and coppers.

The internal accommodation which I have found the most suitable for small cottages in the country consists of a living room, about 12 ft. square, with a small scullery and closet attached, and a wash-house, about 10 ft. by 9 ft., on the ground floor; and three bedrooms and a closet on the floor above. Outside the cottage a yard should be provided to contain the ashpit and privy and a place for coals. Although land in the country is less valuable than in towns, the plan of the cottage should not be straggling or render a variety of roof-lines necessary; and although its arrangement should be compact, it should not be cramped. Ingenuity may be shown in fitting one portion into another; but it should not be carried too far, as sometimes happens. I have seen instances where the spaces have been so intermixed, and of such extraordinary shapes that the ground-plan resembled a Chinese puzzle more than anything else. Shapeless nooks and corners do not become convenient cupboards and closets because they are enclosed and possess a door, but rather most inconvenient hiding-places for mice and dirt, which render the place unwholesome and a nuisance. The temptation to build picturesquely, and to try experiments with new materials and methods of construction, is much greater in the country than in town. Projections and angles look better on plan than plain straight lines. Coloured bricks, bands of ornamental tiles, glazed pateræ, and other similar attractions may give variety to elevations; but they must be adopted with considerable caution in small

buildings. Too many projections make a small building look smaller by depriving it of breadth; and too great a diversity of colour gives it a gingerbread and vulgar appearance, and frequently destroys the effect of really good proportions. New inventions and pseudo-economical devices prove too often miserable and expensive delusions. The details of construction, &c., which I have given while speaking of town dwellings, are equally applicable to those in the country; and I hope that I may be excused from reverting to them, and be allowed to close by quoting, for the benefit of all who are about to build cottages for the poor, some words of advice addressed to me, in earlier days, by the late excellent Professor Cockerell, whose memory will be ever dear to those who had the privilege of knowing him:—"Don't allow novelty to tempt you into experiment, but defer its adoption until it has received the approval of the more experienced."

## INSURANCE OFFICE ARCHITECTURE IN DUBLIN.

ADDITIONAL beautification has been contributed of late years to the façades of this metropolis, through the enterprising spirit of some leading English and Scotch insurance companies, which are energetically pushing business here, and no doubt with some reason imagine that on the same principle as that a man is generally regarded as a gentleman because he has a good suit of clothes on his back, so also does a respectable show by a commercial establishment inspire confidence in the healthiness of its constitution. Though this rule, like all others, is open to exceptions, nevertheless we believe that there is something in it, and that an attractive exterior has a sort of magnetic influence in drawing people, and consequently money, to the interior. Be this as it may, though, the speculative character of the enterprise enhances the architectural spirit of whatever field wherein it may be employed, and as it circulates the wherewithal of life amongst our native artisans, we hail with pleasure its pursuit. The "Colonial" Co. have recently finished a handsome structure (already described) in Upper Sackville-street, and to the left close by it, the "Standard" Insurance Co. are erecting, on the site of two houses, a very costly and substantial block, with a beautifully-designed and proportioned Corinthian portico and basement of the *finest* execution in "Binny" (Scotch) stone; while to the right in same street, the "Edinburgh Association" are also having an ancient house remodelled and appropriately architecturized externally. For this latter Mr. Jones is the architect, and for the two former, Mr. Murray—although it is to be observed that the plans for the "Standard" office were furnished to the company by a Glasgow architect. The "Life Association of Scotland" are also engaged in rearing an important building in Dame-street at the corner of Trinity-street, also from the designs of a Scotch architect (Mr. Geoghegan of this city, architect, superintending the execution of the work), together with (we believe) a Scotch contractor, and the material for facing being Scotch; so that this Caledonian Co. are veritably faithful to their national allegiance—but, strictly speaking, that is more their business than ours. A few other fronts of comparatively minor importance have also been raised—the "Crown" to wit—but we hope to see many more springing up from time to time; and if a special suggestion be not deemed impertinent—being intended in good part—we confess to a wish to see the *liberal*, the *enterprising*, and the *wealthy* "Royal" Assurance Co.—second to none other—more suitably housed than it is at present in its *divided* concerns in Dame-street. The "Sun," the "Exchange," and the "Union" branch offices here respectively are likewise deficient in external show, if not in internal accommodation; whereas the head establishments in London and the branches elsewhere are much favorably circumstanced.

## ROYAL IRISH ACADEMY.

A GENERAL meeting of the Royal Irish Academy was held last evening—

Dean GRAVES, President, in the chair.

The Rev. Dr. Reeves read a paper on some ancient Irish ecclesiastical bells in the collection of his Grace the Lord Primate. Some very ancient looking bells were exhibited, varying in size from nearly a foot in depth. About 30 years ago two of these bells were purchased by the Rev. Marcus Beresford, then Rector of Templeport, county Cavan, from a man named Keileher. These jointly bore the name of the Bell of the Mogue. They consisted of an iron bell, and of what had been its cover or shell. Keileher was married to a daughter of the family of the Macgoverans, who were the hereditary keepers of the bell, which was kept rolled up in rags, and was only produced for the purpose of administering oaths upon, or of giving additional sanction to social compacts. A tradition was attached to these

\* By H. Darbishire, Esq., F.R.I.B.A.

bells. Another bell which was exhibited was called "The Bell of Blood," an appellation which had reference to its supposed powers of retribution. It was believed to be one of 13 consecrated bells bestowed by St. Patrick on the Connaught churches. It had been kept for a time in Feenagh, and subsequently at Mohill. It was used for the purpose of administering oaths, and for the recovery of lost property, and it was in the keeping of a family of the Ruarkes. It was the custom to hire the bell out from the keeper on the following terms:—The borrower paid down a certain fee in silver, and then took an oath upon the bell that he would safely return it within a certain time, and that while in his possession it should never touch the ground or pass out of human hands. It was customary in consequence for the person who borrowed it, when he required to be disengaged, to place it in the hands of a second person, and so on; and in the night the family and the neighbours used to relieve one another in holding it, so as to observe the compact. The Primate purchased this bell 23 years ago from one of the O'Ruarkes. A bell called "Ballyganagh" was bought by the Primate, when rector of Drum, from a pedlar. It had been obtained by the pedlar somewhere in Connaught, during the famine year, when distress severed many ties. It was conjectured that this was a bell from St. Berach's, of Termonbarry, county Roscommon. A fourth bell, of bronze, was purchased at the sale of the effects of an old physician at Monaghan. A drawing was exhibited of another bell, known as the bell of Feenagh, called "Clog-na-righ," or the "bell of the kings," from a belief that nineteen kings had been christened from it in an inverted position. The drawing was made in 1830, by Mr. Myles J. O'Reilly, who obtained a loan of the bell from the chapel of Foxfield, near Feenagh, where it is preserved and held in great veneration. It is of a circular form, and differs in its ornamentation from all the known examples of such relics.

On the motion of Dr. Petrie, seconded by Mr. Hardinge, the paper was referred to council for publication.

Mr. G. V. Du Noyer presented and described a collection of drawings, by himself, of certain antiquarian remains found in Ireland.

The paper was referred for publication, and a vote of thanks passed to Mr. Du Noyer.

Mr. Samuel Ferguson read a very interesting paper on inscribed stones in sepulchral monuments in Brittany.

This paper was also referred for publication.

Mr. Denis Kelly, of Castlekelly, read a paper on two monumental stones remaining in the churchyard of Bueaty, county Roscommon.

The academy then adjourned.

#### THE PROGRESS OF THE INSTITUTE.

It is gratifying to observe with what perfect accord the members of the revived Institute sustain each others' efforts in the laudable purpose of having a respectably constituted representative body; and this feeling was particularly noticeable at the general meeting held on the 19th ult., which must be regarded as the *first* of the Institute under its re-organized form. Some slight anticipations that the former election might not have been ratified, or that substantial modifications in the list of office-bearers would have been made, were, we believe, entertained; but the result, as reported in the DUBLIN BUILDER for the 15th ult., showed that excepting the recording of a few votes for gentlemen *not* named by the council, and the consequent exclusion of some of those recommended, the originally proposed list was borne out, with the addition of *three* extra council members, in accordance with a resolution passed at the last preliminary meeting held prior to the recess.

Except at the memorable general meeting held on the 3rd of January last to discuss the Winter Garden competition question, we never witnessed a better or more influential gathering of the profession than that on the 19th ult. *Twenty-five* members of the Institute attended, and in the unavoidable absence of the accomplished president (Mr. Lanyon, R.H.A.), the chair was worthily occupied by one of the vice-presidents, Mr. Wilkinson, who, under the old constitution of the Institute being remarkable more for his frequent absence *from*, than for his regular attendance *at*, the meetings, we were specially pleased to see lending his valuable aid to the proceedings.

When the scrutineers reported the result of the ballot it was found that several votes had been recorded for Messrs. Carson, Caldbeck, and Geogh-

egan, respectively, to hold office on the council—a position to which each of these gentlemen are eminently entitled—but as they were, when compared with the others on the list already published, considerably in the minority, the Institute loses, for the *present*, the benefit of their services in that capacity. We trust, however, that no feeling of disappointment or pique in consequence thereof, will induce any of the three named to be less frequent in their attendances at the general meetings, and no doubt in rotation they will succeed to the council.

The Institute has fully entered on a new era, and so far, everything promises harmony and prosperity. It is infinitely stronger now in *every respect* than ever it had been previously, and we sincerely hope that it will apply the materials at its command in the construction of a fabric, so solid that no future contingencies shall shake or annihilate it.

There was one important question brought forward at last meeting, on the solution of which the vitality and future well-being of the Institute mainly depend, viz., the desirability of ensuring regular attendances at council meetings. Non-attendance was the bane of the old Institute, and effected its downfall. Gentlemen held office nominally from year to year, and never darkened the doors with their presence—the average attendance at council meetings being *three* persons—so it must be obvious that, if a similar state of things were permitted *now* to exist, the result would be that the revived Institute should of necessity soon come toppling over like its predecessor. Mr. Clarendon in proposing a resolution to the effect that, "for the purpose of ensuring the more regular attendance of the council members at the meetings of the Institute, a record be kept during the session of the attendance of each, and that any member who should be unable to assign proper cause for frequent absence should be ineligible for re-election," forcibly dwelt, in a good sensible speech, on the necessity of gentlemen either attending a reasonable number of meetings, or of resigning their office, and concluded by urging that a record should be kept of all the attendances of council members, and examined at the expiration of the session, with a view of ascertaining how far continued absence should disqualify from re-election. This is quite as it should be, but there is a case in point to which we feel bound to refer, and for which good taste would suggest, that a special exception be made to this rule.

Perusing the list of office bearers for present session, we find that *the oldest*, and one of the most respected members of the profession, Mr. Patrick Byrne, is one of the three vice-presidents, and as such, would be subject in the ordinary course of things, to whatever restrictions may be applied to council members; but when it is remembered that this veteran octogenarian—although happily in full possession of the comprehensive faculties of an eminently practical and scientific mind—is, by physical infirmity, prevented from attending council meetings, the Institute ought to our mind, by acclamation, and in compliment to his age and established professional position, not only permit, but encourage him to retain his office free from any restrictions whatsoever. But *we* only speak in anticipation of the resolution being passed by council, and when it becomes part of the laws of the Institute we may have more to say about it.

Perhaps here we shall be spared from the charge of egotism, if we remark, *en passant*, that very many of the changes effected in the fundamental constitution of the Institute are the results of suggestions either ventilated through the columns of the DUBLIN BUILDER, or personally by its conductor, Mr. J. J. Lyons, at the several preliminary meetings. It is only fair "to render unto Cæsar the things that are Cæsar's," and that the origin of those suggestions should be fully known to the members of the profession. For instance, Mr. Clarendon's resolution, above referred to, is but a modification of one to similar effect originally proposed by Mr. Lyons, but with the addition of  *fines* (which now appear to be dispensed with altogether); the substitution of a professional for a non-professional president; the increasing of the number of council members from *seven* to *ten*; the addition of a class of "students," together with many others of minor

importance, now unnecessary to refer to, were first suggested by Mr. Lyons.

If, however, the DUBLIN BUILDER has rendered good service to the Institute in its reorganization, the members thereof are heartily welcome to it, and may *always* command the influence of its pages in discussing and chronicling their rightful proceedings.

#### THE MEDALS!

WE must also take credit for being the *first* to moot the question, of appropriating to some practically beneficial end the valuable silver medals prepared years ago for the old Institute—but, which, several not having been competed for, have remained ever since more ornamental than useful enshrined in their Morocco and velvet cases—and now a very happy opportunity for carrying this suggestion into effect at an early date is afforded. The student's class is rapidly filling up, and we feel assured that, from amongst the numerous architectural apprentices and assistants throughout Ireland other acquisitions would be obtainable, if the Institute would *at once* officially signify its intention of having an early competition for these medals amongst the "student members" *only*; suppose one to be awarded as a prize for a best *design* and set of drawings; another for a best *essay* on some architectural subject; and copper medallions for a best *copy* of some existing works. Moreover the distribution of medals and other prizes ought to be an *annual* rule!

#### FALLING OF HOUSES.

##### THE CALAMITY AT ISLINGTON, LONDON.

THE superintending architect of the Metropolitan Board of Works, in a report upon the lamentable accident at the Three Wheat Sheaves Public-house, says:—"Mr. Moseley received notice on or about the 22nd of October, so that in a month and five days the building was completed in carcase, and some of the sash-frames were being fixed. The frontage is 30 feet, and the wall which fell went up through four storeys. It was 18 inches thick in the basement, and had piers in the ground storey supporting bressummers 14 by 12 inches, with a flitch of iron in the centre. The bressummers had five points of support, and they were built in cement." After going into some minute details, the architect stated that "From a careful consideration of the facts, he was decidedly of opinion that overhaste was employed, not only in building the walls, but also in following up the other works, which would necessarily cause a great jar upon the unset and green brickwork, and that the fault rested with those who had insisted on improper haste."

Mr. Moseley, the district surveyor, attributes the failure to the want of due and sufficient setting of the mortar and cement, arising from the state of the atmosphere, the rapidity of the execution of the works, or the vibration of the scaffolding, or perhaps the whole combined.

[We very much wonder that, in a vast city like London, where "the run'em up" system, with any sort of rubbish, is so extensively pursued, such accidents as the foregoing are not of much more frequent occurrence.—ED. D. B.]

The *Art Journal* of November, in its description of Benson's Great Clock, says—"It has attracted universal attention; its construction has, we believe, obtained general and strong approval; it is one of the largest chiming clocks as yet manufactured in this country." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting-house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on Cathedral and public clocks, free for one stamp. J. W. Benson received a Prize Medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate Hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

## DECORATIVE ART IN DUBLIN.

So prevalent is the disposition on the part of the Irish public to disregard the claims to patronage of native artists, and to give preference to *any* others but Irish,—whatever may be their merits,—that we always feel pleasure in noticing exceptions to this unhappy rule, and especially so in the present instance to which we are about to refer. One of the oldest, most respectable, and—of its kind—one of the most successful establishments for ministering to the taste and luxury of the palate, has recently changed hands, and with that change, as is most commonly the case, it became desirable to “brush up” the exterior, and, in fact, to put thereon a totally new dress. The improvements referred to mainly consist in substituting modern fashioned sashes with large plate glass squares, in lieu of antiquated, clumsy, and many paned predecessors; and in the addition of numerous mural decorative appendages external and internal. Of these latter it is our purpose under the above heading particularly to speak, as they are somewhat notable, and also affect a branch of industry too long neglected in this metropolis.

Very rarely are such ornamental accessories as painted or illuminated glass, encaustic tiles, &c., employed in the external decoration of *our* shop or other façades, although in Continental cities, where atmospheric influences are presumed to be less detrimental, their application is not only by no means uncommon, but very extensive.

The step now taken in affixing pannelled pilasters—highly ornamented with glass paintings—to a shop front, in a leading thoroughfare, is therefore an innovation on established usage; and the question as to whether or not it is “in the right direction” at once suggests itself. We think that it is, and moreover feel confident that, when the public will have had an opportunity of judging of “the effect,” they will endorse that opinion. Without further preface we may state, that the establishment referred to is situate at 34, Grafton-street, corner of South Anne-street, until very recently, in the possession of Mrs. Kelly, fruiterer and florist, but to which Mr. Lambe (fruiterer to His Excellency Lord Carlisle) has succeeded. The improvements having been entrusted to our respected fellow-citizen, Mr. Cavanagh, of 77, Marlborough-st., he is having the work prepared under his personal supervision in his own premises; and we were much pleased, a few days since, in inspecting the beautiful design, and the delicate and effective manipulation of the various illuminated, figured, grouped, and foliated subjects (respectively), wrought on the enamelled pannels of the pilasters in question. The forms of the female figures allegorically representing “*avant le bal*,” and “*sous le masque*,” are exquisitely shaped, while the disposition and design of the bouquets of choicest flowers (very appropriately introduced) are not less remarkable for their beauty—the lights and shades throughout being most effectively sustained. It is right to add, that the material on which these subjects are painted, are rendered air and water tight by hermetical sealing, and that therefore the probability of the atmosphere contributing at any time to their defacement is outdistanced by the precaution. We congratulate the proprietor of the establishment on his enterprise, and the artist, Mr. Cavanagh, on the successful accomplishment of his task.

## THE DRAMA.

Mr. Charles Verner, a fellow-citizen, who had already fully established himself in the favour of the Dublin audience by his personation of “Barney” in the Peep o’ Day drama, has been under engagement at the Theatre Royal during the last week or so, and sustained several very arduous characters with considerable ability. He is, indeed, one of the few legitimate delineators of Hibernian characteristics, that has appeared on the modern stage; for generally speaking the artists who adopt that line especially, are remarkable rather for grossly exaggerated portraiture than for seeking to “hold the mirror up to nature.” There is a peculiar raciness and ease both in Mr. Verner’s acting and declamation, which contrast most favourably with the overstrained exertions and boisterous efforts of some of

his predecessors “on the boards,” and are sure to lead to his complete success, when, perhaps a little more experience shall have been acquired. Much, indeed, as we appreciated and admired Mr. Verner’s ability in depicting the stage Irishman so truthfully, still much more were we agreeably surprised to find him gifted with such versatility of talent as to be enabled to undertake, at a moment’s notice on last evening (in consequence of the indisposition of Mr. G. V. Brooke), the most trying role of Othello, which our readers doubtless know to be one of the deepest of Shakesperian tragedies. Despite the deficiencies of *personal*—being somewhat too petite in stature for the realization of the noble Moor—and of accent—the Irish brogue being very perceptible at intervals—Mr. Verner’s “Othello” was, taken for all in all, a most creditable performance, and at times so pleased the audience that he was very warmly applauded, and called frequently before the curtain to make his obeisance. In the principal scenes with Desdemona (Miss Rogers) and Iago (Mr. Huntley)—both of whom sustained him in an excellent manner—his acting was frequently effective to an uncommon degree, and his general reading judicious. We presume that as this has proved “a palpable hit” it will be repeated.

Mr. G. V. Brooke—likewise our fellow-townsmen—was (as already stated) announced to appear last evening as Coriolanus—one of his best parts—but unavoidably disappointed the audience; however, this evening he will sustain the character of Sir Giles Overreach in Massinger’s play of “A New Way to pay Old Debts.”

Of this artist we have spoken on several occasions in this journal in laudatory terms, but we notice with regret a considerable deterioration of late in that high histrionic ability combined with fine clear-telling voice, noble bearing and physique, for which in his earlier days he was so remarkable; however, we must not prejudice him in this engagement, so we postpone a special criticism to a future period.

The pantomime of “Puss in Boots” will be hailed on “boxing night” by both young and old with that joyful feeling that merry Christmas invariably inspires; and produced, as it is sure to be, in the most attractive and expensive style with artists of ability in their several departments, we trust it will yield a golden harvest to the catering lessee, Mr. Harris, to whom indeed we feel bound in concluding this notice to express our acknowledgements for his uniform courtesy in according to us for many years past the usual press privilege of admission to his house on all occasions.

## NEXT MEETING OF THE INSTITUTE.

A GENERAL meeting of the Institute of Architects is to be held on the evening of the 17th inst., at the Royal Hibernian Academy’s rooms in Abbey-street. Mr. W. Fogerty (Fellow) has announced his intention of communicating a description of the lunatic asylum now in course of erection under his superintendence in the county of Clare, together with some observations on the arrangement of similar institutions. The following is the balloting paper submitted:—

CANDIDATE	CLASS	PROPOSED BY	SECONDED BY
Wm. H. Hill	Associate	W. Fogerty	W. J. Welland W. Ouldbeck
Thomas Kelly	Associate	J. J. McCarthy	C. Geoghegan E. H. Carson C. D. Astley
J. S. Sloane	Associate	W. F. Caldwell	J. J. Lyons E. H. Carson J. H. Owen
B. Patterson	Associate	E. H. Carson	S. Symes N. Montgomery F. Franklin
R. A. Gibbons	Student	E. Trevor Owen	C. D. Astley F. V. Clonlon
Wm. Sterling	Student	E. Trevor Owen	J. H. Owen N. Montgomery
R. S. Swan	Student	S. Symes	J. H. Owen

## THE CONVERSAZIONE.

[In answer to further enquiries respecting the intended conversazione, we may state that no definite date or place has yet been fixed upon, but we presume that it will be some evening in the course of the ensuing month, and most probably at the Royal Hibernian Academy’s rooms.—Ed. D.B.]

## THE OPENING OF STEPHEN’S-GREEN.

A LARGELY attended meeting of the Regular Operative House Painters’ Society was held on the evening of the 9th inst., at the Trade Hall, 47, South King-street, for the purpose of adopting measures to sustain the movement for the free opening of Stephen’s-green as a people’s park.

The hon. secretaries of the committee, Messrs. M’Evoy and Finucane, with Messrs. Jackson and

Haughton, attended as a deputation. Mr. Byrne, the president of the society, took the chair.

Mr. M’Evoy expressed the pleasure it gave him to meet once more the members of the House Painters’ Society, whom he had not addressed since the movement for the free opening of the Botanic Gardens was on foot. He dwelt forcibly on the advantages to be derived in a sanitary point of view from the free opening of such places to the public. With regard to the subject for which they were then met—the opening of St. Stephen’s-green, it was recorded in history that at one time that park was a common, and the property of the people. It was turned into a demesne by fraudulent means, and it was now time to see that it should be restored to its rightful owners. Since 1814 a great change had taken place in the public mind with regard to the opening of such places, this opening was advantageous both to the enjoyment of the public, and also in a social and individual point of view. In order to obtain the object which particularly concerned themselves, it was necessary to have the justice of their claims investigated in parliament. The Stephen’s-green Commissioners were determined to oppose the bill which they were desirous of forwarding, and in order to overcome the resistance of that body a large amount of funds was necessary. It was for the purpose of devising means, and for obtaining those funds that they were then assembled.

Mr. Haughton also addressed the meeting in favour of the project, and expressed the pleasure it gave him to find that the working men of Dublin were disposed to assist the committee in their endeavours. He dwelt on the fact that in the Botanic Gardens not the slightest injury resulted to the grounds from the free admission of the public. He had been recently in Glasgow, and found that in Kelvin Grove, one of the most fashionable resorts in the vicinity of that city, the free admission of the public to the grounds was a rather inviting than repelling influence, and that many of the wealthier citizens had built their country residences in that locality at an expense of from £5,000 to £7,000.

Several resolutions were afterwards moved and adopted.

## THE RESTORATION OF ST. PATRICK’S CATHEDRAL.

SINCE the memorable controversy originated in January last in consequence of an editorial article that appeared in the DUBLIN BUILDER of the preceding 15th of December—wherein the vast restorative works undertaken at St. Patrick’s Cathedral by Mr. Benjamin Lee Guinness were defended from the strictures of the *Ecclesiologist*—we contented ourselves by copying from our non-professional contemporaries notices of their progress according as same were published. In now reverting more specially to this important subject from our own observation, we are desirous of simply chronicling the particulars of the various restorations, &c., effected since that period, and not for the purpose of reopening a controversy on points of criticism already fully disposed of, or to maintain whether “our course of reading” in ecclesiological matters—hitherto assailed—be orthodoxical or not. There is a popular phrase that “doctors differ,” and we consider its application to the profession of architecture would, on this very question, be most appropriate, for we have seldom known *two* of our craft to be perfectly *en accord* on any one point; while, again, the views and opinions of some of the most eminent members thereof are often diametrically opposite. Fearless, however, of permitting ourselves to be made the medium for “a candid and unbiassed enquiry” (as, at the time referred to, suggested) we threw open our pages thereto *ad libitum*, for three numbers in succession; and when fair play appeared to us to have been fully accorded to the controversialists we closed the discussion, convinced that its prolongation could tend to no salutary purpose. Notwithstanding that step, shoals of letters—expressing, as may be inferred, a variety of opinions on the restoration question, some, no doubt, valuable, while others were simply ridiculous—subsequently reached us; so, had we adopted any other course, we should have had to publish either a separate volume of correspondence about St. Patrick’s, or devote the greater portion of our journal thereto during the entire year, to the exclusion of other matter.

In our last notice we left the Cathedral—notwithstanding the vast sum that had been previously expended thereupon—in a partially dilapidated state, incomplete as regarded the portions undergoing restoration, the new work rough throughout, and the demolition of the church of St. Nicholas Without, which occupied the north transept, in the act only of being proceeded with. Monuments, statues, busts, effigies, mural slabs, stalls, canopies and other choir fittings were all in process of careful removal, either prior respectively, to re-erection in *same* positions, or to re-arrangement elsewhere, or in the last named instance to substitution by more appropriate suc-

cessors; the remnants of the unsightly, ill-fashioned screen that separated nave from choir were disappearing; the floors of nave, transepts, aisles, and choir were being lowered to their original level,—the surface presenting an endless scene of *debris*; great scaffolding impeded the vista everywhere, both externally and internally, and the stained glass windows, by Baill & Co., were in course of erection in the south transept in the choir, and in the north and south aisles. Of the works then in progress (be it remembered that we had in *previous* articles described the re-building of the massive south wall of nave), or since effected, undoubtedly the principal were those undertaken in connection with the north transept—the St. Nicholas Church—and in the repairing of the crumbling walls and buttresses of the north wall of nave. Viewing the cathedral *now* as one turns the corner of Bride-street into the North Close, the vast importance of even *this* portion of the restoration becomes apparent; and it must be confessed that the *tout ensemble* is striking, and that the new and beautifully hammer dressed masonry facings of sombre calp, and of bright limestone dressings, show out most effectively.

Here we may pause to enquire if the restoration of the great tower, at present in nearly as ruinous a condition as any *other* portion had been previously, is to be included in Mr. Guinness's colossal work? At present it looks like a disconnected portion of the edifice, but should *it too* be restored, some idea of the magnitude of Mr. Guinness's task may be inferred, when we remind our readers that this tower is 40 feet square at base by about 180 feet in height—irrespective of the unsightly modern spire—and that even to erect the necessary scaffolding thereto, a very considerable sum would have to be expended. That question however may be answered hereafter.

The old window of the north transept has been replaced by one of three lights with lancet heads, and exactly corresponding in features with that in the south, from which latter to the former, we understand, the recently fixed stained glass subjects are to be removed for better light, while a softer toned picture will be substituted in stead. We cannot refrain from here remarking, *en passant*, that it is very gratifying to observe that, the art of *native* stained glass manufacture is being encouraged by Mr. Guinness in the prosecution of this noble undertaking—an art which, indeed, as far as this country is concerned, has of late years fallen into comparative degradation, although indubitable proof is afforded of the ancient Irish having pursued it to a remarkable degree of excellence.

But, following on with our description—all the triforium and clerestory opens of the north transept have been faithfully restored, and now harmonise beautifully with those of the south. The former entrance doorways leading respectively to St. Nicholas' Church and through east aisle of this transept, to the cathedral—the *one* being now rendered unnecessary by the removal of the church and the *other* undesirable from the inconvenience of its position—have been built up; but a new approach, through a fine boldly moulded doorway in a spacious projecting groined porch, situated between two buttresses midway between north transept and the tower, has been obtained.

To this transept the handsome mural marble monuments erected to the memory of the gallant 18th Royal Irish, who fell in India and the Crimea, have been removed from the north aisle, and the charming little stained glass window, which accompanied same, has been re-fixed in an adjoining lancet open formed to receive it in the east aisle. The Boyle monument—which at all times was more an object of curiosity for its historic interest than admiration for its artistic merits—has been removed from the arch that it occupied in the choir to the extremity of the south wall of the nave, and close to the western entrance doorway. In like manner have the positions of the monuments to Lady Doneraile and Archbishop Smith respectively been shifted to the south transept, while the statues of Baron Joy and Dean Dawson hitherto placed obscurely, are prominently to view in the "Ladie Chapel;" and in various other portions of the cathedral, changes have been made but in each case with extreme judgment and caution.

Notwithstanding the skill displayed in treating the restored groined ceiling of the nave where it abutted on the head of the great west window, we felt bound to admit in reference thereto, that the spaying of the apex of the former, which was at a considerably higher level than the latter, was a damaging feature and but a clever "make shift" at best; so we were much gratified to find on our last visit that the obstructive ope was totally removed, and a three-light lancet window of less height and suitable design substituted. It may not be amiss here to mention that the window so removed was *not* the original window, but one erected by

the late Dean Dawson, who displayed more zeal than judgment in introducing an incongruous feature with late perpendicular tracery and mullions, which none other of the original window opens of the cathedral showed. With characteristic good taste however, Mr. Guinness declined to interfere with this portion, until the wishes of the revd. deceased's family were enquired after, and permission was granted for its removal.

While the lowering of the floor of the Cathedral to its original level was in course of procedure, the opportunity to effect a perfect sewage and remove any existing impediments thereto was taken advantage of; and gas mains have since been laid beneath the surface to supply a series of Medieval standards and other fittings now in course of manufacture at the eminent establishment of Mr. Mooney, Lower Ormond-quay. When these have been fixed in their intended positions, and that we can judge of the effect of the Cathedral by gas light (which we anticipate to be magnificent), we shall have more to say on this point.

At present, numerous workmen are engaged in forming a compact level bedding of vitrified coal to receive the new flagging throughout, which is an excellent material from the quarries of Mr. Troy, at Clonsilla, in the Queen's Co.,—another proof that we have in Ireland the wherewith to supply every department of a building, if we will only be sufficiently national to avail ourselves of the resources immediately presented, without troubling ourselves to seek for them elsewhere.

The entire of the nave and aisles of choir and transepts have been fully scraped and cleaned down, and to the various decorative portions "the last touch" imparted; and whether now viewed as a whole or in part, the character of the work is unexceptionable and testifies to the high ability of the builders, Messrs. Murphy & Son, who have up to the present performed their great task without the slightest mishap or accident to any one of their numerous employes.

We understand that a new organ is in course of construction (we believe by Messrs. Bevington and Son, of London,) for the "choir," and will occupy the centre arch in the northern wall of same; without which adjunct, this vast restorative work would be incomplete.

A most desirable improvement—with the double purpose of ensuring a more commanding view of the south side of the Cathedral from the thoroughfare of Kevin-st., and also for providing a better approach than formerly from that point—is being effected, by the construction of a spacious curved roadway debouching on the street named, and passing through a portion of the Police Barrack territory (a privilege granted by special order of the Lord Lieutenant in council) to a corner of the Dean's garden and churchyard, and thence to the southern transept where a large open space will be in front. Tall enclosure walls of fine masonry are in course of construction near the Kevin-street end, but breast walls with iron railing thereon will only separate the roadway from the garden and the churchyard.

With much pleasure do we note in connection with this work that our corporation have likewise afforded Mr. Guinness every facility for its accomplishment.

It would be almost presumptuous of us in the ignorance of facts to state the expenditure incurred up to the present by Mr. Guinness on this noble undertaking, or to divine how much more will even yet have to be expended before the works shall have been completed; but when we remind our readers that Mr. Guinness' originally expressed intention was only to give £20,000, and that this sum—great donation though it was—was found to be only sufficient to effect the rebuilding of the south wall and a few other works in connection therewith, a fair idea may be gathered from the foregoing description, of what has been done in addition thereto, and of the consequent outlay thereon—an outlay which only an individual of colossal fortune—such as the princely donor's is—could incur.

In conclusion we must add that, the munificence of Mr. Guinness in thus saving our venerable cathedral from certain ruin, is not merely a thing for the present generation to appreciate and extol, but will redound to his patriotism and virtue during time immemorial.

#### FIRE AT A SAW MILLS.

A FIRE broke out on the night of the 11th inst. in the City Saw Mills, Thomas-street, the property of Mr. Joseph Kelly. It was discovered in the roof of the boiler-house by a person in the employment of Mr. Kelly who gave the alarm at once, and proceeded to remove seventeen horses that were in a building adjoining that on fire. At the side of the yard where the boiler-house was situated were forests of timber of all shapes and dimensions. On the

opposite side were the saw-mills, planing and moulding sheds, occupied by most expensive machinery, and piles of manufactured timber, the carpenters' workshops filled with most inflammable material, and in the long vista between the fire and Thomas-street cargoes of timber of all kinds were stored. If energy, promptness, courage, and discipline were required, we (*Freeman*) are happy to say that they were forthcoming when wanted, as the Fire Brigade illustrated in the manner in which they discharged their duty under the direction of Captain Ingram, that they were entitled to the confidence and warm approbation of the citizens of Dublin, whose servants they are. For a considerable time the fire seemed to resist all the efforts which were being made to extinguish it. After real hard work the flames began to yield under the flow of water which was kept constantly pouring on them. They were got under at half-past nine o'clock, and were finally extinguished at eleven. It is supposed the fire originated by the overheating of the boilers setting fire to some timber in the roof of a shed. The amount of loss has not been ascertained, but we have been informed that the premises were insured.

[Having been present at this occurrence, we can fully endorse the statements of our contemporary relative to the admirably prompt and efficient manner in which the Fire Brigade, under Captain Ingram, discharged its responsible and dangerous duty. We regret to learn that one of the men had his leg broken by a beam of timber falling thereon.—Ed. D.B.]

#### ART-WORKMANSHIP AND THE SOCIETY OF ARTS (LONDON).

THE works submitted in competition for the prizes offered by the Society amount to seventy in number, and are now placed, for the inspection of members and their friends, in the Society's Great Room, where they will remain until Christmas, when, with the view of their being exhibited to the general public, they will be removed to the South Kensington Museum, by permission of the Science and Art Department. The works are as follow:—

1. *Modelling in Terra Cotta, Plaster, or Wax.*  
(a) The Human Figure in bas relief, after Raffaele's design of the "Three Graces,"—23 works.  
(b) Ornament in bas relief, after arabesques by Lucas van Leyden, 1528.—8 works.
2. *Repousse Work in any Metal.*  
(a) The Human Figure as a bas relief, after Raffaele's "Three Graces,"—3 works.  
(b) Ornament, after a Flemish silver in the South Kensington Museum, date about 1670.—1 work.
3. *Hammered Work, in Iron, Brass, or Copper.*  
Ornament, after an iron German arabesque, about 1520, in the South Kensington Museum.—2 works.
4. *Carving in Ivory.*  
The Human Figure in bas relief, after a terra cotta ascribed to Luca della Robbia, about 1420, in the South Kensington Museum.—4 works.
5. *Chasing in Metal.*  
(a) The Human Figure, after a reduced copy of Gibson's "Psyche,"—6 works.  
(b) Ornament, after a bronze plaque in the South Kensington Museum.—11 works.
6. *Enamel Painting on Metal, Copper, or Gold.*  
(a) The Human Figure, after Raffaele's design of the "Three Graces," executed in grisaille.—None.  
(b) Ornament in grisaille, after a German arabesque, 16th century.—1 work.
7. *Painting on Porcelain.*  
(a) The Human Figure, after Raffaele's "Boy bearing Doves," in the cartoon of the "Beautiful Gate"—5 works.  
(b) Ornament, after arabesques by Lucas Van Leyden, 1528.—3 works.
8. *Inlays in wood (Marquetry, or Buhl), Ivory, or Metal.*  
(b) Ornament, after a majolica plate in the South Kensington Museum, 1490.—2 works.
9. *Engraving on Glass.*  
(b) Ornament, after arabesques by Lucas Van Leyden, 1528.—None.
10. *Embroidery.*  
Ornament, after a German example in the Green Vaults at Dresden.—1 work.

The Council have requested Mr. Richard Redgrave, R.A., Mr. Digby Wyatt, M.R.I.B.A., and Mr. John Webb to act as judges in awarding the prizes. The Council, considering the shortness of notice given to competitors, and the difficulties of making the subject sufficiently known, view the present as a satisfactory beginning, and they have re-appointed the committee to consider the preparation of conditions for the next competition.

**FINE-ART GOSSIP.**—Messrs. Minton have succeeded in overcoming the difficulty that has hitherto attended the production of mosaics in this country. They are now able to make all colours and every shade of colour producible in earthenware, including gilt tesserae, in the same material. Messrs. Powell, of Whitefriars, have produced satisfactory gold mosaics in glass, and been very successful in producing the vermilions and crimsons not hitherto obtainable, and there is no doubt that they will ultimately succeed in doing what has been accomplished in this order of Art at St. Petersburg.—*Athenæum*.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the ordinary general meeting held on Monday, 30th ult.—Mr. Edwan Christian, Vice-President, in the chair—Mr. F. C. Penrose, M.A., Fellow, read a short paper upon the “Metrical system of weights and measures,” in which, (whilst approving generally of the decimal system favourably reported upon by Mr. Ewart’s committee), he illustrated a system of his own, which he considered afforded greater facilities in working out measures of quantities as applied to their own profession and squaring and cubing the same. The arrangements for the evening not admitting of the discussion of this paper, it was stated that the subject would be resumed at an early period after the Christmas recess.

Mr. William White, Fellow, then read a paper descriptive of Newland Church in the Forest of Dean, Gloucestershire, with an account of its restoration.

After a brief discussion of some of the points referred to in the paper, in which Mr. J. W. Pappworth, Fellow; Mr. J. P. Seddon, Hon. Sec., and the chairman took part, the meeting adjourned till yesterday, the 14th inst.

## BUILDING SOCIETIES.

Mr. James Haughton has addressed the following to the tradesmen of Ireland, and others who may not already have made some provision for the future:

“I wish to say a few words to you on a subject to which many of you have not yet given the attention which it deserves, but which is well calculated to improve the condition of every working man who feels a desire to be independent himself, and to protect his wife and children against the casualties of life, which a little prudent forethought would deprive of much of their weight and poignancy. None can escape these casualties, for accidents and sickness are the lot of all. But all have the power greatly to lessen their disastrous results; and no man well and truly performs his duty to his family or his country who neglects, while he is blessed with health and strength, to provide against them to the utmost of his ability. In England building and benefit societies are established on a large scale. Why should we not avail ourselves in Ireland of the advantages which these co-operative societies afford? We hear much of the poverty which oppresses our country. It is poor in comparison with the wealth of England. But what makes us so poor as we are? It is not so much the want of industry and the want of employment as the want of carefulness in the expenditure of what we earn, and our neglect in providing for the future, which is the cause. The old adage is true—“Providence helps those who help themselves.” There is but one road open to independence for all men, and that is, that we spend less than we earn. How many thousands of rich men are brought to poverty by not observing this law; how many millions of poor men are ever on the borders of destitution because they do not obey it, or because there are few who point out to them that they must always be in poverty so long as that rule is not observed by them. My present purpose is to point out one simple plan whereby working men may lay the foundation of much happiness for themselves—I allude to Building Societies. These associations have two grand objects in view. One of them is to induce parties to make small savings, which, by the accumulation of principal and interest, would make them comfortable in old age. The other, and the chief object, is, to induce men to build houses for themselves, which, in a few years, will become their own property, and in which they may ever after live rent free. This object can be attained almost without any cost beyond the rent which men now pay, and which they must always pay without deriving any such advantages as I now speak of in the future. I cannot, within the compass of a letter, enter into details; but I refer all who wish for ample information on this deeply important question to an able lecture delivered by Mr. William Chambers (the well-known publisher) in Edinburgh, in which he tells us, among other most important truths, that the working men of Birmingham are now the owners of 8,000 houses, erected on the plan I am now bringing under your notice, and which I cannot too strongly urge on your earnest consideration. This lecture can be had at any bookseller’s. Let us no longer complain of our poverty, and make no manly exertions for its removal. Every tradesman in Ireland, and every man whose comfort depends on his weekly or annual earnings, and who has not already made some such provision for the future, should now do so. Some working men have requested me to express my views on this matter. I may say in conclusion, and as the best evidence I can give of my desire to promote the objects I am now referring to, that I have taken shares in the following building

societies, which I hope and believe are under the management of able and honest directors. One of these societies is called “The Dublin Building Association,” and has its office at No. 12, Eustace-street. The other is called, “The Alliance National Benefit and Building Society,” its head office is at No. 156, Strand, London; and its branch office in Dublin is at 84, Middle Abbey-street. At these places inquirers may obtain further information.

## Correspondence.

## ENGLISH VERSUS IRISH FLAGGING.

SIR,—The Corporation for Preserving and Improving the Port of Dublin have advertised for Yorkshire flags. Could not the port of Dublin be as well preserved and improved by using Irish material, when it is to be had? Let any member of that august body visit St. Patrick’s Cathedral, and there he will see some specimens from the quarries of this neighbourhood perhaps not undeserving of his attention.

CLONASLEA.

## NEW BRIDGE—RIVER DODDER.

SIR,—There is a little bridge in course of erection for the last three years over the River Dodder, between the Rathfarnham-road and the bridge at Milltown, and it is not yet half finished, although three months would have been quite sufficient time to give the contractors. The non-completion of the work causes the greatest inconvenience to the inhabitants about Rathgar and its neighbourhood, and the loss sustained by the poor dairymen, who, to my own knowledge, grievously complain, is really lamentable.

Mr. Frith, the County Surveyor, superintended the bridge lately erected over the same river at Sandymount, and it was erected in a very short time; and surely the same gentleman should now be called upon to inspect the work, and see with whom the blame rests. The matter complained of is a disgrace to the county.

J. P.

7th December, 1863.

## Public and Private Works.

Sundry works are to be executed at the Church of Mohill, county Leitrim, according to plans by the architects to the Ecclesiastical Commissioners.

The new church at Bessborough Park, Piltown, which has been some time in course of construction, according to the plans of Mr. G. W. Street, late of London, under the contract of Mr. J. Fitzpatrick, of Waterford, is now completed. The nave is 62 ft. long by 33 ft. wide, and is seated to accommodate about 298. The seats are low, open, and made of Memel wood, stained, the ceiling being also open work of the same material. The height of the church is about 42 feet, and the chancel measures 23 ft. long by 17 ft. wide. The walls are bare, but pointed, the stones for which, viz., granite limestone and grey marble—were all furnished from the estates of the Earl of Bessborough, who gave the site. There is a circular tracery window over the main entrance, which, with six small ones immediately below, and three windows at each side of the nave, provide light for this portion of the building, the chancel being furnished with one main and two side lights brought from the old Fidown church. The cost of contract and architect’s fees amounted to about £2,400—£800 of which are forthcoming by the Ecclesiastical Commissioners. The earl’s under agent, Mr. Richardson, superintended the erection as overseer of work.

The *Times*, September 15, speaking of Benson’s Modern and Antique Watches in the Exhibition, says—“As affording the most striking contrast, Mr. Benson shows with these a fresh exhibition of modern watches, with cases made from prize designs at the South Kensington Museum, some of which are fine specimens of engravings.” Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson’s Illustrated Pamphlet on Watches (free by post for two stamps) contains a short history of watch-making, with descriptions and prices, from 3 to 200 guineas each. It serves as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Class 33, Honourable Mention, Class 15; 33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

## General Items.

The drawing which had been missed from Mr. Maclise’s series illustrating the Norman Conquest has been found, and is now in the hands of Herr Gruner for the purpose of completing his engravings of the whole. We learn that this noble series of designs is being engraved by the distinguished German engraver just named for the Art Union of London, and that Mr. Maclise is revising the proofs.—*Illustrated News*.

The British Association for the Advancement of Science has appointed a committee to prepare a report on the best means of providing for a uniformity of weights and measures with reference to the interests of science.

Mr. Perry, who carved the bust of Shakspeare from the Stratford and Avon piece of oak, has received a commission from her Majesty to execute a duplicate bust from a piece of Herne’s oak.

The General Floating Dock Company (limited) is intended to construct floating docks, chiefly in France, but not exclusively, on a patent belonging to Monsieur Courau, the well-known shipbuilder. The company intend to begin by constructing a dock at Bordeaux, capable of accommodating vessels of a tonnage suitable to our present commerce. At present there are none such.

The proposed distribution of the Crystal Palace Company is 2s. per share, or at the rate of two per cent. per annum. Although a diminution has taken place in the shilling visitors in the past season, owing to the reaction from the excitement of the exhibition year, the general business of the company has been satisfactory, the receipts through season tickets having especially improved.

The *Art Journal* having stated that “the Zenobia, said to be by Miss Hosmer, was really executed by an Italian workman in Rome,” Mr. Gibson, the eminent sculptor, and Miss Hosmer’s master, writes:—“The first report of her Zenobia was that it was the work of Mr. Gibson, afterwards that it was by a Roman workman. So far it is true that it was built up by my man from her own original small model, according to the practice of our profession—the long study and finishing is by herself, like that of every other sculptor. If Miss Hosmer’s works were the productions of other artists, and not her own, there would be in my studio two impostors—Miss Hosmer and myself.” Miss Hosmer, it is stated, intends to vindicate her reputation by a lawsuit.

The quantity of pig iron produced this year in Scotland may be set down at no less than 1,150,030 tons, which, valued at the average price of the year, 55s. per ton, represents a total value of £3,162,500 sterling, thus exhibiting an increase in the quantity of 70,000 tons, and in the value of £309,500, when compared with the returns of 1862. There are 132 furnaces in blast against the average of 120 furnaces in blast last year. The price is now 64s. 6d., against 55s. 6d. twelve months ago.—*Mining Journal*.

“Mr. Maclise,” says the *Athenæum*, “is making steady progress with his great water-glass picture in the Royal Gallery, Houses of Parliament. An immense quantity and a vast variety of detail occur in the background of such a subject as ‘The Death of Nelson;’ rigging, masts, sails, implements of naval war, and a host of minor figures appear there. Nearly all the still-life accessories, some minor figures, and even two or three large ones, are completed. Thus much—the outlines of the whole work being drawn out carefully on the wall—may be said to represent highly satisfactory progress with the task.”

The French Academy of the Beaux Arts has elected M. Nystrom, architect to the King of Sweden, as foreign correspondent in the section of architecture; and M. Pietro Rosa, of Rome, as foreign member.

A new Exchange is proposed to be established at Halifax, for the merchants and tradesmen of the district.

On Tuesday, the 1st inst., the Town Council of Edinburgh approved a report in reference to the bill, for which Parliamentary notices have been given, for the drainage of the water of Leith, and in which it is proposed to confine that assessment to the property or districts draining into the water of Leith.

Sir William Armstrong has purchased the Ridsdale Iron Works, near Bellingham (formerly the property of Mr. George Foster), which will be in active operation in a few weeks.

The site of the Exhibition of 1851, between Rotten-row and the Kensington-road, opposite the conservatory in the gardens of the Horticultural Society, has been enclosed for the erection of the memorial to the Prince Consort.

## Miscellaneous.

**THE LATE GALES.**—The following is a list of the noble services rendered by the boats of the National Lifeboat Institution during the fearful gales of last week:—Barque Ina, of North Shields, 14 men saved; ship David White Clinton, of New York, 8; fishing boat of Tenby, 3; schooner Margaret and Jane, of Dublin, 5; barque Duke of Northumberland, 18; fishing boat of Filey, 2; schooner Economy, of Portmadoc, saved vessel and crew of 5; lugger Vigilant, of Peel, saved vessel and crew of 4; ship Jupiter, of London, 8; schooner Maria, of Amlwch, 4; schooner Harry Russell, of Glasgow, saved vessel and crew, 6; schooner L'Espérance, of Nantes, 2; schooner Elizabeth, of Whitehaven, 4; barque Elizabeth Morrow, of Glasgow, 19; barque Confidence, of Liverpool, 23.—Total, 125. Making a grand total of 352 lives saved by the lifeboats of the institution during the present year alone. Besides these services, the lifeboats of the society at Walmer, Eastbourne, Aberystwith, Budehaven, Southport, St. Ives, Lytham, and Fishguard, put off on Thursday and Friday last, in replies to signals of distress, with the view of saving life from various vessels, but they were not afterwards required. These services are often attended with as much danger as when the lifeboat brings a shipwrecked crew ashore, the gallant men who man the boats oftentimes being thoroughly exhausted. Indeed, in the case of the Walmer lifeboat the crew were out eleven hours, and returned home nearly perished with cold. Altogether nearly 14,000 lives have been saved from various wrecks since the first establishment of the Lifeboat Institution, for which it has granted rewards. A boat, of its great life-saving fleet, now numbering 125 boats, is found on nearly every dangerous point of our coast where they can be efficiently worked. As each lifeboat requires about £50 a year to keep it up effectively, it will at once be seen that a large annual sum is indispensable to the institution's continued progress in its good work.

**NEW RAILWAYS FROM LONDON.**—Notices of application to Parliament for powers to construct metropolitan railways have been given to the number of thirty, besides many junction lines intended to connect roads already in existence or for which powers have been obtained. Five lines propose to use the northern embankment of the Thames. The London, Chatham, and Dover Railway Company asks powers to hand over their railway, for which the Ludgate Hill Viaduct will be required, between Earl-street and the Metropolitan Railway in Farringdon-road, to the last-named railway and the Great Northern; by means of this the Great Northern Company proposes to run trains to the Pimlico Terminus and the Crystal Palace. Two companies propose to use the Thames Tunnel. One suggests a viaduct from the third pier of Westminster Bridge to the second pier of London Bridge, City side. One company is a perfect polype, having thirty-seven branches. In short, the rush of railway schemes is bewildering, and although it may be true that at least half of them are bubbles, yet there is the real danger that, in the confusion which usually accompanies a rage such as is *promised* us, some mischievous things will be sanctioned, and the wasteful disfigurements of Ludgate Hill and London Bridge foot may be repeated on other sites.

**LONDONDERRY NEW GAS WORKS.**—The Londonderry Gas Company have selected J. G. Ferguson, Esq., from amongst five competitors, as the architect of their new gas works about to be erected at the Lecky Road. These works, when completed, will be highly ornamental to the city, in addition to the greatly increased accommodation which they will afford in other respects. The cost will be about £12,000.

**THE OLD LONDON FIRE BRIGADE.**—In the first year of Richard I., the articles of the Wardmotes respecting fires are as follows:—"Item, that all persons who dwell in great houses within the ward have a ladder or two ready and prepared to succour their neighbours in case misadventure should occur from fire. Item, that all persons who occupy such houses, have in summer time, and especially between the Feast of Pentecost and the feast of St. Bartholomew (August 24th), before their doors a barrel full of water for quenching such fire, if it be not a house which has a fountain of its own. Item, that the reputable men of the ward, with the aldermen, provide a strong crook of iron, with a wooden handle, together with two chains and two strong cords, and that the beadle have a good horn and loudly sounding. Of persons wandering by night, it is forbidden that any person shall be so daring as to be found wandering about the streets of the City after the curfew rung out at St. Martin's-le-Grand and St. Laurence, or at Berkynghchurch, upon pain of being arrested."

The *Standard*, October 23, 1862, speaking of Benson's Argentine in the Exhibition, says,—"Perfect in point of form, and good as a piece of workmanship." This splendid material is a compound of various metals, with a heavy deposit of pure Silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of Silver, at a fraction of its cost. When the Argentine and the real Silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in Silver, viz., Spoons, Forks, Dinner, Tea, and Coffee Services, Waiters, Bread and Cake Baskets, Candelabra, Dishes of all kinds, Epergnes, Claret Jugs, &c., &c., &c. A Sample Spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps; and an Illustrated Catalogue containing 300 Engravings and full Price-list of the various manufactures, both in Argentine and solid Silver, will be sent to any address on receipt of six stamps. A Prize Medal was awarded to J. W. Benson for "Excellence of manufacture, Argentine and Electro Plate." Post-office Orders and Cheques should be made payable to James W. Benson. Branch Establishments, 46, 47, and 63, Cornhill. All communications should be addressed to the Principal Establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

**NEW RAILWAY LAMP.**—The trial of a newly-invented lamp, for lighting railway platforms, goods' stations, &c., took place on Friday evening last, at the Devonshire-street depot of the Great Eastern Railway. There were present Captain Belfield and Captain Martindale, who attended by order of the Secretary of State for War, and representatives of all the principal railways which run into London. The yard of the depot in question is about a quarter of a mile in length, and, although four of the new lamps are erected, only two were used. The light from them was found sufficient to enable the workmen in every part of the yard to dispense with the ordinary hand-lamp hitherto in use. Indeed, such was the illuminating power of the light that small print could be read with facility at a distance of 45 yards, and the scientific men who witnessed the effect expressed their entire satisfaction with the result of the trial. The lamps are constructed and fixed upon the principle invented by Dr. Brown, late of the Royal Navy, and are already in general use on the Great Eastern Railway.

**NEW MODE OF FIRING MINES BY ELECTRICITY.**—This new fuse, invented by MM. Comte and Gaiffe, which will, it is hoped, render incalculable service in the working of mines and the excavation of tunnels, differs from those which have been employed hitherto, in a novel arrangement of the parts of which it consists, which permits of its manufacture in a very short space of time, and reduces the chances of a fracture to a *minimum*. It consists, first, of an isolated wire, to which is affixed the usual fuse tube; secondly, of another wire, un-insulated, twisted round the first, with its extremity removed one centimetre from that of the insulated wire; and lastly, of a bag containing the explosive compound, within which are buried the extremities of both wires. When the induced current from a Runkorff coil is passed through the wires, the spark, on account of the distance which separates them, passes through the powder contained in the bag. The thread of tin which is employed to complete the circuit in the first instance is melted instantaneously, and a considerable space then exists between the insulated and the un-insulated wires, through which the spark passes. By this arrangement it is possible to affix upon two wires proceeding from the coil as many fuses as may be thought fit. The current having passed through the first proceeds to the second; from that to the third, and so on; and because the sparks from Runkorff's coil succeed one another with great velocity, a great number of mines can be exploded almost instantaneously. So far the invention has been pronounced by the French press perfectly successful, the experiments which have been made leaving nothing to be desired.—*Mechanics' Magazine*.

**IMPROVEMENT OF KINGSTOWN.**—The footway on the south side of George's-street, from Kingstown-avenue to Sussex-place, is being handsomely laid down with flags. The uneven state of the side paths of this township has been constantly a cause of remark by strangers visiting this fashionable watering-place during the summer. Few towns in Ireland are so backward in this respect, and it is satisfactory to see even now some progress made towards improvement.

**NEW USE OF BALLOONS.**—Some one suggests an economical way of lighting cities, and proposes to apply it to Paris. Balloons, from the cars of which are to emanate an electric light, are to be fixed at certain stations, and hover over the city, at the proportion of one balloon to 500 persons. How are the balloons to be managed in gales of wind?

**BLIND ASYLUM FOR FEMALE POOR.**—The Sisters of Charity have formed the plan of raising a fund to enable them to commence, next spring, the erection of an asylum for the destitute female blind, whose helpless and forlorn state makes them objects of the deepest pity and commiseration.

**DESTRUCTION TO A MILL.**—Maria Arthur v. Midland Railway Company.—This was an action for the recovery of damages alleged to have been sustained by the plaintiff, by the erection of an embankment by the defendants, which, the plaintiff alleged, obstructed the use of her easements in a mill at Newcomen-bridge. There was also a count in trespass. The defences put the plaintiff on proof of her possession to the mill, and her right to the easements claimed, and averred that the making of the embankment did not obstruct the plaintiff's water-course or access to the premises. The embankment in question is portion of the works being constructed in connection with the Liffey Branch Railway. Verdict for plaintiff—damages £25.

**SOUTH AUSTRALIAN LABOUR MARKET.**—Per annum, with board and lodging—Domestic and dairy servants (female)—Barmaids, £28 to £30; dairymaids, £19 to £23; general servants, £18 to £23; good cooks, £26 to £30; housekeepers, £26 to £30; housemaids, £21 to £25; kitchenmaids, £19 to £22; laundresses, £26; nurses, £15 to £20; nurse girls, £7 to £15; upper nurses, £20 to £26; waitresses, £23 to £26; superior general servants, £26. Domestic and farm servants (males)—Married couples, £52 to £60; general farm servants, 15s. to 17s. per week; gardeners, £45 to £60; bullock drivers for farms (men), £45 to £50; do., boys, £14 to £23; bullock-drivers for roads, £45 to £60; bullock-drivers for stations, £45 to £52; do. boys, £25 to £30; boys to tail cattle, £12 to £15. Per week, with board and lodging—Tradesmen—Butchers, 30s. to 40s.; bakers, 20s. to 38s.; barmen, 20s. to 25s. Piecework without rations—Brickmakers, per 1,000 (without burning), 12s.; fencers, per rod, 3 rails, 2s. 6d. to 3s.; sawyers, per 100 feet cedar, 12s. to 12s. 6d.; wire fencing, per rod, 3 to 5 wires and cross rail, 1s. 6d. to 2s.; stone-breakers, per cubic yard, 2s. 2d. to 2s. 6d.; slaughter-men, 25s. to 40s. Per day, without board and lodging—Blacksmiths, 8s. to 9s.; bricklayers, 8s. to 9s.; cabinetmakers, 9s. to 10s.; carpenters, 8s. to 9s.; carriagemakers, 8s. to 10s.; coopers, 8s.; engineers, 9s. to 12s.; galvanised iron workers, 9s. to 10s.; iron foundries, 13s. to 15s.; labourers, 6s. to 6s. 6d.; masons, 8s. to 10s.; millers, 10s.; miners, 5s. to 7s.; painters, 8s. to 10s.; plumbers, 10s.; quarrymen, 6s. to 7s., and piecework; saddlers, 7s. to 9s.; shoemakers, 8s. to 10s.; shoemakers, 8s. to 9s.; storemen, 7s.; tailors, 8s. to 9s., or 9d. per hour; tanners, 8s. to 10s.; tinmen, 8s. to 9s.; watchmakers, 12s. to 14s.; wheelwrights, 8s. to 9s.; carters, 7s.; confectioners, 6s. to 8s.; shearers, 17s. per 100 sheep.—*Australian and New Zealand Gazette*.

## TO CORRESPONDENTS.

F. P. S. (wholly inadmissible for publication in a journal of this character, whatever may be the merits of the document); INJURED PARTY (if we adjudicated your case and similar ones we should literally be plundering the members of the architectural profession, whose privilege it is to receive payment for their advice that you seek from us *gratuitously*).—"STUDENT" (hereafter probably the Institute may offer advantages to your class).—S. F. (not received as stated).—L. N. (finally declined for the reason first given; we cannot notice any further communications on same subject).—T. SQUARE (yes).—M. P. N. (not to be had in Dublin, we think).—JUVENIS (L. S.).—Mr. R., Belfast (shall be severally attended to.)

## ERRATUM.

By a typographical error in our notice of the Drama, at page 203, twenty-ninth line, the word "personal" was put instead of "personnel."

To soothe the sufferings of humanity and ameliorate the pangs of disease, are the grand objects of medical science. This is efficiently demonstrated in the curative virtues of LEA'S GOUT AND RHEUMATIC PILLS, advertised in our columns. The cures effected by this invaluable medicine would fill volumes.—*Daily Telegraph*.

DUBLIN BUILDER OFFICE, 42, Mabbot-st.

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"The empire of man over material things, has for its only foundation the Sciences and the Arts."—LORD BACON.

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# The Dublin Builder.

VOL. VI.—No. 97.

OUR SIXTH YEAR.

**U**NIVERSAL as is the interest associated with the advent of "the new year," it is fraught with more than ordinarily pleasing reminiscences to ourselves, it being the anniversary of that event which precisely *five years ago* ushered us into existence, and since which period we have, through the kind encouragement afforded, been steadily gaining ground.

Comparatively seldom indeed is it permitted a journalist to review, with gratification unalloyed, the realization of professions of intended support and patronage made prior to his launching his bark on the very dangerous sea of newspaper enterprise; but *we* can acknowledge to be one of the happy exceptions, and that—all circumstances fairly considered—our trust has not been misplaced.

In the concluding number of our volume for last year, we briefly referred to the chief features of our editorial management during the past, and to the provision of varied and interesting contents for our readers; and now respecting the future we may promise, that however we shall endeavour to improve as we advance, we shall certainly not deteriorate, so as to be undeserving of a continuance of public approbation.

A most important acquisition to the matter which in the ordinary course finds its way into our columns, would be the publication of the several papers to be read at the general meetings of the newly re-organised Institute of Architects. For this privilege we have applied, and trust that no near sighted policy will prevent its being granted by the council, as there are a very large number of persons more or less connected with the architectural profession and the building trade respectively, who are not members or associates of the Institute, and who in consequence would be precluded from the advantage of hearing or perusing the papers in question unless through the DUBLIN BUILDER. Without egotism we may add that, the publication thereof would contribute to mutual benefit, and be only a graceful return for the good offices rendered by this journal to the Institute when in process of re-organization.

That our "Notes of Works" may be more complete henceforward, we beg to repeat *specially* a previous general request, that architects, engineers and builders will kindly forward brief but complete particulars of any structures on which they may be engaged.

Lists of tenders for works (together with correspondence on subjects of *general interest*) would also be esteemed as favours.

## TRE IRON TRADE IN BELGIUM.

AN account of the iron trade of Belgium appears in the official report by her Majesty's Secretary of Legation at Brussels, from which we condense a few

particulars:—"Iron ore is found in abundance in every province of Belgium, but principally in Namur, Hainaut, Liege, and Luxembourg—the four mining provinces. That found in the five northern provinces is all so-called 'alluvial' ore, found on the surface, and not in subterranean mines. The great bulk of the iron produce is now raised from the so-called 'free iron mines,' i.e. mines not legally conceded. Only twenty mines are provided with concessions; although the others, nearly 2,000 in number, situate in 100 different communes of the four mining provinces alone, are tolerated to exist without restriction or taxation, under the name of 'minieres,' though most of them are subterranean. The number of these pits in 1855 was 1,208, and the labourers employed in them were 5,271; the number of communes was sixty-four. As the number of communes having such mines has increased since then to 109, it may be presumed that the number of pits and hands employed has risen in a similar proportion. Belgium possessed in 1820 about fifty iron blast furnaces adapted for charcoal, and not one for coke. Since then a great number of the latter have sprung up in the coal basins of Liege and Charleroi. Numerous refining and cupola furnaces, as well as puddling, rolling, hammering, splitting, and wire mills, have been erected and supplied with the best appliances. The wealth created by this metal alone was estimated at 81,000,000*fr.* in 1860, and the export at 24,750,000*fr.* Belgium does not possess, like Wales, beds of iron and coal overlaying each other in the same mine, but possesses both minerals in close proximity to each other. The number of smelting furnaces in blast has fallen from 66 in 1857 to 51 in 1860, only one more than in 1820; but these 51 being all, with eight exceptions, adapted for coke, produced 319,943 tons of pig iron, valued at 26,500,000*fr.*—probably four times the amount of the earlier period. Still these figures show a great falling off since 1857. Belgian iron compete closely with our own in quality and price. In the former respect they are superior to our ordinary descriptions, which is attributed to the universal employment of the coke in Belgian furnaces instead of coal, as is usual in England. Some articles of wrought iron, such as wheel tires without joints, and fish bolts, can be made in Belgium more cheaply than in England. In rails the Belgians compete successfully with the Welsh, owing to the differences of quality in foreign markets. The nail manufacture is a Belgian staple which has attained immense proportions; it offers the great advantage of being exercised in the workman's own house, at his own fireside, and even in his own kitchen fire; it is the winter employment of thousands, who in spring migrate to France to make bricks. Belgian nails are exported to all parts of the world. The iron exports of all kinds have arisen from 11,750,000*fr.* in 1851, to 25,000,000*fr.* in 1857 and 1860. The export of pig iron has receded since 1857, owing to the increase of duty in the Zollverein; but that of ores and wrought iron has been and is constantly progressing. The year 1861, however, has been one of depression, The Belgian ironmasters have shown themselves advocates of progress and free trade; they have declared themselves ready to meet English competition, though at present in possession of a virtual monopoly of the home trade."

## PROPOSED RAILWAY FROM GOREY TO CORTOWN HARBOUR.

THE natural advantages which Courtown harbour is possessed of, not only from its being almost the nearest point of Ireland to the Welsh coast, but also from the fact that, with a little improvement it may be made accessible to vessels of considerable tonnage, render it highly desirable that it should be placed in easy communication with the metropolis and the principal towns of Ireland. The result of such a connection would be, that it would become a channel of a large traffic in coals, slates, &c., and, in course of time, a watering place of considerable importance.

It is proposed to carry out this object, by forming a line of railway, from the rising town of Gorey to Courtown harbour, connected with the Dublin, Wicklow, and Wexford railway, and by the construction of a pier or breakwater, which will have the effect of deepening the harbour.

The length of the proposed line will be about three miles and a-half, and the features of the country are so favourable that it may be constructed at a cost of not more than £4,000 a-mile; the total cost of the line and pier, including all expenses, has been estimated at £22,000.

It has been calculated, from a careful investigation, that the traffic ensuing will realise a profit of 6½ per cent.; and the promoters will undertake, if one-fourth of the above total amount be subscribed by the county, to obtain the remainder. H. Panmure Ribton, engineer; Peter Joseph Moran, acting engineer. Kingstown, Dublin.

## THE COUNTY OF DUBLIN STONECUTTERS.

THIS body, in a lengthy address to the public, complains of the importation of foreign stone into the city of Dublin to build churches and chapels, whereas a far better material can be had at home. In support of this statement they cite as examples of beautiful native stone the Roman Catholic Church of Gardiner st., Mater Misericordie Hospital, Arran-quay Chapel, the King's-bridge, Broadstone, Harcourt-st., Drogheda Railway Termini, all in granite, Cathedral Church, James's-st. Church and Chapel, and several others. They add:—it would seem to be a providential moment to bring this subject before our Roman Catholic clergy, as it appears that there is a pause with regard to the Catholic University to decide on the particular kind of stone to build it with, as, up to this, it has been Portland stone; so we hope that all parties concerned in the management of the University in particular will decide in favour of Irish material, as it can be had in abundance from the beautiful granite quarries of Dalkey and Ballynocken, or limestone from Sheephouse, Tullamore, or Skerries, near home; and there can be no excuse as to contrast, as marble can be had of all shades. We hope that our clergy and others concerned in the management of the University and other buildings in course of erection will decide in favour of our Irish material, and thereby give employment to hundreds who, it may be said, are next to idle.

## ON LIMES AND CEMENTS.\*

THE calcination of statuary marble, or any other pure variety of limestone, produces quick-lime, by expelling from the carbonate of lime ( $\text{CaO.CO}_2$ ) of which they are essentially composed, the carbonic acid gas ( $\text{CO}_2$ ), water and crystallization, and organic colouring matter. Lime is, therefore, a protoxide of calcium, or in other words, a metallic oxide, the base, calcium, having been classed, since Sir H. Davy succeeded in effecting the decomposition of lime, among the metals. Pure lime ( $\text{CaO}$ ) has a specific gravity of 2.3, is amorphous, somewhat spongy, highly caustic, quite infusible, possesses great avidity for water, and, if brought into contact with it, will rapidly absorb .22 to .23 of its weight, passing into the condition of hydrate of lime, a chemical compound, of which the formula is  $\text{CaO.HO}$ . The reactions resulting from this combination are attended with certain marked phenomena, such as a great elevation of temperature, the bursting of the lime into pieces with a hissing and crackling noise, the evolution of a hot and slightly caustic vapour, and, finally, after a few minutes, its reduction into an impalpable powder, of which the volume is about three-and-a-half times that of the original lime. In this condition the lime is said to be slacked.

Water dissolves, according to Sir H. Davy, about one four-hundredth of its weight of lime, or, according to Thompson, one seven-hundred-and-fifty-eighth, while, Dalton states it to be at 60 degs. Fahr., one seven-hundred-and-seventy-eight; and, at 212 degs., one twelve-hundred-and-seventieth. The solutions, commonly called lime water, are valuable re-agents and antacids. Lime being more soluble in cold than in hot water, its solution becomes turbid when boiled. A similar result is produced by breathing into a solution through a tube, owing to the carbonate of lime formed by respiration, which, however, is dissolved by an excess of carbonic acid gas. A paste of the slacked lime is therefore a mixture of the hydrate of lime and lime water. It will remain in a soft condition for an indefinite period, if kept in a damp place, excluded from direct contact with the atmosphere.

Lime, on account of its great affinity for moisture, and, when moist, for carbonic acid, absorbs them gradually from the atmosphere, returning to the state of carbonate of lime, with an excess of hydrate base ( $\text{CaO.CO}_2$  by  $\text{CaO.HO}$ ). To protect it against the effects of these deteriorating agents, it is necessary to preserve it in close vessels.

Lime may be distinguished by its dilute solution giving a white precipitate of oxalate of lime, when a solution of oxalic acid is added to it, which is not re-dissolved by an excess of oxalic acid; and by not yielding a precipitate with sulphuric acid and sulphate of soda.

The purest minerals of the calcareous class are the rhombohedral prisms of calcareous spar, the transparent double refracting Iceland spar, and white or statuary marble. They are entirely dissolved in dilute hydrochloric acid, with a brisk effervescence, due to the escape of carbonic acid gas, and contain, according to an analysis of a specimen of white marble by General Treussart, about .33 parts of carbonic acid, .64 of lime, .03 of water. In pure carbonate of lime the lime amounts to .56 of the whole.

The limestones which furnish the limes of commerce are seldom if ever pure, but usually contain, besides

\* From a valuable practical treatise on limes, cement, and mortars, by General G. A. Gilmore, U.S. Army. Trubner and Co., London.

the carbonate of lime and the water of crystallization, variable proportions, seldom exceeding .10 in the aggregate, of some, if not all, of the following impurities, viz.: silica, alumina, magnesia, oxide of iron, and oxide of manganese, and sometimes traces of the alkalis, the presence of which modifies to a greater or less degree the phenomena developed during the process of slacking, as before stated, and renders necessary certain precautions in their manipulation and treatment, when employed for the purpose of construction as mortars.

The striking and characteristic property of hardening under water, or when excluded from the air, conferred upon a paste of lime by these foreign substances, when their aggregate amount exceeds .10 of the whole, furnishes the basis for a general arrangement of all natural or artificial products suitable for mortars, into five distinct classes, as follows:—

- 1st. The common or fat limes.
- 2nd. The poor or meagre limes.
- 3rd. The hydraulic limes.
- 4th. The hydraulic cements.

5th. The natural pozzuolanas, including, pozzuolana, properly so called, trass or terras, the arènes, ochreous earths, schists, grauwacke and basaltic sands, and a variety of similar substances.

The common, fat, or rich limes usually contain less than 10 per cent. of the impurities mentioned above. In the process of slaking to a paste, their volume is augmented to from two to three and a-half times that of the original mass, accompanied by a hissing noise, an elevation of temperature, and the rapid and progressive reduction of the lime to powder; and finally, if sufficient water be added, to a homogeneous paste. With the exception of a portion of the foreign substances mentioned, it is soluble to the last degree in water frequently changed. If made into a stiff paste, it will not harden under water, or even in damp localities excluded from contact with the air, or under the exhausted receiver of an air pump. In the air it hardens by the gradual formation of carbonate of lime, due to the absorption of carbonic acid gas, aided by the deposition of crystals of hydrate of lime from the lime water of mixture, during the process of desiccation.

The pastes of fat lime shrink in hardening to such a degree that they cannot be employed as mortar without a large dose of sand. When used alone, they are unsuitable for masonry under water, or for foundations in damp soils; but in other situations have an extensive application, possessing, as they do, great advantages over the other limes on the score of economy, on account of the large augmentation of their volume in slaking, their extensive distribution over the surface of the globe, and the simplicity of their process of manufacture. Paste of fat lime may be added to a cement mortar in quantities equal to that of the cement, without material diminution of strength.

The poor or meagre limes generally contain silica (in the shape of sand), alumina, magnesia, oxide of iron, sometimes oxide of manganese, and in most cases traces of the alkalis, in relative proportions, which vary very considerably in different localities. Their aggregate amount is seldom less than .10 or greater than .25, although, in some varieties, it reaches as high as .35, and even, though rarely, .39 of the whole. In slacking they proceed sluggishly, as compared with the rich limes, and seldom produce a homogeneous and impalpable powder. They exhibit a more moderate elevation of temperature, evolve less hot vapour, and are accompanied by a much smaller increase of volume than the rich limes. Like the latter, they dissolve in water frequently renewed, though more sparingly, owing to the presence of a larger amount of impurities, and like them will not harden, if placed in the state of paste, under water or in wet soil, or if excluded from contact with the atmosphere, or carbonic acid gas. They should be employed for mortar, only when it is impossible to procure common or hydraulic lime or cement, in which case it is recommended, if practical, to reduce them to powder by grinding. As a fertilizer, they have an extensive application.

A very large proportion, frequently .90 of the silica, contained in meagre limes, is in the state of inert grains of sand, which accounts for the frequent absence of those peculiar properties of hardening or "setting" under water, which would place them in one of the classes of hydraulic limes, were the silica present, or a suitable proportion of it, in a more appropriate form.

The hydraulic limes, including the three subdivisions of "limes slightly hydraulic," "hydraulic limes," and "limes eminently hydraulic," seldom contain an aggregate of silica, alumina, magnesia, oxide of iron, &c., exceeding .35 of the whole. The proportion in the first class ranges generally between .10 and .20 of the whole; in the second class, between .17 and .24; while the eminently hydraulic limes contain rarely less than .20 or more than .35. They all slake under proper treatment though more slowly than the meagre limes, with but a slight elevation of temperature, the disengagement of little or no vapour,

and but a small augmentation of volume, rarely exceeding .30 of the original; their appearance presenting in this respect a striking contrast with the phenomena exhibited during the slaking of rich limes.

It mixed into a stiff paste after being slacked, they possess the valuable property of hardening under water, in periods varying from fifteen to twenty days after immersion, if "slightly hydraulic;" six to eight days if "hydraulic;" and one to four days if "eminently hydraulic." As a general fact, these limes undergo, in slaking, an increase in volume inversely proportional to their hydraulic energy and quickness.

The hydraulic limes, in their chemical composition, as well as in those qualities which confer value in their application to the purpose of construction, and in their geological position, occupy an intermediate space between the common or fat limes and the hydraulic cements. They are consequently found in the United States in numerous and extensive deposits; but as they possess no valuable property not present in a pre-eminent degree in those limestones which furnish hydraulic cement, it has not been found necessary, and certainly it would not be remunerative, to engage in any extensive manufacture of them for the trade.

The hydraulic cements contain a larger amount of silica, alumina, magnesia, &c., than any of the preceding varieties of lime, though the amount rarely, if ever, exceeds .61 of the whole. They do not slake at all after calcination, differing materially in this particular from the limes proper. If pulverized, they can be formed into a paste with water, without any sensible increase of volume, and with little, if any, disengagement of heat, except in certain instances, among those varieties which contain the maximum amount of lime, or border on the "intermediate limes." They are greatly superior to the best "eminently hydraulic limes," for all the purposes of hydraulic construction; some of them being so energetic as to "set" under water at 65 degs. Far., in three or four minutes, although others require as many hours.

They do not shrink in hardening like the paste of fat lime, and, therefore, make an excellent mortar without any addition of sand; although, for the sake of economy, sand, and frequently both sand and lime, are combined with them. In the United States they are almost exclusively depended upon for hydraulic mortar.

Lying between the two preceding classes in the amount of foreign substances which they contain and possessing such characteristic features as to entitle it, perhaps, to a separate notice, if not a separate classification, there is a class of compound limestone prominently developed in the argillite-magnesian deposits of this country, possessing in a very marked degree all the objectionable properties of the argillaceous intermediate limes (*chaux limités*), noticed by M. Vicat. When completely calcined, they set rapidly, both in the air and in the water; but in the latter case as soon thrown down by the slaking of the meagre caustic lime, which they contain in excess. This result is brought about either by the appearance, soon after submersion, of a fine network of cracks, all over the surface of the mortar, which gradually penetrate into the interior until the whole is reduced to a granulated or lumpy paste, possessing no cohesion, or, by the progressive softening of the whole mass to a fine and homogeneous pulp, frequently accompanied in either case with a considerable enlargement of volume.

If, after the action of the water has commenced, as indicated either by the appearance of cracks, or by a general softening upon the surface, the paste be again worked up with the trowel, dried off with bibulous paper, formed into a stiff cake and immersed, the same phenomena, though in a more moderate form, will frequently exhibit themselves again, and with some varieties will not entirely disappear until four or five repetitions of this process. This is particularly the case with some of the layers in Ulster county, New York. In all cases, however, whether one or several repetitions suffice, the hydraulic energy is so far impaired that the substance cannot assume a higher rank than hydraulic lime, requiring from three to ten days to harden sufficiently to support the 1-24th in. wire loaded to 1 lb. When considerably underburnt, these limestones yield a good cement. They ought not, under any circumstances, to be introduced, even in a small proportion, into any combination which is intended to be kept up to the standard of good cement, without being subjected to a calcination by themselves; and even then it will be found extremely difficult, if not practically impossible, to so regulate the heat that all the stone shall be suitably underburnt.

The natural pozzuolanas comprise pozzuolana properly so called, trass or terras, the arènes, some of the ochreous earths, and the sand of certain grauwackes, psammities, granites, schists, and basalts. Their principal ingredients are silica and alumina, with a large preponderance of the former. Most varieties contain small quantities of soda, potash, oxides of iron and manganese, and not unfrequently magnesia. None of them contain more than .10 of lime. When finely

pulverized without previous calcination, and combined with the paste of fat lime in suitable proportions, to supply their deficiency in that ingredient, they possess hydraulic energy to a degree that will compare favourably, in some of the varieties with that of the "eminently hydraulic limes." Those derived from the disintegration of grauwacke, psammite, granite, and the other rocks mentioned, are the least energetic of the class, and are somewhat improved by a slight calcination.

Pozzuolana, which confers the name upon this class of substances, is of volcanic origin, and has therefore been subjected to the action of heat, whereby its constituent elements have experienced a chemical change in their primitive mode of combination. It was originally discovered at the foot of Mount Vesuvius, near the village of Pozzuolo, whence its name, although it is common to all localities that have been exposed to igneous agency, being found sometimes upon the surface of the earth, though most generally in beds, which frequently extend to considerable depths. It is extensively disseminated throughout Europe, and large quantities for building purposes have been derived from the vicinity of Rome and Civita Vecchia, in Italy, and from the Puy-de-Dôme, Upper Vienne, Lower Loire, Cantal, and Vivarais, in France. It is also found in Sicily, in the Isle of France, and in Gaudaloupe and Martinique. It sometimes exists in a coherent form, but more frequently is either pulverulent or in coarse grains, sharp, angular, and rude to the touch. Its prevailing colour is brown, with many exceptional shades of red, violet, grey, and yellow, and oftentimes approaching white and black. It is highly magnetic, parts with about .09 of water by calcination, is entirely solvent in sulphuric acid, and in concentrated hydrochloric acid at the boiling point. As might be inferred, from the character of the agencies which produce pozzuolana, its hydraulic properties differ very much in different localities.

Its value for the purposes of construction in combination with rich lime has been known for many centuries; and Vitruvius and Pliny both speak of its admirable properties, as exhibited in the marine construction of the Romans extant in their day. In using pozzuolana, it is customary, after pulverizing it, to add sand as well as lime: the relative proportion of the three ingredients depending on the kind of sand employed, and the character of the lime and pozzuolana. For the Italian pozzuolana there is, perhaps, no better combination than that recommended by Vitruvius himself, which has been followed, with slight variations very generally throughout Italy, and at Toulon, and other ancient ports on the French coast. It is as follows, viz.:—12 parts of pozzuolana, well pulverized; 6 of quartzose sand, well washed; 9 of rich lime, recently slaked; to which is added 6 fragments of broken stone, porous and angular, when it is intended for a pisé or a filling in.

The pozzuolanas of this country, if any exist, have never been used in constructions, and have never been examined with that view.

#### ST. JUDE'S CHURCH.

THIS church which is to be consecrated to-morrow, the 2nd inst., is in shape cruciform and after the early English style. The interior consists of a semi-circular chancel, nave, and two transepts. The nave and transepts are lighted by large Gothic windows, and the chancel is illuminated by five lancet windows of stained glass. The centre one is stained to represent the "passion flower," and on a scroll is inscribed the 25th verse of the epistle of St. Jude, and underneath the "Ministerial Crown." On one side of the chancel is the pulpit, and on the other the reading desk, both executed in open wood-work. The approach to the communion table has a flooring of varied coloured tiles in mosaic work. The nave and transepts are furnished with 350 sittings, the woodwork being of red deal stained and varnished. The baptismal font at the end of the nave is of cut stone. The building is heated by four large stoves, and lighted with gas, the fittings of which have been put up by Messrs. Daniel, of Mary street. The exterior presents a substantial, fresh, and attractive appearance—the dark colour of the limestone of which the walls are constructed being relieved by dressings of a whitish coloured stone somewhat resembling granite, brought from the quarries at Arbracken in the county of Meath. The foundation stone was laid by the late Archbishop early in October, 1862, but until the spring of the following year the work was not proceeded with, and on the 1st of March, 1863, the first stone of the superstructure was laid. The building has therefore been completed in little less than nine months, and the expedition with which it has been erected, and the manner in which the work has been executed, add to the high professional reputation of Messrs. John Butler and Son, builders and contractors, Leinster-square, Rithmines. The cost of the entire building will be £3,600. It was designed by Messrs. Welland and Gillespie, architects to the Ecclesiastical Commissioners.—*Irish Times*.

## ON CHURCH RESTORATION.

It is interesting to observe sometimes the different feelings with which church restoration is undertaken. Whilst one will consider it a pleasant work, another will look upon it as next door to an irksome duty. One delights in the very restraints imposed by the old forms, and another disregards and despises these forms, and feels his own freedom from restraint necessary to the full exercise of his powers. Although, happily, the number is rapidly increasing, there are as yet far too few who are thoroughly and duly impressed with a sense of the responsibility which the touching of old work involves. There may be considerable appreciation of the old work, and interest in being brought into contact with it, and yet there may be wanting a sufficient fear of injuring it by irreverent treatment. The restoration of an ancient church, such as that of which I have given a description, may be called the pleasantest and most interesting work which falls to our lot; but, on the other hand, it is in some respects the most painful, as it is also the most difficult and responsible. Very remunerative, in one sense, it cannot be called, to those who devote themselves heartily to the work; and yet in a widely different sense, it may well be called one of the most profitable of employments, to such as are capable of receiving any impress from the spirit of those who erected those monuments of piety and art. But it is also one of the pleasantest of occupations. The whole building is full of interest from the bottom to the top, from one end to the other. The noble outline both within and without, the harmonious proportion and character; I say still harmonious, for though various in age and style, yet the same spirit pervades the whole of the ancient fabric; and the same general principles of design form a connecting link between the earlier and the later portions, to whatever extent they may have been developed, or howsoever widely they may differ in detail;—the air of repose which it breathes; the hallowed associations which it calls up and transmits from one generation to another, and which, indeed, have supplied much of the patriotic and ancestral love of his old institutions, so deeply rooted in the heart of the true Englishman; all these things, I say, impart a pleasure not to be found in other works. It is a pleasure to know for certain that with a moderate amount of care and self-restraint an effect of repose and harmony can be secured, which is so often wanting in new work. But besides this there is a pleasure in the disappearance of the sad signs of past neglect, and of past selfishness, and the re-appearance of somewhat, at least, of pristine beauty, spaciousness, and order, in the removal of incongruous and obtrusive fittings; as also in witnessing amongst the parishioners the revival of interest in, and the hearty appreciation of, that which was good in the ancient building, but had scarcely been discerned, or even discernible, by any but those whose eyes and hearts have been educated to see beneath the surface the overlaid and mutilated forms which truly still remained. And, above all, it is a pleasure to restore to its full meaning and dignity the ritual arrangement of the English Church, which, until within our remembrance, had been almost utterly lost sight of. Since the time of the spoliation of our churches, by the fanatics who, not content with the reformation of abuses and the eradication of error, sought also to eliminate from the church every mark of external reverence and order, and to set up oral preaching, as antagonistic to, instead of in unison with, preaching by the sacraments, nearly all ritual had been lightly regarded. And the churches having been despoiled, and their furniture, the accumulations of the wealth of centuries, destroyed, at a time of the subversion of the whole state, but little means remained for their reinstatement. The unsettled state of affairs, moreover, was not conducive to people's taking much interest in doing what could be done. Besides, the absurd *quid pro quo* argument which has subsequently arisen with respect to the personal and family occupation of the chancel by the impropriating lay rector, in consideration of his keeping it in repair, has had a most pernicious effect in the revival of church arrangement. That his obligation to the repair of it is in consideration solely of his receiving the emoluments, has been for a century all but ignored; and his tenure of it in trust for the ministers and clerks leading the services of the church, as is shown by the evidence of existing documents, as well as by legal decision, to be the only true tenure, has been regarded as inconsistent with the fact of impropriation. Thus, through successive neglect and long-established custom, the fabric, as well as endowment, has been too often subjected to an impropriation never contemplated either by the letter or the spirit of the law, or by the original intent of the bad bargains made previously to, and at the Reformation. How far it is right or

wrong for a pastor or a parish to insist upon right arrangement, and the proper use of a chancel, in the face of an opposing impropriator holding fast by what he deems his prescriptive rights, is a question which is sometimes forced upon us, and in which we may often exercise a good or evil influence. Surely in any part which we may have to take, we can but aim at the highest standard, and manfully fight for the Church's rights; only taking care in thus contending for an important principle, lest we be tempted to sacrifice a yet higher principle by a lack of Christian chivalry or by a breach of charity. And let us beware of rashness in defending the Church's cause, lest we bring down upon her the consequences of personal failure; yet it is necessary to insist most strongly upon this arrangement; for the general effect, and the church-like appearance of the building, depend so entirely upon its being properly arranged in these respects. The gradients leading up to the central points of interest, and the raised position of the antiphonal stalls, leaving a broad and dignified access to that centre, contribute more than is commonly supposed to that effect.

There are some who consider a church constructed like Newland Church, with spacious chancel aisles, unfitted for congregational purposes, on account of some of the congregation not being in front of the pulpit. I do, however, unhesitatingly say that for a large church it is a good arrangement. It is better to have a few of the congregation somewhat behind the preacher, than placed at so great a distance westwards as the extension of the church to receive them would involve. It is better to open the aisles to the chancel than to have them entirely blocked by a wall. Moreover, it contributes to the architectural effect of the interior, by allowing great play of light and shade, and to its perspective by a grouping of arch and pier, which is not so well attained by other means. I urge this the more strongly now, because some have lately abused it in existing buildings as being unmanageable, rather than effective; and have regarded its reproduction in new churches merely as a puerile imitation of a form of building adapted only to the many-chapelled plan of the old churches. But it is in this respect, amongst others, that the interior of Newland Church is so wonderfully effective; and it certainly is a pleasure to watch the revival of such effectiveness, by the removal of the huge erections which had, as in this instance, encumbered it.

This, then, is the pleasant side of the picture. But it has also, as I said, its painful side. It is not so bright as at first appears. One has to lament the loss of many of the best features; some through damp and decay, others through wanton mutilation, and still more, perhaps, through reckless alteration; some through ignorant but painstaking attempts at renovation. One has to deplore the loss or destruction of the character and even of the remains, of ancient detail, by workmen charged, again and again, not to touch them. Workmen cannot comprehend the value of a grey surface; or of an ancient molding-profile left intact; or of that absence of precision which at times imparts a pleasing tone to the general effect. But, even with most careful restoration in work that is much decayed, as in the case of the east window before referred to, we have to deplore the necessary renewal of vestiges which cannot be replaced, and which, if merely reproduced, would have neither value nor interest. Imitation of old work may be tolerably faithful; but it is not old work, and it cannot be referred to as such; it is like the lifeless body; the spirit has taken its flight, and has left but the vague semblance of what it once was. And if haply any lifelike spirit is infused into the reproduction, it is not the spirit of the old, but the spirit of a new life; and whether worse or better than the original, it bears the impress of the mind, not of the ancient architect, or of the ancient mason, but of the modern. Again, the difficulties attendant upon faithful restorations are very great. Strong conservatism is, of course, the only true principle, and the only safe guide. A scrupulous regard for all that has gone before, in order that it may be handed down as intact as possible to future generations, is the only spirit in which we may dare to approach our ancestral heritage. But herein oftentimes consists one of the greatest of the difficulties with which we have to contend. It is often needful to sacrifice some portion, in order to a safe and permanent restoration of the remainder. To determine exactly what these portions ought to be—what to be retained or restored—what to be renewed or reproduced—is often an anxious and difficult task. One ready way of surmounting the difficulty appears to be—to have no care of what has gone before, to disregard Mediæval remains, or to regard them only in the light of mere antiquarian lore, all very good in their way if they do not interfere with modern requirements and use. But the responsibility of removing ancient landmarks, or of breaking a link in the history of our art, is not so easily to be overcome. Whether we are conscious of its

burden or no, the weight of responsibility still rests upon our shoulders, and the responsibility is one not merely of a "let alone" nature, as some appear to take for granted, but of active deliberation as to what is best to be done. For instance, to leave work in its old state, with the certainty that in a very few years it must come to renewal, and then at great disadvantage; and that in the interim a more substantial portion of the fabric must assuredly and irremediably suffer to its final detriment rather than preservation; to leave work, I say, in this state, may show greater soundness of motive and feeling, than of judgment and discretion. The doctrine of "do something" is sometimes shrunk from and repudiated as though it opened the door to needless and reckless renovation. But I maintain, that the determination to look upon a question only from its safest side, and in its most favourable light, is not the way to lead to the most successful results. We must look at all sides of a question; without this an unguarded advocacy of ultra-conservatism may, through its obvious indefensibility, lead to the very evils which it seeks to avoid, and which it must be the earnest endeavour of all to escape from. For the principle of strict and conscientious conservatism is the only basis upon which to build any theory of church restoration. But a further question forces itself upon our attention, and it must not be set aside as though it were a very plain and simple matter, upon which no doubt could exist, as has been many a time intimated. This question is, as to the mode of renovation of works, necessarily removed or decayed. How far an exact reproduction of what was supposed to be the original, or to be the original with several subsequent alterations; or how far the earlier or the later, the better or the worse, should be followed, when the marks of the one or of the other are more or less evident; or, once more, to what extent necessary alterations of, or additions to, a building, should follow this or that portion of the original fabric, how far the style of either part should suggest the treatment, or how far it is safer to treat them distinctively, in order rather to show what really is old, and thus to distinguish it from the new—this also opens a wide range of questions which involve difficulty and responsibility, and which are scarcely capable of definite or comprehensive rule. However, generally speaking, whilst on the one hand new work, whether in additions or in insertions which are essentially new, may be carried out with distinctness enough to prevent the confusion of the old work with the new; so, on the other hand, all traces of old work ought, if possible, to be reinserted carefully, and exactly in their original position, where necessarily removed, for the benefit of those who may come after; for we have no right to deprive them of the benefits that we may have derived from the remains of ancient work, which will still tell their own story to posterity, in a manner far superior to any that we can urge, and with a vividness and impressiveness not to be equalled by any power of verbal description.

## THE ELEVATION OF THE WORKING MAN.

DEEPLY interested as we always feel in the moral welfare of the "sons of toil," we give, with special pleasure, prominence to the following portion of an eloquent address delivered to the members of the Catholic Young Men's Society, at Tullamore, by Mr. Molloy, one of its members, and a "son of toil" himself:—

"Although our institute can justly claim many high intellects as hers, yet I think there is no denying that it is chiefly composed of young men who have received a small share of education at school. It is to this latter class I wish particularly to offer my observations; in the first place, as I belong to it myself, and can therefore appreciate their position in the pursuit of knowledge under difficulties. God has given us talents for the use of which we are responsible, wherefore, we cannot escape the necessity of cultivating our minds. By so doing we will perform our duty in every respect; but it is our especial duty to unfold our talents, since one of our objects is the promotion of intelligence, which it regards as a means to destroy error and vice. The mind of man is said to be perpetual motion, and it is important and consoling to know when it is occupied with lofty aspirations there is no room for thoughts of a sinful tendency. It is thus that mental labour carries with it its own reward, independent of worldly considerations. We assemble for mutual improvement, obtain food for our minds in our library, and in our conversation with each other. It is a great advantage to have books which we can read with safety, profit, and delight—works well calculated to imbue us with love for faith and fatherland. This is an age of competition—an age when worth is merged in merit; it, therefore, behoves us to be up and doing if we intend to reap the advantages derivable from education. If we wish we can make up for the small amount of it

\* From a paper by Mr. William White, recently read before the Royal Institute of British Architects.

we have received by our industry and perseverance. History furnishes us with many bright examples of those who have done so under the most unfavourable circumstances. But some say that mental triumphs are reserved only for persons of extraordinary intellectual powers. This is a mistake, for it is not genius that is wanted so much as application and perseverance. With a manly heart and bold resolve, there is no true conception of the mind, no real aspiration of the heart, which may not be reached and realised. Let us then not be frightened at the sight of obstacles, but manfully encounter and conquer them.

Among those of the working class there are many who feel occasionally something of the ambition which animated those men, and would be glad if, without much trouble, they could secure for themselves the advantages attendant upon mental culture. But their desire is seldom gratified, because they have not fortitude to set earnestly about combatting the obstacles that intervene. Lives of such men as I have sketched for your example show how independent we are, if we chose, of external circumstances, and how possible it is for us in any situation at least to enrich our minds, if fortune refuse us all other riches. But in our studies we must not forget the history of this land of heroes and of song. Indeed, it is too much neglected in this age of advancing light. But the Young Men's Society will do much to excite a taste for it amongst Irishmen. The history of our country affords much to amuse, no little to lament, and a great deal to be proud of. It teaches by example, and affords incentives to virtue and arguments against vice. We cannot read of the glorious actions of our ancestors without being fired with heroic resolve. I congratulate you on having this society in your town, and I am delighted, but not surprised, to see it has gained the patronage of those gentlemen whom I see about me. History tells us that the zenith of glory of every nation is the period of the highest degree of its religious and intellectual development. Have we no good reason, then, to be proud to be children of the Young Men's Society, which contains great numbers of men all over the world, all animated with the one spirit—all filled with the idea of moral, social, and intellectual progress. Mr. Molloy then concluded by saying—I have thus endeavoured to deliver those few detached sentences, imperfectly throw together at moments stolen from almost incessant toil. I fervently hope that they may prove of some benefit to you in your pursuit of virtue and knowledge, and consequently assist in promoting your best happiness, temporal and eternal."

#### GREASY PATHWAYS.

NEVER, in the annals of this notoriously filthy city, were the pathways of the streets in such a dangerous and impassable condition—owing to the accumulations of slimy mud on their surface—as during the last week. We should be very curious to know, from hospital statistics and other sources, what has been the sum total of "broken bones" amongst Dublin pedestrians during this period, for—(without even considering the probable disturbance of equilibrium by over-indulgence in Christmas festivities)—it was next to impossibility for the steadiest to maintain himself upright in walking. The police have charge of the pathways, and are expected to enforce penalties of all householders who neglect to have the pathways of their entire frontage properly scraped and cleaned, to a certain distance into the roadway. Had they attended to their duty, we, and the public generally, should not have such occasion to complain.

#### A NEW THEATRE ROYAL AT GLASGOW.

ACCORDING to the *Glasgow Herald*, this theatre will accommodate about 3,600 persons. The upper boxes and the lower and upper galleries of the old house are superseded by an amphitheatre. The width of the stairs leading to the amphitheatre is 7 ft. 6 in. The theatre is in the form of an almost perfect circle, having a diameter of 42 ft., the radius from the centre to the box front being 21 ft. An area of 3 ft. 3 in. has been allotted each person in stalls and boxes, and all the seats will be divided by arms. Sunlights are used. Iron piping is introduced throughout every part of the house, to prevent, as far as possible, all accident from the escape of gas; no gaseliers will be used. Mr. Drummond, the machinist of the theatre, has constructed the stage. The proscenium opening has been enlarged to 33 ft., and is flanked with pilasters, between which are placed the private boxes. A semicircular arch spans the proscenium opening, the arch

being supported on ornate brackets, and the panels enriched with ornamentation. The height from the stage to the crown of the arch is 45 ft. The level portion of the ceiling will be 42 ft. in diameter, forming a circle of the exact circumference of the box frontage. The painting-room is 44 ft. square, by 30 ft. high, and presents three sides of wall of great extent. The ornamental work for the box fronts, ceiling, and proscenium has been made by Messrs. Jackson and Sons, London. The decoration of the building has been well carried out. The front of the upper gallery is divided into seven panels, surrounded by lilac coloured stiles, and separated from each other by medallion figures painted in imitation of white statuary, on pink backgrounds. The panels themselves are painted in orange colour, and relieved with richly-gilt trellis-work. The colours of the amphitheatre front are pink and white, and the whole frontage is covered with festoons of flowers and elaborate mouldings of a Grecian character, the salient lines throughout being richly picked out with gold. At regular intervals are placed concave shields, containing white Cupids, and round the whole circle runs a pendent valance wrought in gold and crimson. The dress circle is a beautiful pale green, which is interspersed with the other tints. The architrave which encircles the stately arch of the proscenium is moulded and gilt, and the spandrels are ornamented with panels bearing appropriate trophies. The arch proper—which is in form an exact semicircle—is worked out as one great panel, painted of a pale pink colour, relieved with a gilt trellis, and surrounded by lilac coloured stiles. The two lower stage boxes on each side are ornamented in a style corresponding to the dress circle and amphitheatre. The back wall of the dress circle is covered with a dark crimson paper. The central portion of the ceiling is divided into five panels, converging to the central point from which hangs the great chandelier. These panels are painted in ultramarine blue, the colour being shaded from a darker to a lighter hue as it approaches the centre of the ceiling. The fieldings are of a light pink, with grey stiles, the latter having trophies of musical instruments painted on them in light and shade. The decorative painting and gilding have been carried out by Messrs. Hugh Bogle and Co., of Glasgow. The contractors are Mr. Robert Taylor, builder, West Nile-street; and Mr. John Taylor, joiner, George-street. Messrs. Potts and Son, of Sunderland, were the architects.

#### INSTITUTION OF CIVIL ENGINEERS, LONDON.

THE annual general meeting of the Institution of Civil Engineers was held on Tuesday, 15th ult.—John Hawkshaw, Esq., President, in the chair.

The report stated, that in the interval that had elapsed since the last annual general meeting, it was gratifying to the council to be able to state that the progress of the Institution had been eminently satisfactory. The papers read at the meetings had been numerous and varied; the meetings themselves had been very fully attended; the library had received considerable accessions, both by donations and by purchases; the number of members had steadily increased; and the funds were in a prosperous condition. These were certain tests that the Institution continued to be appreciated by those in whose interest it was established, and led to the conclusion that, so long as its affairs were conducted as they hitherto had been, similar support and countenance would be extended to it. An enumeration of the papers read and discussed at the ordinary general meetings showed the variety of subjects which engaged the attention of engineers at the present day, and the extended area embraced within the operations of the members of the profession. Many of the papers read during the last two sessions had, at the request of the authors, been issued already in a separate form, so that the volumes xxi. and xxii. of the minutes of proceedings for the sessions 1861-62 and 1862-63 might be said to be completed, and would be issued in the course of a few weeks. An index of the series from vol. i. to vol. xx. inclusive was in hand, and though a task involving considerable labour, had already advanced fully one half. Numerous applications having been received from the members for complete sets of the minutes of proceedings, the council had determined to reprint some of the earlier numbers which were out of print, in order to be enabled to supply this evident want. The tabular statement of the transfers, elections, deceases, and resignations, showed that the number of elections had been 74, of deceases 26, of resignations 5, and of erasures 3, leaving an effective increase of 40, and making the total number of members of all classes on the books on the 30th of November last, 1,040. This was an increase of nearly 33 per cent.

in the last ten years, of which 4 per cent. occurred in the past session. During the last ten years the number of members had increased to a greater extent than the associates; for, whereas the numbers of those classes on the 30th of November, 1853, were 259 and 441 respectively, or in the proportion of 1 to 1.7, on the 30th of November last these numbers were 425 and 588, or as 1 to 1.4.

The abstract of receipts and expenditure, as prepared by the auditors, showed that the income from all sources, during the twelve months from the 1st December, 1862, to the 30th November, 1863, was £3,974 17s. 1d., while the payments in the same period only amounted to £2,740 8s. 11d., leaving a balance of £1,234 8s. 2d. Of this, a sum of £1,000 had been invested in the purchase of London and North-Western Railway Four per Cent. Debenture Stock, making a total of investments during the last five years out of the general funds of £3,500. The realised property of the Institution now comprised:—1, General Funds, £9,357 0s. 8d.; 2, Building Fund, £1,322 2s. 11d.; and 3, Trust Fund, £9,970 12s. 7d., making a total of £20,649 16s. 2d., as against £19,041 12s. 1d. at the same period last year.

The following gentlemen were elected to fill the several offices on the council for the ensuing year:—John R. McClean, president; J. Fowler, C. H. Gregory, T. Hawkley, and J. S. Russell, vice-presidents; Sir William Armstrong, W. H. Barlow, N. Beardmore, J. Cubitt, T. E. Harrison, G. W. Hemans, J. Murray, G. R. Stephenson, C. Vignoles, and J. Whitworth, members; and Colonel Jervois, C.B., R.E., and Mr. C. Waring, associates.

The meeting was then adjourned until Tuesday, 12th inst., when the following paper would be read:—"On the closing of reclamation banks," by Mr. J. M. Heppel, M. Inst. C.E.

#### THE PANTOMIME.

WITH much more than the average excellence of production for which the management of our Theatre Royal is so remarkable, the celebrated nursery tale of "*Puss in Boots*" has (to coin a term) been *pantomimeized* for the present Christmas holidays.

The scenery of the opening portion is generally effective, and in some respects gorgeous, while all the accessories of costumes, decorations, &c., are correspondingly beautiful.

Of course there is the usual representation of grotesque figures, hideous and unearthly physiognomies, fairy scenes, &c., prior to the transformation, and subsequently succeeded by the frolics of Clown, the miseries of Pantaloon, the magical inspirations of Harlequin, and his ærial partner, Columbine; by awkward denouements, victimized "hobbies," street rows, &c., &c.; but everything is mirth-provoking, and all the audience, from "the infant mewling and puking in the nurse's arms," to the venerable octogenarian, admire the pantomime in its beauty, and enjoy it in its ridiculousness. The versatile and vivacious Mrs. Burkinshaw is the feline heroine, and sustains the comic role with the same ability which characterized her impersonations in the previous pantomimes of "*Jack the Giant Killer*," "*Aladdin*," and "*Cinderella*." The Clown is a decided improvement on his predecessor, while Pantaloon, Harlequin, and Columbine, are fully up to the standard.

The *Mechanic's Magazine* of September 5th, in its description of Benson's Great Clock, says:—"Benson's great piece of clock work is certainly a marvellous achievement in clock-making, both as regards the workmanship, and its capacity under difficult circumstances for time measuring." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate Hill, London. Branch establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

## ROYAL DUBLIN SOCIETY.

THE annual distribution of art prizes to the successful pupils in the Society's School of Art took place in the theatre of the Royal Dublin Society on the 23d ult. The Lord Lieutenant, attended by Mr. Hatchell, Private Secretary, was present.

His Excellency having taken the chair,

Captain Shaw, addressing his Excellency, said—The honour devolves on me, as chairman of the Committee of Fine Arts, of laying before your Excellency the annual report of that committee, relative to the Royal Dublin Society's School of Art, and on behalf of the committee, of thanking your Excellency for the interest you evince in the welfare of the school, by kindly consenting to preside and distribute the prizes on the present occasion, and thus enhance their value, and give an additional stimulus to the industry of the students. The prizes to be distributed are—first, those of the Royal Dublin Society; secondly, the Taylor prize for composition painting, which is only competed for by young persons who intend making this art their profession; and, thirdly, those awarded by the Government Inspector. The new rules laid down by the Department of Science and Art have necessitated considerable changes in our school, and the Royal Dublin Society has entirely conformed to all the arrangements, in accordance with the views of the Government department. We have been most fortunate in obtaining a most efficient head-master and mistress, and with the assistance of the second master, of whose qualification we have had ample experience, we have every reason to be confident as to the success and the beneficial results of our school. It is contemplated to attach a gallery of fine arts to the exhibition to be held on the premises of the Royal Dublin Society next year, and in the name of the committee I beg to express a hope that the Government department, aided by the efforts of private collectors and artists, may assist with the same liberality as formerly, and thus furnish the art students of this city with examples of modern art, and with instances or opportunities of great value. We also anticipate that the National Gallery, which we believe will shortly be opened, will conduce much to the improvement and refinement of the public taste.

Dr. Steele then read the report of the Fine Arts Committee, as follows:—

The distribution of prizes, now about to take place, occurs generally at this time of the year, after the examination held by her Majesty's Art Inspector, who visits the Royal Dublin Society's Schools in the month of October. The candidates, irrespective of sex, are arranged under three heads. The first, or highest class, consists of the male and female pupils of the School of Art, Royal Dublin Society, who compete, first, for local medals; and, secondly, for prizes of books or drawing apparatus. They also compete for silver medals, and other rewards offered by the Society; but the latter are not adjudicated by the Art Inspector, but by persons specially appointed by the Society for the purpose, though the distribution of the latter takes place contemporaneously with that of the former. The inspector awards the local medals for certain works executed by the pupils in various stages of instruction in the school, and placed in competition; and after awarding the medals, he subjects the works which have obtained them to a second and severer scrutiny, and selects such as he considers worthy of it, to be forwarded to London, there to compete with other works similarly selected from the works of the pupils of every school of art throughout the United Kingdom for national medallions. A national medallion, therefore, is the highest honour a pupil can by possibility attain to. The prizes, of books or drawing apparatus, at the selection of the successful pupil, are the result of an examination held by the art inspector in practical geometry, perspective freehand drawing, and model drawing, and a prize may be obtained by a pupil in any one of those subjects; but no pupil can obtain more than one prize in the same year, although they may have exhibited sufficient proficiency to entitle them to a prize in more than one of them. Pupils whose proficiency is not sufficient to entitle them to prizes, may, nevertheless, pass the examination in any one or more of its branches, in which cases the inspector awards them certificates of having passed. The number of pupils who have attended during the last two years has varied but little from that of the previous year—the number for the year which has now passed being 348, and for that which preceded it, 344. The like may be said of the income derived from fees,—the amount of it being £279 11s. 5d., and £280 10s. 11d. respectively. Two of the pupils have obtained the highest honors, viz., national medallions; thirteen local medals have been awarded; two have obtained honourable mention; one has been forwarded for national competition; two more permitted to compete, having previously obtained

local medals in the same stages, which disintituled them to obtain them at the last examination; twenty-three have been successful in passing the examination in one or more of its branches, of whom twelve have obtained prizes. In addition to the above three have obtained the society's silver medals for artistic anatomy; two, those for oil painting; two, those for architectural drawing, and one, honourable mention for oil painting; together with a Taylor prize of £10 obtained by one of the pupils. There has been a decrease of six in the number of local medals. This is at once accounted for by the fact, that within the last year the Department of Science and Art passed a minute abolishing prize-student-ship after October, 1863, thereby withdrawing their incentive to compete, namely, the annual renewal of their privileges according as they should obtain local medals. The committee, however, at the suggestion of the master, have restored this incentive, by deciding on admitting all who would have been entitled under the former regulations to prize-student-ship, to a renewal of the privilege, on a nominal payment of £1 per annum to the society, that being the amount formerly allowed for them by the department after the first year. The beneficial effect of this resolution is already manifesting itself by the fact that the prize students, most, if not all, of whom had ceased to attend, have availed themselves of the privilege thus afforded. Next in order come the pupils of parochial and other schools for the children of the poor, taught by the society's pupil-teachers, under the supervision of the Art Master. There are about 962 pupils of this class, and 39 of them have obtained what are called first-rate prizes, that is, prizes for freehand drawing and practical geometry in the first or simplest grades, the total number who passed the examination being seventy-five. The utility of such an institution to artisans and mechanics must be evident to every thinking person. How much more excellent would the works of such men be, were the taste improved, and the manipulation refined, by a course of drawing from the beautiful specimens of ancient art. The mere imitation of such works, however, should not be the end in view; but the great object should be to arrive at a knowledge of those great and universal principles based on reason, propriety, and nature. In nature every thing has a meaning, and likewise in art. The beautiful vases of the ancients have a meaning, their shape agreeing and harmonizing with their use, and their ornamentation with their shape; there cannot be meaning without purpose. The education of the eye is rapidly becoming a branch of general education, and no doubt the time will arrive when drawing classes will be established in every school in Dublin. Imitation of form is a faculty inherent in all children, and is as capable of cultivation as the voice. The common assertion which we so often hear repeated of a person pos-sessing "no taste" should not be allowed to dishearten any one; for taste exists in a greater or less degree in every individual, and its development must be certain, if judicious selection is made of objects for study. In consequence of the recent minutes of the Government Department of Science and Art, the arrangements of the school as to the times and terms of instruction, and the staff of teachers, have been entirely changed. In the regulating of the different classes the committee have been influenced—first, by a desire to provide for the artisan, and poorer classes of the community, ample opportunities for the study. Thus, in addition to two hours on three evenings of the week, heretofore provided, the committee have opened a class for artisans to be instructed on the mornings of Tuesday and Thursday, from eight to ten o'clock, the fees for which are 1s. 6d. per month, or 7s. for five months. To this class females are now, for the first time, admissible. The other object of the new arrangement has been to regulate the fees, so that the students shall pay according to the length of time they may be under instruction. Thus, in the ladies' and gentlemen's drawing class, the fees are 3s. per month, or 15s. per session, for two hours' instruction in the week. For four hours' weekly instruction the fees are 5s. per month, or £1 2s. 6d. per session. For six hours a week, 7s. a month, or £1 10s. per session. The committee have set apart different hours for instruction in painting from those devoted to the drawing classes, and have, for such, fixed upon a higher rate of fee. Thus, for instruction in painting during three hours in the week, the fee is 10s. a month, or £2 a session; for six hours weekly the fee is 16s. a month, or £3 a session. The committee have likewise so arranged the rooms for the classes that some are set apart for ladies, and others exclusively for gentlemen. The Department of Science and Art having announced that it was their intention to superannuate their former zealous and talented head master, Mr. Macmanus, the committee applied to them to recommend them a gentleman qualified to succeed him. Out of several candidates the committee are fortunate to

have selected the present head master, Mr. Edwin Lyne, whose qualifications are as follows:—Certificates to teach—1st. Elementary drawing and color; 2d. Painting; 3rd. Drawing and painting the figure; 4th. Mechanical drawing; his having studied anatomy under Professor Allan Thompson, of Glasgow, and John Marshall, Esq., F.R.S., of London; having studied in the Ecole Imperiale des Beaux Arts, and in the Ecole Imperiale speciale de Dessin in Paris; also having studied with Leon Cognit, one of the professors of the Ecole des Beaux Arts; and, lastly, his being a student of the Life School of the Royal Academy of London. The committee have continued Mr. James Healy as assistant master, a position in which he has for so many years given so much satisfaction. In a school attended so largely by ladies, the committee have long felt the importance of there being attached a mistress, whose presence would, no doubt, have the effect of inspiring with confidence the parents of the female pupils. The committee consider they have made a most excellent selection in having appointed as Art Mistress a lady so well qualified as Miss Julian. Her Qualifications are as follows:—1st. A certificate to teach elementary drawing and colour; 2nd. A certificate to teach painting; and, 3rd. A certificate to teach painting and drawing of the figure. These qualifications, combined with a considerable experience in teaching in schools of the Department of Science and Art in London, render Miss Julian in every respect eligible for the position to which the committee have appointed her. With so many advantages which this branch of the society possesses, and is capable of affording to the public, viz., instruction in art, the best that can be afforded—fees so moderate as to suit the circumstances of all classes of our citizens—suites of rooms particularly well adapted for the purpose to which they are devoted—an ample supply of the best examples, the committee consider they are justified in looking forward with confidence to these schools becoming each year more successful and prosperous.

The prizes were then read out and presented to each successful candidate by His Excellency.

The Lord Justice of Appeal proposed a vote of thanks to His Excellency the Lord Lieutenant for having kindly presided on the present occasion.

Mr. George W. Maunsell seconded the motion.

His Excellency said that he did not know he ought to put the motion which had been moved and seconded. Perhaps he should assume that there was no one opposed to it. I can assure you, ladies and gentlemen, that it has been a great pleasure to me to come here once more to have heard the interesting information which is supplied to us, and to have borne my part in the distribution of the medals, whether local or national, to the successful candidates. I will no longer risk my character by detaining in my hands a cheque for £10, but I transfer it with the greatest possible pleasure and with sincere congratulations to the successful candidate, Mr. O'Hea. I have always thought it was a very wise and considerate piece of forethought on the part of the Royal Dublin Society to add to the many other branches of science and industry which come under their fostering care a school of design and a department for the cultivation and encouragement of the Fine Arts. To be sure, the subject matter in which we are engaged to-day affords a remarkable contrast, although I think not an irreconcilable contrast, to the spectacle which was exhibited in an adjoining building last week. We there saw a goodly array of fat heeves, well fed sheep, and more than well fed swine, to say nothing of Cochon-China. Ladies and gentlemen, all these specimens of animal nature ought also to exhibit, to a certain extent lines of a good and proper symmetry and proportion, and great pains are taken with them for the purpose. Still we must acknowledge that the contours and outlines which they present to us differed somewhat from the exquisite form of the Venus or the faultless shape of the Apollo. At all events I congratulate you that this department of the Fine Arts will receive very shortly a more appropriate accession and aid, and that, too, within the precincts of this institution, by the opening of the new National Gallery of Ireland. I quite endorse the opinion which Mr. Maunsell in his spirited and excellent remarks told me that I used before in congratulating the public in Dublin, upon the manifest improvement which, within a very short memory, has taken place in the architectural appearance of the metropolis in its houses, shop-fronts, schools, hospitals, galleries, and churches of all religious denominations. Even some improvement is traceable in the domestic furniture now used, and in this respect I cordially subscribe to his opinion that the classes of such an institution as this, by the care which they bestow upon the nicety of hand and accuracy of eye, form the most powerful auxiliary to this improvement that can be imagined; and I trust that these model schools are likely to supply Ireland with a great many Deanes,

Lanyons, and McCarthys. I congratulate the department upon the acquisition made by the engagement of the new principal master, Mr. Lyne, a person whose admirable antecedents speak for themselves; and I feel sanguine of the efficiency which will be displayed by Miss Julian in her new capacity. I am happy to see amongst the distinguished company present one of my own colleagues in the government of this country, Sir Robert Peel, and I feel confident he will never fail to show the utmost sympathy for, and give encouragement to, the interests of this department. I have long felt that Irishmen do not fail in any native susceptibility for art, though they may labour under the disadvantages of not having due cultivation and encouragement of art; but I trust that this institution will have a powerful effect in remedying that deficiency, and in developing and guiding that native susceptibility which is not only not wanting, but is very marked and distinguished in the Irish character. I thank you for the kind reception you have given me, and beg to express my most cordial wishes for the development and continued success of this institution.

#### CONTINENTAL NOTES.

##### LYONS.\*

LYONS is a most interesting city, and, judging by the number of handsome buildings now being erected in all quarters, is in a very flourishing condition. We sallied out to explore the city under a pouring rain and characteristic fog, which somewhat damped our ardour. Place Louis le Grand, said to be the largest square in Europe, is surrounded by handsome buildings, many of them very lofty and highly enriched in detail. A marked feature in the street architecture of Lyons is the prevalence of a broad iron balcony at every floor. The attic, too, which uniformly surmounts the main cornice, is always protected by an enriched balcony rising from the outer edge of the main cornice, which projects boldly on cantilevers, while the wall of the attic is kept well back, so as to secure a broad platform, on which old people, and women with children in their arms, sun themselves in these airy regions, far removed from the dust and crowd below.

The Cathedral with its unrivalled stained glass windows, the Hotel de Ville and the Bourse, the Law Courts and many public buildings, are all worthy of study, and would amply repay a lengthened visit. The modern architects, I fear, have too free use of the purse-strings, and mistake ornamentation for beauty, and thus cover their more recent buildings from base to eaves with enriched moldings, pediments, trusses, consoles, balconies, and every imaginable variety of architectural device, till not a spot is left for the eye to rest on; certainly, the ingenuity of design is often very great were it only better applied.

Everywhere you find carriage drives, bordered by trees, with ample footpaths on either side also shaded by trees, all kept in the finest order, the footpaths being watered and rolled almost daily; great attention is bestowed on the trees, which are carefully trimmed, and frequently watered in dry weather. No appearance here of torn branches, or names cut out of the bark—even the boyhood of France seem to love trees. The gardens are open to the public from sunrise to sunset, in every town which I have yet seen in France, contrasting rather favourably with our own habit of enclosing and shutting out the public by bar and bolt from many of our finest gardens. The Place Louis le Grand, in Lyons, has no enclosure whatever; the flower beds, marked by neat wire borders, are filled with the most beautiful flowers, tastefully laid out in masses of brilliant colours, and kept with all the care of a nobleman's private garden, and yet not a flower or petal is touched, although crowds of children are constantly playing about all day long.

##### MARSEILLES.

Marseilles is the Liverpool of France, and a busy stirring place it is. Here, as in all the principal towns of France, vast improvements are being carried out in all quarters of the city. The Bourse, a large modern erection, wants elegance of proportions in the exterior elevations; but the interior has a magnificent hall, of great elegance. The central portion of the hall is lighted from the roof, and is surrounded by two storeys of columns, Doric and Ionic, with intervening arches, having six openings in either side and three at either end, the lower columns supporting a gallery which is continued round the hall, the upper columns supporting the domical ceiling above. The dome is subdivided into large panels, which are filled with sculpture in bas-relief, emblematical of Trade, Commerce, and Art.

The new Palace of Justice, though scarcely finished, was already in part occupied. It is a magnificent structure, 64 paces in front and 55 in

depth. On the south elevation is a six-columned Ionic portico; the other façades are equally handsome. The interior is extremely effective in design. The entrance-hall is a spacious apartment, about 60 ft. square, with four Ionic marble columns on either side, carrying a gallery which surrounds the hall, giving access to the apartments in the upper floor. The ceiling is domical, the panels of which, like those of the Bourse, are filled with sculpture in bas-relief; the floor is of marble; and the finishings of doors are of richly-carved wainscot. The Law Courts, on either side of the hall, are spacious and elegant apartments.

In the older parts of the town the houses are high and the streets narrow, dirty, and badly paved; there is a general air of squalor and wretchedness in the inhabitants, which seem to be the accompaniment, if not the consequence of such miserable and unhealthy dwellings. The town authorities are doing much, and have already accomplished much for the improvement of Marseilles. They have provided an inexhaustible supply of water, which is brought from the distant mountains, and is allowed to flow into the water channels of every street and lane of the town, for several hours each day, which purifies the air, and greatly aids the work of the scavenger. Wide thoroughfares are being carried through the densely crowded parts of the town; new streets are seen in many quarters, new quays, new docks and warehouses, and new churches; in short, Marseilles has all the outward aspect of prosperity. From the manner in which the filthy and overcrowded parts of the old town are being opened up, the general welfare of the masses of the population does not seem to be overlooked in the onward movement; and the ruling powers do not seem afraid to pull down whole districts of miserable buildings, where the general good of the community demands the sacrifice; thus, the older parts of Marseilles are rapidly progressing in the onward march of improvement.

Notre Dame de la Garde, a celebrated little church, is perched on the summit of a hill, which rises abruptly from the coast, whence is obtained a magnificent view of the city and harbour, and of the splendid scenery around, and of the Gulf of Lyons with its numerous islands crowned with picturesque old castles and fortifications.—*Ibid.*

#### WIND ENGINES.

A CORRESPONDENT—Mr. Terence Moriarty—writes to enquire if we can inform him of the name and address of the maker of the best "wind engines?" He further requests to know "how many months in the year is there wind sufficient to turn a wind-mill, and how would I calculate the force or power of a wind mill equal to one or two horse power?"

[Respecting the first question we beg to refer him to Mr. Mooney, of 26, Summer-hill, agent for a wind-engine manufacturer; but the second question is one which it is obvious could only be answered by the clerk of the weather.—*Ed.*]

#### AN INTENDED NEW ROMAN CATHOLIC CHURCH AT DONNYBROOK.

THE committee who have undertaken the project for erecting a new church for the accommodation of the Roman Catholics of Donnybrook and neighbourhood, plead the necessity therefor in the following emphatic terms:—

"The present Chapel of Donnybrook is in every way unsuitable for its holy purpose; it is too small, and it cannot be enlarged; it is but 64 feet long; and whilst in one part it is 20 feet wide, in others it is only 14, and this from the irregularity of the ground, which is all built over. Into that miserable small chapel the numerous Catholics of Donnybrook, Clonskeagh, Roebuck, Stillorgan-road, and of part of Milltown, and some from Ball's-bridge, and Merriem, have, every Sunday and holiday, to strive to crowd themselves. Its floor, too, is somewhat lower than the adjoining graveyard, and the damp cannot be kept from the floor nor from the walls; moreover, in order to give accommodation to as many as possible, three quarters of the chapel are galleried over, and the only ventilation is from the side along the graveyard; the atmosphere is consequently most horrible. Nor is this all.

"The old roof, though cared as much as possible, has often refused its shelter. It is, in that old chapel, no new thing to see a tub receive the rain-drop. The window sashes, too, are rotten. What are we to do? But bad as are its floor, its roof, its walls, its windows, the poor cannot, through want of room, always get into it; some, every Sunday, even in the worst of weather, must remain outside. Let those, if any, who doubt, see for themselves, and

declare that, so far from exaggerating, we do not expose all the sadness and wretchedness of this edifice—sacred, it is true, and venerable, but also most unsuitable.

"A new church is absolutely wanted, and a new site. A new site, in every respect most eligible, has been procured; it is beside the Fair green—the Fair-green of Donnybrook! Who would not have a church there? Whoever would, must help us."

#### RAILWAY NEWS.

LOCOMOTIVES.—At the close of 1860 the number of locomotives on the railways of the United Kingdom was, 5,801; at the close of 1861 it was 6,156; and at the close of 1862, 6,398. Thus an additional locomotive was brought into use almost every day, if we except Sundays. Even allowing twenty years as the natural life of a locomotive, upwards of 300 new engines would be required to keep up the stock every year at its present level; and irrespective of any foreign demand, it may be affirmed that at least 500 locomotives will be required annually on home account for an almost indefinite period. Allowing £2,500 as the cost of each engine, the 500 new locomotives annually called for represent an aggregate of no less than £1,250,000. Another curious consideration suggested by the figures which have been given is the magnitude of the class employed in driving the engines at work. Between 12,000 and 13,000 drivers and stokers must be now regularly employed, and those men represent a population of at least 60,000 persons depended on the swift iron and brass giants which have played so prominent a part in the industrial history of the century.

A novel description of railway-break has just been tried on the "Mid" line. It is the invention of M. Tabuteau, of Bordeaux, is said to be very simple, and is proved to be very effective. Travelling at a rate of 40 kilometres per hour, the train was stopped in 56 yards. At a rate of *grande vitesse*, 70 kilos an hour, with a small rain falling, which made the rails very slippery, the stoppage was effected in 200 yards.

STREET RAILWAYS.—We learn that the management of the city railroads in Philadelphia are about to introduce steam upon their various lines. Six "dummy" engines are being constructed for that purpose, and will soon be in operation. The utility and feasibility of steam engines on city railways has already been pretty thoroughly tested by persons well skilled in mechanics, and we have no reason to doubt the time is not far distant when this great propelling agent will entirely supersede horse-flesh in this important department of public transportation. Street cars drawn by horses and mules are a long way behind the progressive spirit of the present age. It is the quintessence of folly to continue this practice when steam can be used for the same purpose at less expense, and more satisfactorily in every respect. It seems a little singular that this innovation should have been first perpetrated by the staid, old-fashioned people of the "Quaker City;" but we are glad to see the improvement introduced anywhere, and perhaps it is best that Philadelphia should lead the way.

The *City Press*, June 7, 1862, speaking of Benson's Argentine, says—"Beautifully finished works of art, well sustaining the deserved popularity of the producer." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the Argentine and the real silver are placed side by side, the most skillful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full-price list of the various manufactures, both in Argentine and solid silver, will be sent to any address on receipt of five stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, Argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishments, 46, 47, and 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

\* From a paper by Mr. David Cousins.

## THE GREAT RAILWAY MANIA OF 1845.

THE multitude of these schemes in 1845 was so great that there could not be found surveyors enough to prepare the plans and sections in time. Advertisements were inserted in the newspapers, offering enormous pay for even a smattering of skill. Surveyors and architects from abroad were attracted to England; young men at home were tempted to break the articles into which they had entered with their masters; and others were seduced from various professions into that of railway engineers. Sixty persons in the employment of the Ordnance Department left their situations to gain enormous earnings in this way. There were desperate fights in various parts of England between property owners who were determined that their land should not be entered upon for the purpose of railway surveying, and surveyors who knew that the schemes of their companies would be frustrated unless the surveys were made and the plans deposited by the 30th of November. To attain this end, force, fraud, and bribery were freely made use of. The 30th of November, 1845, fell on a Sunday; but it was no Sunday near the office of the Board of Trade. Vehicles were driving up during the whole of the day, with agents and clerks bringing plans and sections. In other country districts, as that day approached, and on the morning of the day, coaches and four were in greater request than even at race time, galloping at full speed to the nearest railway station. On the great Western Railway an express train was hired by the agents of the new scheme; the engine broke down; the train came to a standstill at Maidenhead, and in this state was run into by another express train hired by the agents of a rival project, the opposite parties barely escaped with their lives, but contrived to reach London at the last moment. On this eventful Sunday there were no fewer than ten of these express trains on the Great Western Railway, and eighteen on the Eastern Counties. One railway company was unable to deposit its papers because another company surreptitiously bought, for a high sum, twenty of the necessary sheets from the lithographic printer; and horses were killed in madly running about in search of the missing documents before the fraud was discovered. In some cases the lithographic stones were stolen; and in one instance the printer was bribed by a large sum not to finish in proper time the plans of a rival line. One eminent house brought over four hundred lithographic printers from Belgium, and even then, and with these, all the work ordered could not be executed. Some of the plans were only two-thirds lithographed, the rest being filled up by hand. However executed, the problem was to get these documents to Whitehall before midnight on 30th of November. Two guineas a mile were in one instance paid for post horses. One express train steamed up to London 118 miles in an hour and a-half, nearly 80 miles an hour. An established company having refused an express train to the promoters of a rival scheme, the latter employed persons to get up a mock funeral cortege, and engage an express train to convey it to London; they did so, and the plans and sections came in the hearse, with solicitors and surveyors as mourners. Copies of many of the documents had to be deposited with the clerks of the peace of the counties to which the schemes severally related, as well as with the Board of Trade; and at some of the offices of these clerks strange scenes occurred on the Sunday. At Preston, the doors of the office were not opened, as the officials considered the orders which had been issued to keep open on that particular Sunday to apply only to the Board of Trade; but a crowd of law agents and surveyors assembled, and threw their plans and sections into the office. At the Board of Trade extra clerks were employed on that day and all went pretty smoothly until nine o'clock in the evening. A rule was laid down for receiving the plans and sections, hearing a few words of explanation from the agents, and making certain entries in books. But at length the work accumulated more rapidly than the clerks could attend to it, and the agents arrived in greater number than the entrance hall could hold. The anxiety was somewhat allayed by an announcement that, whoever was inside the building before the clock struck twelve should be deemed in good time. Many of the agents bore the familiar name of Smith; and when "Mr. Smith" was summoned by the messenger to enter and speak concerning some scheme, the name of which was not announced, in rushed several persons, of whom, of course, only one could be the right Mr. Smith at that particular moment. Our agent arrived when the clock was striking twelve, and was admitted. Soon afterwards a carriage with reeking horses drove up; their agents rushed out, and finding the door closed rang furiously at the bell; no sooner did a policeman open the door to say that the time was past than the agents threw their bundles of plans and sections through the half-opened door into the hall; but this was no permitted, and the policeman threw the documents into the street. The baffled agents were nearly maddened with vexation; for they had arrived in London from far and near in good time, but had been driven about Pimlico, White and Thither, by a post-

boy who did not, or would not know the way to the office of the Board of Trade. The *Times* newspaper, in the same month, devoted three whole pages to an elaborate analysis, by Mr. Spackman, of the various railway schemes brought forward in 1845. They were no less than 620 in number, involving an (hypothetical) expenditure of 560 millions sterling; besides 643 other schemes which had not gone further than issuing prospectuses. More than 500 of the schemes went through all the stages necessary for being brought before parliament; and 272 of these became acts of parliament in 1846, to the ruin of thousands who had afterwards to find the money to fulfil the engagements into which they had so rashly entered.—*Book of Days*.

## Reviews.

*The Ghost, as produced in the Spectre Drama.*  
London: F. & N. Spott, 16, Bucklersbury.

A LITTLE volume explanatory of the uncommonly clever and scientific "spectral illusion" which has of late fairly turned the public head, has just been published by the firm named above, and is from the pen of Mr. Henry Dircks, C.E., who claims a title to the originality of the invention, and states "clearly and fully" the circumstances under which he (like the originators of most "novel" ideas, who supply brains for other men to reap the benefit of) was deprived of the merit for same. The author elucidates the peculiar features of what he terms the "Dircksian Phantasmagoria" in the following manner:—

"Two or more figures appear on a stage, and the spectators view them as two living actors, in all respects the one as well defined and obviously round and life-like as the other, yet one shall be a material and the other only a visionary actor. Suppose a theatre or apartment arranged as customary when required for dioramic exhibitions, a stage being provided, and the spectators placed in a distant, darkened, and elevated portion of the building. The spectators thus situated may, for example, see on an illuminated stage, two or more figures, but without being aware that one or more of them bears a visionary character. The peculiarity of this mode of exhibiting spectral appearances consists in thus associating a living or solid figure with a merely visionary one, and yet the illusion is so well sustained that the spectator distinguishes no visible difference between the several actors, when properly managed, until the circumstances of the dramatic scene require the visionary figure to fade away, or pass through the furniture and walls of the apartment, or play any similar spectral part.

It is more than twenty years since I first invented a plane mirror of unsilvered glass, but finding no practical utility in the contrivance, it was laid aside. It happened, however, that within the last two years I accidentally observed a solid body in a peculiar situation, by which it was apparently rendered transparent. It was, in short, an effect illustrated by my plain unsilvered glass mirror in its principle. I immediately saw that, by means of this combination, the singular appearance could be produced of getting behind a mirror and communicating with its shadows. Here, then, a means was at once at hand for producing the best possible illustrations of all descriptions of spectral phenomena. For this purpose I arrange an oblong chamber into two equal portions, making the separation between the two by means of one vertical screen of thin glass having a perfectly true surface. Suppose each chamber to measure 12 ft. square and 12 ft. high. Now let one of these be the stage on which the acting is to take place; its floor and three of its walls are solid, and the fourth or front of it is one entire glass screen; the ceiling must be made to open at different parts to let in light, and have suitable blinds to regulate the light and shade in which the actors perform. The chamber opposite, or facing the actors, is in reality a second stage for carrying out the spectral performances, and is differently constructed; the two sides may be large folding or sliding doors, or may be left quite open, or one side closed and the other open; but the ceiling must cover only that half of the top away from the glass screen or partition, thus leaving an open space in the ceiling of 6 ft. by 12 ft.; through this space so left in the ceiling the spectators obtain a full view of the stage, their seats being above the half ceiling described, and thrown rather backwards than forwards; the line of vision thus being at an angle of about 45 deg. with respect to the vertical glass screen, or plane unsilvered crystal mirror. It will now be obvious that the actor on the stage beneath the seats of the spectators can only be seen by reflection, and the trained actor on the opposite stage, knowing the precise situations of the reflection as seen by the

spectators, performs accordingly, so that, when really seeming to stand confronting the vision, the actor, whose reflection is thus seen as a vision, is as far from the screen on one side as his reflection is cast on the other."

*The New Zealand Handbook to the Britain of the South.* London: Edward Stamford, 6, Charing-cross.

VERY much valuable and reliable information for intending emigrants of the respective classes of professional and commercial men, speculators, clerks, governesses, agriculturists, mechanics, servants, labourers, &c., &c., is contained in this work which supplies every particular from the engaging of the passage on board ship to complete settlement in the colony. Some interesting statistics of progress and rates of wages are included.

## Correspondence.

## ART PRIZES AT THE ROYAL DUBLIN SOCIETY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Permit me to inform your readers that the pieces which obtained national medallions in May last (the highest honour a pupil can by possibility obtain) were executed entirely under the instructions of Mr. Healy, and prior to the appointment of Mr. Lyne, the present very efficient head master. I am wholly unknown either to Mr. Healy or to the Committee of the Fine Arts, and am, therefore, quite disinterested in the matter.

H. R. T.

## THE ARCHITECTSHIP OF THE "EDINBURGH" ASSURANCE OFFICE.

TO THE EDITOR OF THE DUBLIN BUILDER.

23, Westland-row, Dec. 30, 1863.

DEAR SIR,—In the DUBLIN BUILDER of the 15th inst., in speaking of Insurance office architecture, you mentioned that the "Edinburgh" Association are remodelling a house in Sackville-st., and that Mr. Jones is the architect. I beg leave to say that I am the builder, and that Messrs. Lanyon, Lynn, and Lanyon are the architects to the Co. May I request you will correct this in your next impression.

WALTER DOOLIN.

## THE DROGHEDA BRIDGE COMMITTEE.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The Corporation of Drogheda employed Sir John Macneill to give them working plans and specifications for two draw-bridges about 1858 or so, for which plans they paid one hundred pounds. The Corporation then advertised for contractors to erect draw-bridges. An English firm offered to build the draw-bridge at Shop-street for about £8,000; the contractors being John Roberts, of Chester, for the stone work (£4,500), and Williams and Mowlds, of the same city, £3,500 for the iron work, according to Sir John Macneill's plans and specifications. But this, through self interest, was set aside at the time, as most of those on the bridge committee have property in James's-street, Shop-street, and on the quay, east of the bridge.

Mr. Neville, who is county surveyor for county Louth and Drogheda, came forward at that period and said he could build a good stone bridge with an arch to span the river, provided he got a foundation, for the sum of £2,000, but now when the contracts come in for the stone bridge, the sum (viz., 7,800,) is equal to the estimate put in to build the draw-bridge, which latter would beautify and improve our tidal river, and serve for ever the shipping interests of the town. One thing I say; a fixed bridge will destroy the trade of three-fourths of the town as to house property and population.

Sir, you will please permit me to inform you and the public at large that the Drogheda Bridge Committee who decided on a permanent bridge may be reckoned with the hypos. At twelve o'clock to-day the funeral knell of the above committee was sounded.

On reading some letters of the contractors (and their attorney) for its erection, who reasonably required personal security from each of the above gentlemen forming the committee, but they refused to give any such security. So I may say like the old year—the Drogheda Bridge Committee may rest in peace.

In any case the present committee are out of date, and can make no legal contracts, as the bodies they presume to represent have ignored their services by the election of others to each of the boards.

Since their appointment to said committee all appointments by the grand jury cease. When a new grand jury is empanelled, and with the annual election of the Town Council and Boyne Commissioners respectively, the power of those who were nominated some two or three years ago ceases.

JOSEPH HARRIS.

Drogheda, Dec. 28, 1863.

### EDMUND BURKE'S STATUE.

TO THE EDITOR OF THE DUBLIN BUILDER.

In a few days more the memory of our charming poet, Oliver Goldsmith, will be paid due honour to in his native country by the inauguration of one of Foley's great triumphs in statuary art, which has been recently placed on its graceful and permanent pedestal of cut Irish granite, opposite Trinity College, and which now successfully competes with the finest works of Continental artists. In the early part of January the splendid and life-like statue of William Dargan, by Farrell, erected in the "Duke's Lawn," on the site of the great Industrial Exhibition, the scene of Mr. Dargan's greatest triumph, will be unveiled. The Memorial Committee to the late estimable Prince Consort have already given instructions to our countryman, Foley, to execute a first-class work of art on the most magnificent scale—while the O'Connell National Statue Committee are actively engaged in discussing the merits of the various designs for the erection of an elegant and highly artistic monument to the Great Tribune. The St. Stephen's-green Committee are also most creditably employed in trying to open, by legal means and that irresistible power, public opinion, this beautiful enclosure as a People's Park, where works of art commemorative of our future illustrious countrymen—may be placed on the most prominent sites. The above pleasing facts in relation to art progress in this city, coupled with a decrease in our local wants and our having been blessed with a glorious and bountiful harvest, will, I am sure, plead my apology in asking the people of Ireland to interest themselves in the erection of a statue to Edmund Burke. If the suggestions contained in the letter, which I received more than a year ago, from our late respected fellow-citizen, Mr. Martin Burke, were carried out, I will engage to have one hundred guineas placed to their credit (as my share in the work), over and above all the expenses of printing, stationery, advertisements, postage, &c. My present professional engagements will not afford me sufficient time to carry out, with zeal and efficiency, the quick realization of what should really be a national undertaking—but I will use my humble endeavours to aid any committee which may be formed by every possible means within my power, in having, as speedily as possible, a first-class work of art placed on the vacant pedestal opposite Trinity College in honour of our great countryman, Edmund Burke. Hoping the formation of this committee will take place early in January, and that the Corporation of Dublin (Edmund Burke's native city) will aid and assist them, I remain, &c.

J. J. GASKIN.

P.S.—Those ladies and gentlemen who have already signified their intention of subscribing to the Burke Fund will please forward the amount to the Treasurer, James Haughton, Esq. 35, Eccles-street, or John North, Esq., Royal Bank, Foster-place.

### General Items.

A new weekly journal, called the *Atelier*, has made its appearance at Bordeaux, the object of which is to promote the interests of art applied to industry.

A new discovery, or rather application, of photography has been made by a Mr. W. S. Shirras, of Aberdeen, who is busy transferring photographs from paper to china. The portraits are quite perfect.

The oil painting of "Titania," by George Cruikshank, and one of his *chef d'œuvres*, has been purchased by Dr. Sheridan Muspratt, the eminent chemist. It is to be hoped that the idea of engraving it will be carried out.

An admirable bust of Lord Palmerston has been made by Mr. E. G. Papworth, and is to be deposited in Sheffield as a memorial of Lord Palmerston's visit to that town.

On the 1st of January the new act to condense nitric acid gas in alkali works will come into operation. The works are to be placed under inspectors, who will be appointed by the Board of Trade, and heavy penalties are to be levied for infringing the new law.

Value of land in London is something startling. For instance, a proposal being made to widen the eastern end of the Poultry by removing Lubbock's old bank opposite, it is said that the projected im-

provement may cost £17,500, or at the rate of more than a million and a-half per acre.

The tenders for the second portion of embankment of the northern side of the Thames were opened by the Metropolitan Board of Works lately. The highest tender was for £264,000; the lowest for £229,000. The latter was the offer of Messrs. Ritson and Co., and it was accepted subject to the board's approval of their sureties.

### Miscellaneous.

The *Standard*, Nov. 15, speaking of Benson's watches in the Exhibition, says—"It has evidently been Mr. Benson's object to render them rivals in point of beauty of decoration to the elegant Swiss knocknacks, and at the same time to preserve the characteristics of an English watch—strength, durability, and accuracy. In point of decoration his watches are certainly unsurpassed." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's Illustrated Pamphlet on Watches (free by post for two stamps) contains a short history of watchmaking, with description and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Class 33, Honourable Mention, Class 15; 33 and 34, Ludgate-hill, London. Branch establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H. R. H. The Prince of Wales.

A USEFUL INVENTION.—A Frenchman has patented an invention for pulverising the refuse of slate, and mixing it with some substances which produces a most durable material, and which answers the same purposes as some kinds of our most valuable stone.

THE GOVERNMENT BUILDINGS IN BELFAST.—Extensive works are about to be commenced in the Royal Artillery and Infantry Barracks, and all the Government offices in Belfast, connected with relighting the whole of the buildings with gas, combined with a general system of ventilation, according to the most approved methods.

PRIVATE TELEGRAPHY.—We learn that the system of private telegraphy, which is in extensive operation in London and many large towns in Great Britain, is about to be introduced to Ireland, commencing with Belfast. Messrs. P. L. Munster and Sons have been appointed agents for the "Universal Private Telegraph Company," who fit up and supply at a reasonable annual rate private telegraphic apparatus for connecting any two places of business in the same town, or an office and a manufacturing concern, or two separated branches of the same establishment. The system of transmission, as we have seen it in operation in London, is so simple that anyone of ordinary capacity could practice it in an hour, as it consists merely of an index like the hands of a clock, and a lettered dial plate, on which the words are pointed out letter by letter, and instantaneously reproduced at the other end. In many cases, such as those of our numerous mills and factories in the outskirts of the borough, such a system of private telegraphic communication with the office or agency in town will be a very great accommodation, and several of the largest firms in and about Belfast, having two places of business, have already decided to have these private telegraphs fitted up.—*North-ern Whig*.

LIVERPOOL ARCHITECTURAL SOCIETY.—The fortnightly meeting of this society was held on Wednesday evening, at the Royal Institution, Colquitt-street.—Mr. W. H. Weightman, the president, in the chair. The secretary announced that the council had agreed that the subject for the students' competition should be a drinking fountain adapted for the centre of a square, to be executed in masonry, the drawings to consist of plans, geometrical elevation, and perspective drawing—scale, three-quarters of an inch to the foot. The first prize would be two guineas, and if four or more students competed a second prize of one guinea would be given. The drawing must be sent in by the first meeting in April. The secretary also announced that he had received a letter from Mr. Huggins stating that he hoped to have the pleasure of reading at the next meeting a paper entitled "A Review of the Career of Painting and Sculpture in all Ages; tracing the birth, affiliation, and mutual influences of their consecutive and contemporaneous schools, and their historical relations to the styles of architecture," illustrated by a coloured chart of the progress of painting and sculpture, designed as a counterpart and complement to his Chart of Architecture.—Mr. Stirling gave a favourable report of the progress of the the model-

ling class.—Mr. Frank Howard then read the paper for the evening, on "Fresco Painting."

THE NEW CHURCH OF CLOGHEEN.—Lord Lismore has given to the Rev. John O'Gorman, the munificent contribution of £100 towards the completion of this beautiful new church, which now nears completion by the builders, Messrs. Ryan and Son, of Waterford and Limerick.

TIMBER.—Messrs. William Kelly and Co.'s public sale, on Thursday week last, was one of the most numerous attended which has taken place for some time. Subjoined is a note of the goods disposed of. The sale of red pine and Sundswall timber would not be proceeded with at the rates realized for the few lots disposed of, as importers look forward to an advance in the value of all classes of red-wood timber. Owing to the lateness of the hour at which the spruce deals were brought forward, only about 6,000 pieces could be offered before dark. The prices of the goods offered appear rather improved:—

1,457 pieces 1st quality Quebec pine plank, from £26 10s. to £24 5s. per 120, 12 9 by 3.  
1,408 pieces 2nd quality Quebec pine plank, from £19 to £24 per 120, 12 9 by 3.  
344 pieces 3rd quality Quebec pine plank, from £16 10s. to £17 5s. per 120, 12 9 by 3.  
2,493 pieces 1st quality Quebec spruce deals, at £17 15s. per 120, 12 9 by 3.  
1,387 pieces 2nd quality Quebec spruce deals, at £15 10s. per 120, 12 9 by 3.  
6,186 pieces Saint John and Miramichi spruce deals and battens, from £15 10s. to £14 7s. 6d. per 120, 12 9 by 3.  
336 pieces Saint John and Miramichi spruce scantling, at £13 per 120, 12 9 by 3.  
4,439 pieces red deal and battens, from £17 5s. to £22 per 120, 12 9 by 3.  
1 lot of red pine timber, at 70s. per ton.  
89 tons of white pine timber, from 65s. to 62s. 6d. per ton.  
40 pieces Sundswall timber, at 5s. per ton.  
14 fathoms of red pine lathwood, from £7 17s. 6d. to £8 per ton.  
60 tons of Memel timber, at 70s. per ton.

KINGSTOWN ROYAL MARINE HOTEL.—We understand that the Messrs. Cockburn, of this city, have been declared the contractors for this hotel, which will be commenced immediately.

RESTORATION OF ST. CANICE'S CATHEDRAL.—The Dean and Chapter of St. Canice's, at a meeting on Thursday, finally decided on applying to Parliament for powers to borrow money, on the security of the Chapter income, in order to enable them to proceed at once with a thorough restoration of the venerable cathedral. It is, however, possible that till the session of Parliament after next the powers sought for may not be obtained, as the application is about being made at so late a period of the present year; but Mr. Poe, solicitor, has already proceeded to London to endeavour to procure a suspension of the "standing orders" for this occasion. In the meantime we are glad to see that the Dean and Chapter are not forgetful of the comforts necessary to make the venerable place of worship comfortable at present to the congregation. A new stove, one of Gurney's patent, has been erected by the respectable firm of Maguire and Son, of Dublin, sole agents for Ireland. This stove has a handsome appearance, and gives out a wonderful heat at a moderate expense for fuel. It is formed of ribs, or gills, dipping into a reservoir of water, causing a vapour to diffuse with the dry heat, giving to the atmosphere a pleasant sensation, and free from the unpleasant dryness usually felt from other stoves. The congregation have already experienced much comfort from this arrangement.—*Kilkenny Moderator*.

### TO CORRESPONDENTS.

J. P. (the best information on the question of "party walls" is to be found in the judgment pronounced in the case of *Kempston v. Butler*, a complete report of which was published in a pamphlet form, and is, no doubt, obtainable); RUSCY COMPASS (see our advertising columns and those of our London contemporaries); YOUNG BUILDER (if the competition were a general one, you have clearly no right to be paid for your estimate; if limited, and that there was no restriction on the subject of compensation for time and trouble employed, most probably you have); R. S. S. (next No.); L. F. (declined with thanks).

To soothe the sufferings of humanity and ameliorate the pangs of disease, are the grand objects of medical science. This is efficiently demonstrated in the curative virtues of LIA'S GOLD AND RHEUMATIC PILLS, advertised in our columns. The cures effected by this invaluable medicine would fill volumes.—*Daily Telegraph*.

DUBLIN BUILDER OFFICE, 42, Mabbot-st.

It is respectfully requested that amounts of accounts for Advertisements may be paid to Mr. PETER ROE, soon as convenient after same being furnished.

Subscriptions to this Journal are in all cases payable in advance.

# The Dublin Builder.

VOL. VI.—No. 98.

THE LATE PATRICK BYRNE, ESQ.,  
V.P. R.I.A.I.; R.H.A., ARCHITECT.

WITH deep regret does it become our duty to announce that, on Sunday last the 10th instant, the above named venerable gentleman shuffled off his "mortal coil," at the patriarchal age of *eighty-one* years. For upwards of half a century he pursued the profession of architecture, in which he attained a distinguished position, and enjoyed an extensive practice, chiefly of an ecclesiastical character.

Mr. Byrne's attainments were pre-eminently practical, and to no member of the profession in the kingdom did he yield in skill in construction; while at the same time his designs were always distinguished for orthodox principles and sound judgment, though probably less venturesome and ambitious than those of modern classicists and mediæval revivalists. The Roman Catholic parish churches of St. Paul, Arran-quay, St. James, and of St. Francis, Merchants'-quay; also of Raheny, of Enniskerry, of Philipsburgh-strand, Rathnines, and Rathgar respectively, were amongst his principal works in Dublin or vicinity; but in referring to the two last-named, we believe it to be but simple justice to state that—as is the case with many other architects likewise—he had to yield his own taste and experience to the fancies of his reverend clients. Throughout Ireland likewise, the deceased's practice extended to numerous ecclesiastical works of greater or lesser importance, also to various structures of a domestic or private character. Up to almost the last day of his life the deceased architect—although suffering for some years past from bodily infirmity—directed the business of his office, in which he was—until a recent sad calamity deprived him of the aid—ably assisted by his son John; but it became evident to his family and friends during the last few months, that although his intellect retained most of its pristine vigour, the spark of life was flickering, and the venerable old man was doomed soon to be numbered amongst the things that were. In private life as well as in his professional career Mr. Patrick Byrne was highly appreciated for his thoroughly genial disposition, for his honesty of purpose and unswerving integrity of character; and few have descended into the grave with more sincere friends and less enemies. The interment of his remains took place on Wednesday morning last at Glasnevin Cemetery, and a large number of architects, builders and others paid the deceased the last tribute of respect in accompanying them to their final resting place. Amongst those present we noticed Messrs. Caldbock, Geoghegan, Montgomery, P. J. Moran, C. Papworth, and H. and P. Byrne, jun., architects; John Conolly,

John Carolin, George Carolin, Timothy Murphy Patrick Murphy, and William Hughes, builders; William Doolin, J. Hogan, M. A. Hayes (secretary to the Royal Hibernian Academy, and secretary to the Lord Mayor), G. F. Mulvany, R.H.A., &c., &c.

Mr. Byrne was a Royal Hibernian Academician, and one of the three vice-presidents of the Royal Institute of the Architects of Ireland, besides being a member of several other scientific and artistic societies.

The family affliction consequent on the death of the subject of this notice, has, we regret to say, been further heightened by the sudden and fatal illness of his son-in-law, Mr. Richard Hawkin, who for many years was an efficient officer of the War Department, and whom it pleased Providence to call from life on the very morning of Mr. Byrne's interment, leaving behind him a wife and family to mourn his loss.

## THE VACANT VICE-PRESIDENTSHIP OF THE INSTITUTE.

It is not now intruding on good taste to indulge in a few reflections as to who is to be the probable successor in this position to the late Mr. Patrick Byrne, whose recent demise we have noticed above. The two surviving colleagues of the deceased, are Jacob Owen, Esq. (late architect to the Board of Public Works, and the oldest member of the profession in Ireland), and Sir Thomas Deane. The appointment of the new vice-president will of course first be considered by the council of the Institute, who will recommend a gentleman for the office, but that recommendation must be subsequently ratified at a general meeting of the members of the body. If official professional position have weight in the deliberations of the council, there can be but *one* opinion as to the direction in which the choice will fall, and another vacancy in the officers' list would be thereby created. But then there are other gentlemen *non-official* practitioners who have attained an eminent professional position as architects and may be ranked amongst "the elders," who would also be most eligible for the honour. Of these, Messrs. Wilkinson, Darley, and Symes would seem to be the most likely to be put forward; though if constant attendance either at the old Institute or earnest devotion to the interests of the new, entitle any of the three to preference before the others, the last-named certainly may claim it. The office of vice-president of the Institute is to be sure only a nominal and honorary one, nevertheless as it is a *distinction* to which a member of the profession would be more or less ambitious to attain, and may prove the stepping-stone to future presidency, we trust that the selection will be made with care and judgment. It is most probable that the new vice president will also succeed to the vacancy in the architect Royal Hibernian Academicianship.

## PATENT SHUTTERS.

Messrs. Clark and Co., of Gate-st., London, W.C., the eminent shutter manufacturers, have recently fixed iron shutters of the best quality (and to the perfect satisfaction of the architect, Mr. W. G. Murray), at the "Colonial" office, in Sackville-street; at a commercial establishment in Cope-street, (Mr. Farrell, architect); at a public office in Derry (Mr. Ferguson, architect); and are now preparing to execute like orders for the new "Standard" office in Sackville-street, (Mr. Murray, architect); for Mr. Jones, in Stephen's-green (Mr. Carson, architect); and for several other buildings in Dublin and the provinces. This eminent firm is solely represented in Ireland by Mr. J. J. Lyons, of 26, Lower Gardiner-street, architect, who will be happy to afford every information to enquirers.

## PROFESSOR SMIRKE ON ARCHITECTURE AND THE FINE ARTS.\*

In commencing a short course of lectures this season, it is right that I should request you to understand the nature and object of them. To use the exact terms of the constitution of the Royal Academy, it is my duty, as Professor, to endeavour "to form the taste

of the students, and to instruct them in the laws and principles of composition."

These are terms which you will perceive preclude me from treating architecture as a practical science; binding me to confine myself to those æsthetic considerations by which architecture is allied to the sister arts. It appears to have been no part of the original intention of the founders of the Academy, in 1768, that it should comprise a school of architecture in the full sense of that term. In this, as in many other respects, we may, perhaps, recognize the good sense and sound judgment of our founders. Their object was clear, simple, and definite. They desired to advance "the Fine Arts," and they prudently refrained from comprising within the sphere of their educational curriculum objects of a different nature, such as the theory and practice of mere building must be admitted to be.

However useful it might be to advance practical science, *that* was not their aim; and surely we cannot deny the sound judgment and policy of thus limiting their scope, and leaving mechanical processes to some other school of instruction.

It must be remembered that by far the greatest portion of their members, and consequently of their students, *were*, as they still *are*, votaries of those sister arts—painting and sculpture—from whom it would not be reasonable to require or expect any systematic study of those branches of mechanical knowledge which are so essential for the student in architecture. I do not venture to say that it may not be right, now that the Royal Academy has reached its present state of maturity, that a complete and comprehensive school of architecture should be established within these walls. I do not enter here into that consideration, nor would it be becoming in me to do so. But certainly, as the Royal Academy is now constituted, these lectures must be limited to the consideration of architecture as a Fine Art. Viewed in this light, the art with which I have to do, is as much deserving of your study as either of the other sister arts. Perhaps, I should say, it *demands* your study; for certainly the painter and the sculptor must be regarded as very imperfectly acquainted with their arts, unless they have rendered themselves fully conversant with the principles of design in architecture. There is one other preliminary remark which is, I think, needed.

Too much must not be expected from these or any other lectures. The amount of knowledge that can be verbally communicated by speaking for a few hours during the year must be slender indeed. General principles and general criticism can alone be dealt with. I may endeavour to illustrate those principles by adverting to examples of admitted excellence; and I may draw further illustration from the contemplation of the errors of licentious or capricious art. But still it is to *principles* mainly that I can here invite your attention. The great volume of architectural knowledge in its details must remain closed. Nor should I lead you to expect that that great volume can be mastered by any labours but your own.

The student must be the artificer of his own fortune; the teacher may, according to his ability, arm the student with the appropriate weapons or instruments of his profession—he may point the way and administer some facilities for advancement; still the art-student must expect progress only in proportion to the toil of his own hands, and to the inspirations of his own genius.

The literary student has doubtless as wide a field to cultivate, but his labours are wholly mental; whilst the student in architecture has to exercise his hands as sedulously as his head, and to make himself as intimately acquainted with the *material*, as with the *moral* elements of his art. He must unite that essential constructive knowledge from which the very name of architecture is derived, with a perception of those graces of form and decoration to which architecture owes its place in the circle of Academic Fine Arts. Our profession is peculiarly complex, and comprises obligations essentially different—nay, sometimes apparently *discordant*. We have not only to conjure up a thought and express it on paper; but we have also to make it a reality, and in that task we are liable to be embarrassed by a thousand difficulties—of cost, of construction, of deficient material, of limited and prescribed site; a weight of *serious* and *lasting* responsibility lies heavily on us; and we are not seldom sorely tried by those whose tastes we find ourselves called upon at once to submit to and to control.

Such are the difficulties which await the architect, which beset his path with pitfalls, and with thorns. But I offer them to your notice with no fear that they will dismay or discourage the real student; to a mind of energy and spirit, difficulties to be overcome tend but to strengthen the resolution and heighten the courage. The student will ever let it be present to his mind that the study of his profession is no light thing, and he will not fail to enter upon that study with a becoming earnestness and a thorough appreciation of the gravity of his vocation.

\* Lecture I.—Delivered before the Royal Academy of Arts on Tuesday, January 7.

I need, however, scarcely remind you that the utmost diligence will be of little avail unless that diligence be wisely directed. That a proper direction be given to your studies is, indeed, absolutely and obviously essential to their future success. There must be no impatience under the restraint of rules; the mind must be disciplined and reconciled to subordination, for he who would command must first learn to obey. Our great master, Reynolds, has said, with his wonted sagacity, "The impetuosity of youth is disgusted at the slow approaches of a regular siege, and desires, from mere impatience of labour, to take the citadel by storm; they wish to find some shorter path to excellence, and hope to obtain the reward of eminence by other means than those which the indispensable rules of art have prescribed."

We often hear "rules of art" condemned as leading to Academic coldness, and to a tame lifeless formality. True it is, that no mere rules—no prescriptive teaching—can supply the want of that innate perception of grace, which is not made, but born; which must come uncalled-for, if it comes at all; but let us by no means be led hastily to infer from thence the inutility of such rules. They will not suffice to give life to a school copy, any more than they will animate a lay figure; yet sound rules of art serve to inspire the best artist with confidence, and, above all, will curb the erratic tendencies of even genius itself, ever prone to overlook the line which distinguishes the bold from the extravagant, the sublime from the ridiculous, even the right from the wrong. Let no student suppose, in whatever amount of conscious strength he may indulge, that he can with safety trust himself to the trackless wastes of his own imagination, and shut his eyes to the lights that have been set up by long experience, or to the landmarks which the past has left for the guidance of the future.

It is a false and vulgar opinion, that rules are the fetters of genius. "He who begins by presuming on his own sense," says Sir Joshua, "has ended his studies as soon as he has commenced them."

Now, the Orders of Architecture are instances of such rules of art, and have been instituted, not as fetters to embarrass, but rather as helps to strengthen, the judgment. It is no uncommon thing to hear these Orders spoken of with disparagement, as tending to inculcate a servile adherence to arbitrary rules, distinctive of originality and of inventive talent. I think that this impression is founded on a misapprehension of the nature of those Orders—a misapprehension, I am ready to admit, likely enough to arise from the dogmatical tone in which the proportions of the Five Orders are often laid down.

The truth is, that the artists of ancient Greece, in its best days, endowed with an unmatched perception of beauty and of the most refined cultivation, were led by their observation and experience to adopt certain general forms and proportions; and students, struck with their beauty, have sought to trace it back to its original sources by an analysis of those forms and proportions—that is, by their exact measurement and delineation—a very legitimate, natural, and, indeed, necessary process. In thus deducing a system of proportions from the practice of the best architects, we are surely acting as reasonably as the student who would deduce rules of poetical composition from the poetry of Milton or Pope.

It is thus that the Orders of Architecture have been instituted; but it is an error to regard them as composing an infallible standard of taste from which any deviation must be heresy. With a praiseworthy adherence to truth, the travellers who have measured and delineated these works, in giving us their transcripts of ancient examples, have figured for our information minute fractions—very hairs' breadths—and thankful we should be to their laborious exactness; but it would be a gross mistake to represent that to these fractions we are to pay a superstitious reverence; this was far from the practice or intentions of the great authorities themselves. Vitruvius tells us of the diversity of practice that prevailed even in his own times. In truth, very wide diversities exist even among the best examples. In the relation of the diameter to the length of the shaft of the Greek Doric Order, there is a difference of 33 per cent. between the heaviest and lightest examples, even in the best times. In the Ionic Order, a similar, though perhaps not so great, diversity prevails; and every tyro is aware also of the extreme variety in the form and character of the details existing between even pure examples of these two Orders. Similar comparisons might easily be multiplied, abundantly sufficient to show that the best masters of Classic times held the reins with a loose hand; indeed, under the easy sway of these Five Orders, we recognize a regimen so mild as to satisfy any reasonable love of liberty.

The value of these great exemplars has been not unfrequently tested and proved by the fantastic variations which have been sometimes boldly grafted upon them. In these attempts at new or amended Orders, we find little to encourage any wide departure from the parent forms; but, on the contrary, we recognize

in them more clearly the convenience and wisdom of adhering pretty closely to known standards, which the eye has learnt to appreciate as acutely as the cultivated ear distinguishes the intervals of scientific harmony. To set at nought the architectural forms which the age of Pericles has bequeathed to us, is about as idle and undiscerning a task as to contemn the rules of counterpoint, or the musical scale which has descended to us from Guido of Arezzo.

If we turn to the other great system of architecture—that which grew up in the Mediæval period—we shall find artists still acknowledging certain general and leading principles; singularly differing, indeed, from those which guided their predecessors, but still rules of art.

It is true that, so far at least as relates to ecclesiastical structures, these rules have been influenced, in a material degree, by the dogmatic teaching of the Christian Church, which, if it has on the one hand inspired many very striking and sublime conceptions, so on the other hand it has imposed some restraint on the erratic tendencies of Mediæval genius.

I confess that I am unable to assign to the favourite symbolism of the Early Church many of those forms and features which were in truth of earlier growth. We recognize in the Romanesque church the familiar forms of the Roman basilica, and no ambiguous tendency to Roman architectural decoration; yet we cannot fail to see that a symbolism, grafted on pre-existing forms, which sought to appropriate and to sanctify the most admired features of Pagan art, did, in fact, gradually pervade the whole system of Christian architecture, and impress upon it a character which departed widely from the types of ancient art.

Thus it is that architecture has ever submitted itself to a wholesome control, without opposing any impediments to the exercise of inventive genius. No art has stagnated less than our art: perpetual change has rather been the law of her existence. The student, therefore, as I have already urged, should learn to reconcile himself to the discipline of the schools, and use it as the safest foundation to receive the superstructure of his subsequent education and practice.

An important portion of his preliminary studies should be the acquisition of a comprehensive knowledge of the works of past times. A large and conscientious survey of such works exercises the judgement, forms the taste and fertilizes the mind of the observer, and promotes the growth of new thoughts and new combinations.

Sir Joshua, with his usual felicity, says:—"The student, unacquainted with the attempts of former adventurers, is always apt to overrate his own abilities; to mistake the most trifling excursions for discoveries of moment, and every coast new to him for a new-found country; and "to congratulate himself on his own arrival at regions which they who have steered a better course have long since left behind them."

Our art has been often subjected to the reproach that it has not advanced *pari passu* with other branches of human knowledge; and it is useless to deny that aesthetics, generally, have not kept pace either with physics or with the exact sciences. We must, however, bear in mind that there are important heads of human knowledge which are not in their nature susceptible of indefinite extension, and in which it is idle to expect progressive discovery. There is every reason to believe that the works of nature supply, and will ever supply, an inexhaustible field for the research of human ingenuity. We can hardly contemplate the time when the facts which lie concealed beneath the surface of created beings and things, will become revealed to all mankind. The Omnipotence that made, can alone fully make known the infinite wonders of His own creation. But as it certainly is in morals, so in aesthetics it may be, that no new important principles remain to be discovered, and that we can look only for new combinations, for the employment of new materials, and for the discovery of new constructive inventions. A hasty retrospect will, I think, confirm this supposition.

Upwards of 2,000 years ago, a more refined and delicate taste, and a more thorough mastery of the power of representing beauty, existed, than the world has since been able to acquire; nor was that extraordinary æsthetic development confined to a few rarely-gifted artists; for there is not wanting good ground for believing that it pervaded the general mind of the Greek people.

Again, 1,700 or 1,800 years ago, the grandeur of the Roman Empire was well typified by a corresponding grandeur of architecture, which has never since been equalled. We are compelled to acknowledge that 500 or 600 years ago, workmen wrought with a freer spirit, a bolder genius, and a more genuine artistic ardour than distinguishes the ordinary workmen of the present day. We find 1,200 years ago, in the Gregor an Chants, musical compositions conceived of a grander character, and far deeper feeling, than the music of the modern school can lay claim to.

It seems to be in accordance with these general views, which I have ventured to express in extenuation of the supposed tardy advance attributed to our art, that a great musical composer of the present day, Rossini, has attempted to account for the admitted want of originality in modern musical composition, by expressing his suspicion that, probably, all the material changes of which the notes of music are susceptible, may have been already *run out*. I cannot, indeed adopt this theory, even in respect to music; and I am still less disposed to damp the aspirations of young architects, by countenancing any such doctrine of exhausted originality. I believe, indeed, that the fundamental principles of architecture leave but little room for important future discovery; but the combination which the component materials of art permit, their variation, composition, and decoration, are practically infinite and inexhaustible.

May we not discern some relation between the progress of Fine Art and the corresponding development of individual man? Our first pleasures are all sensuous; our earliest efforts are limited to the exercise and gratification of our senses. The eye and the ear are, I believe, as acutely sensitive in early youth as in the after man. It is not until the faculties of the mind are somewhat matured that it begins to discriminate; to survey nature with a more intelligent observation; to take a deeper interest, and to recognize a more pregnant meaning, a more mysterious harmony in its forms, its sounds, and its colours. And so it may be that in the earliest ages of civilization, men mainly cultivated those arts which address themselves to the senses.

It seems, indeed, to be conformable with our ideas of the Divine will, to suppose that we should be instinctively supplied with the power of enjoying the pleasures arising from these simple elements; while purely intellectual pleasures, such as are derived from acquired knowledge and matured experience, are left to be gradually attained by the slower process of self-culture.

These inquiries, however, are scarcely fitted for the present occasion, and must not be here pursued; but the fact can hardly be disputed, that not in this country only, but elsewhere and everywhere in our hemisphere, whatever may be the cause, whatever the remedy, the Fine Arts—or, at least, *our art*—has not kept pace with time; and I may add (although I hope there is no inherent connection between the two phenomena) that those countries in which, in modern times at least, political and commercial improvements have been most remarkably developed, have been, perhaps, the least fortunate in the cultivation of æsthetic talent.

In this country, architects are not unfrequently asked in a somewhat disparaging tone (and the same inquiry may be made in other countries), "What is the style of the 19th century? We know with precision the distinguishing style of the 11th, and of the 13th, and of the 15th; but what is the style which is claimed as distinguishing the 19th century?" This is a question which I am bound to admit it is extremely difficult to answer; for buildings from every climate under the sun, and of every period since the Pyramids, are candidates for our admiration, and find spectators willing to be pleased.

(To be continued.)

The *Clerical Journal*, April 23, 1861, says, "Mr. Benson's Argentine can be manufactured in every description of service or ornament suitable for presentation, as well as the more unpretending articles ordinarily to be found on every dinner and tea table." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the Argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in Silver, viz.—spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures, both in Argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, Argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch Establishments, 46, 47, and 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and Clock Makers by Special Warrant of Appointment to H.R.H. the Prince of Wales.

# A FREE PUBLIC STATE ENDOWED LIBRARY FOR DUBLIN, AS THE IRISH METROPOLIS.\*

THOSE who advocate the establishment or the maintenance in Dublin of free public museums, libraries, gardens, and parks at the expense of the state, and under the control, the exclusive control, of the state's servants, assert two principles important enough, I believe, to command our serious consideration.

They are, first, that Dublin being the metropolis of Ireland, is entitled to possess equally with London and Edinburgh, on a scale commensurate with the importance of Ireland in the British Empire, institutions of a metropolitan character, endowed, supported, and managed as such institutions are endowed, supported, and managed elsewhere; and second, that grants of public money for educational purposes, intended to be educational in the largest and truest sense of the term, should be so applied as to benefit not a section or some sections merely, but the whole, or, as nearly as possible, the whole of the community, and while doing so, interfering with no existing educational institutions, depriving no independent teacher of his right to live by teaching as a profession, and nowhere destroying that manly, high-principled, self-reliant spirit which should lead parents to provide for and superintend the scholastic education of their children themselves to the very utmost of their ability.

In asserting the metropolitan character of Dublin, I think we would act neither well or wisely did we confine ourselves to such purely local or selfish considerations as the amount of the annual grants expended through those institutions in Dublin, and our share individually or collectively, directly or indirectly, in this expenditure. Taking our stand on this point, we must fail as we would deserve to fail. Dublin has no claim at the present day to metropolitan rank among the cities of the British Empire, save only as the chief city, as the ancient seat of government of the country or kingdom called Ireland, and it is only as she ministers to Irish interests, promotes Irish progress, is in short useful not alone to her own citizens, but to the whole of the Irish people, that she deserves or can hope to perpetuate her possession of the rank and privileges of a metropolis. It has been asked, and with great plausibility, and with a disagreeably large share of facts to force from us an affirmative reply—Do not the metropolitan pretensions of Dublin and its vice-royalty stand in the way of the effective government of the country? We may grant there has been many, very many, lapses in Irish legislature, caused undoubtedly by the absence from Parliament and from the Cabinet, of a minister of high official and Parliamentary position charged with the duty of legislating for, and governing his country; but the evils flowing from this source, great as they may be, are yet smaller in magnitude to those which would result from the recognition by us of the principle that Ireland was part of England, instead of being as she is, a distinct country from England, having a distinct people, un-English in very many essential particulars, having points of difference not yet formally recognised in our constitution, but which must be so recognised before we can part with the appearance of a separate nationality, such as we maintain so long as we maintain the existence of an Irish Executive in an Irish metropolis.

To appreciate this argument in the force with which it presents itself to my mind, it is necessary to clearly understand the condition of this country at the time of the Union of the two Parliaments in 1800. It is necessary to estimate how far that important event, occurring at that particular time, prevented the political development of the Irish people and their growth to that stature of national manhood, when the whole nation would have been represented in the national legislature, and that legislature, if united to that of another country, could have been so united only on such terms as the whole Irish nation would, through its representatives, have dictated. Ireland, when she parted with her separate legislature, it cannot be too strongly insisted upon, was not politically in the condition of Scotland at the time of the union of her Parliament with England—Ireland was then a nation, but in her minority a state just beginning to rise from the condition of a conquered province, with a people who had just taken the first steps, and the first steps only, towards political enfranchisement and the establishment of their just and proper position in the state. Passing from considerations such as these which tend to show that Dublin vice-royalty and Dublin metropolitan privileges may be useful to those in Ireland, outside as well as inside Dublin boundaries, we will proceed to discuss how far metropolitan institutions, such as public libraries and museums, afford the most equitable and the

least intrusive mode for promoting public education at the expense of the state.

Under our existing arrangements for the endowment by the state or otherwise of educational institutions, a gross injustice it is admitted on all hands is done to the middle classes. Institutions, as the *Times* observes in reviewing Lord Stanley's speech of a few days ago, which were founded for poor scholars have, by some mysterious means, been monopolized for the education of the higher and wealthier classes, while on the other side parliamentary grants for national education are given to the education commissioners in trust, specifically as the words of their charter expresses it—"for the education of the poor."

Now, the least part of the injustice done to the middle classes is in the compelling them to pay taxes for the education of their richer and poorer neighbours, while they themselves receive no share of the education grant. This injustice may be measured by the money contribution merely in income tax and otherwise of the middle classes to the education fund, but it is when we come to consider the effect upon the middle class schools of the competition of state and charitable endowed schools; it is then only we are able to see the injustice in its true and full magnitude. Were the state to open shops for the sale of bread at rates greatly under the market value to the poor or all who chose to plead poverty, it is obvious those shops would crush out the larger number of respectable shopkeepers, who, having no state funds to maintain them in doing business at a loss, should retire from the field, and the rich and the respectable and honourable of all classes who would refuse to get cheap bread by confessing themselves paupers; these would have great difficulty in supplying their daily wants. They should send probably to a great distance to the independent shop, and there they should have to pay probably a higher price for their bread because of the great competition, which, by reducing the business of the non-governmental establishments, would oblige the owners of these establishments, in order to live by their trade, to charge a higher rate of profit on their reduced business than what, on a larger business, they could afford to do with.

Now we may keep ourselves perfectly aloof from engaging in the education controversy as it is managed in this country, and yet render our testimony to the fact that the practical working of the national and rival systems leads to somewhat similar results to those which we might anticipate from the opening of cheap bread shops by government. There is not one in the present assembly who will not concur in this,—that it is more difficult now for men with incomes ranging from £100 to £500 a year to find a suitable school for their children than what it was twenty or thirty years ago. The schools for this class are now fewer and further between, and in few, very few of them can the teacher eke out anything like a decent subsistence. As a remedy for this evil it may be suggested—extend the national system and make it provide for all the middle, the upper, and the lower classes, that is to say, convert the entire education of this country into a governmental monopoly, destroy all modes of teaching, and as far as you can all modes of thought save those approved by government boards. Such an experiment never could be tried in this country without infallibly leading in a few years to the overthrow of the government as the monopolist and the dictator, and the substitution in its stead as a secular education of a power whose claims to the position are more popular and more plausible and certain to prevail as they now prevail substantially if not formally.

Rejecting this remedy as one wholly unsuited to this country, as one wholly repugnant to the principles of our constitution and government, we must seek to establish a nearer approach to equity in the distribution of educational grants, restraining our national educationists more strictly within the limits assigned them in their charter of incorporation, and making their schools supplementary, not supplantory of existing and independent schools, and by directing attention to the claims of such institutions as public libraries, museums, schools of art and science, botanic gardens, and pleasure gardens to be maintained out of education grants as educational institutions in which a government may employ public funds with equal advantage to all classes, without detriment to any independent teacher, and without depriving the public of the advantages flowing from free competition between a number of independent schools.

By a Free Public Library such as I would advocate for Dublin I mean one open to all-comers, one to which entrance should be neither by subscription, certificate of respectability, by order of admission from some patronizing philanthropist or private friend. The experience of the William Brown Library at Liverpool, and the Manchester and Birmingham Free Public Libraries, has abundantly refuted the allegation that working men or persons of the non-wealthy classes could behave themselves

in a public library, and could go there without stealing the books. In a paper on the Birmingham Free Library, read at the last meeting of the Social Science Congress, by Mr. Osborne, it is stated that altho' no less than 480,000 visitors had visited the Library, and used the books and periodicals in the year 1861 there had been but one solitary case of dishonesty, and three books only had been lost. Is there any exclusive library with anything like a similar number of visitors which can boast of losing but three books in a whole year? No; so far from opening public institutions to the public, leading to the injury or loss of public property, all the experience of late years goes to prove the precise contrary, that public property is never so well protected as when placed under the eye of the largest possible number of the public, and when the managers of such public institutions feel themselves responsible, not to local magistrates or patrons, but to the entire public.

The reason for this is obvious enough in a subscription library, or in a public library such as that of the Royal Dublin Society managed by a private society. Certain privileges must be granted to the members; they must have the power of removing books, a privilege which, in course of time, will be extended practically to their friends. The librarian is their servant, removable at their pleasure, and he cannot enforce, certainly is not likely to enforce against members, the rule relating to the return of books, or their defacement by marginal notes, or their injury by tearing out of leaves, or other maltreatment—at offences of this description when committed by a councillor, a vice-president, or an active member of the society, the librarian must find it prudent to wink; his public spirit in denouncing his patrons might in some cases lead to the passage of a vote of thanks, but it might, more probably, lead to the formation of intrigues to effect his removal from his situation. It would be invidious to name particular institutions, but let any one go to the Royal Dublin Society Library, the Library of this Society, Trinity College Library, or any other Library in Dublin, and judge for himself as to the extent to which books and newspapers have been removed, in former days, it is true, more than at present, but yet in the present day also. The journals of the Irish Houses of Parliament will be found to be incomplete in the Royal Dublin Society Library. The Dublin newspapers filed in all three libraries during the last half century present many gaps to confound the serious student of Irish history, while in general literature the existence of old volumes prove conclusively the former presence of their now missing companions. The abolition of the patronage system is the true remedy for this evil. Subscription libraries such as the one attached to this institution will be always required, there will be always a class numerous enough to support such an institution as this, but when we come to consider the case of a library supported wholly or in part out of public funds, then the only sound principle which can be applied is this, that all who choose to avail themselves of the advantages of the institution should do so on a footing of perfect equality, and the librarians, clerks, and porters should be public servants, appointed by those who are themselves constitutionally responsible for their acts, and accountable as their superordinates to no other body or person but those who, under our constitution represent the tax-paying public of the United Kingdom.

I have said that institutions such as public libraries, museums, and gardens, may be made to provide more equitably, and less intrusively, for public education, than the existing highly-favoured national system. In the first place, they would be open to all, and used by all. In them the middle classes might be, and undoubtedly would be, fully represented. The patronage system being wholly abolished, every one would enter, not as a matter of favour, but of right, as a contributor to the fund out of which the institution was maintained. He would be there on his own property, walking in his own garden, viewing his own flowers; in his own museum, viewing his specimens; in his library, reading his own books. And not merely would we have all classes so represented, and so benefitted, but all sections of all classes. Under any national system of education a government board, a synod of bishops, or a general assembly of Presbyterian divines, will determine what kind of books will be used in the schools, and what rules and regulations be established therein. Now it so happens that, whether it be a board, a synod, or an assembly, which undertakes to settle these matters, they will fail, and must fail, to please all parties. They must exclude some section who will refuse to recognize their authority, and who cannot recognize the wisdom or propriety of their decisions; and the result must be, the so called national system is national only as public burthen. Otherwise it is really a denominational or sectional system of education. Not so with the public library, museum,

\* Paper read by Mr. M'Evoy at meeting of the Dublin Library Society, on the 11th inst.

or gardens. The duty of the government here may be confined to providing for all tastes, all opinions, and all classes; and this is to be accomplished simply by making those institutions as complete and as perfect as they possibly can be made, excluding nothing save what outrages public decency, or is offensive to religion and morals.

The books would then be for every reader to select for himself, free from tutelage, and free from the dictation of government boards; and in reading them, or viewing fossils or flowers, he need not bow down before any judgment of his own, or yield submission to any authority other than that which his own conscience directs him to submit to.

And this educational work would be done for adult men and women, who, without it, would certainly lose a good deal of what had been taught them in their school days. Let any man who has made any progress in general knowledge, ask himself how much did he know at fourteen years of age, at the time when, with the great mass of the people, school instruction ends. Why he had just mastered the elements of knowledge he had, and in the case only of those taught in really good schools, had his intellectual powers trained to think and learn, and digest what he had to learn.

If we liken primary teachers to the ploughs which prepare the ground for the seed, we may place public libraries among the sowers of the good seed, and as such no less necessary in the work of national mental cultivation.

The special purposes to which a national free public library, established in Dublin, must be applied, are many and important. The student of, no matter what science, should find there standard works of reference. The mechanic should find specifications of patents and of public works, art designs, and sketches of all kinds of public buildings in this and foreign countries, to cultivate his taste and increase his knowledge. He, and all of every profession, should have books and periodicals devoted to interest and instruction. Volumes of the statutes, and law reports, should fill the shelves with mechanics' magazines, journals of the arts and sciences, and merchants' and bankers' journals.

In this public library, too, should be found a complete, or, as nearly as possible a complete record of the dealings of government with its subjects. Very large sums of public money are annually spent on governmental and parliamentary commissions, or committees of inquiry, in compiling census reports—reports of various departments, poor law education, registration of births, deaths, and marriages; civil service, science, and art, &c., &c.; but although the money is spent freely in collecting, compiling, and printing blue books, very little is done in diffusing the information they contain among the public. The end which we may suppose to be sought for in all these commissions is to inform the public mind. Let me notice one of many instances where this end seems to be altogether ignored. In 1860 a commission of inquiry, composed of some of the ablest educationists in England, was appointed to inquire into the state of public education in Great Britain. The commissioners proceeded to discharge their duty in the most effective and comprehensive way, by not only hearing evidence of all kinds of people in all parts of England, but they sent a special commission to the Continent to observe and report on the state of education there. A most valuable report was the result of this searching, comprehensive, and conscientious investigation, full of facts, full of suggestions—the most complete epitome of information on the education question perhaps ever published; but, then, what about its publication? Stray extracts from the report, and from the evidence carefully culled out to suit particular views, have appeared from time to time in speeches and newspaper articles, but no attempt has been made to diffuse, in a condensed form, the information collected at such expense; and here in Dublin, where we are worried by the education controversy, there is no place where an honest man of independent judgment may go and test the theories and assertions of the warring educationists, by reference to a book such as this. Extend this consideration to all other reports, and we cannot fail to be struck with the absurdity of spending all the money on the commissioners and their printers, and none on the public, for whose information both the commissioners and the printers are supposed to labour.

Government, if honestly conducted, should give every opportunity to its subjects for investigating its proceedings, and should be prepared to defend its policy, not by plausible speeches, or by references to parliamentary majorities, but by throwing open to every reader the means for testing for himself whether the policy be a good one and one calculated to advance the best interests of the country. In this age of ratatory goes for little against facts, and public opinion must be gained over by appealing to the judgment rather than the passions or the servility of mankind.

Dublin is the only city with a quarter of a million inhabitants in the United Kingdom without a Free Public Library, outside of London and its British Museum and other libraries. The princely liberality of William Brown has, at the cost of £40,000 given such an institution to Liverpool, and handed it over to the corporation to be maintained for the use of all respectable and non-respectable people of Liverpool, or of Dublin who may visit Liverpool, for all, of all classes, and of all countries, on the sole condition of good behaviour. There may be observed in the evening the artisan, in his working costume just after completing his day's work engaged in studying books, useful to him as a tradesman and as a man—books too costly for him to procure to read otherwise than through the instrumentality of this magnificent institution. Manchester and Birmingham, too, have their free libraries provided at the expense of their ratepayers who have taxed themselves at the rate of one halfpenny in the pound for the purpose, and with the happiest results, as Mr. Osborne's paper, previously referred to, fully demonstrated. Besides these great cities, each of larger population than Dublin, there are others in England with smaller population which also have their free libraries; among these I may notice Sheffield, Norwich, Southampton and King's Lynn, where a Free Library has been established by one of the borough members, Lord Stanley, a nobleman from whom the public have reason to expect a good deal in the time, not I trust very distant when he shall occupy a high position in our government and be able to give effect to the statesmanlike views he has so often enunciated on popular education and other questions.

It is time Dublin has some public libraries; she has Marsh's Library, free to all procuring a letter of introduction; she has the Royal Dublin Society Library, open to members and persons recommended by members; and she has the Trinity College Library, open to graduates of the University; but none of these is a free public library such as the Westminster, or the other English libraries I have named. Marsh's is a library which once belonged to an archbishop, and is composed chiefly of theological and classical works; and the Royal Dublin Society and Trinity College Libraries are libraries for privileged persons and classes, to these classes most useful and necessary, but very little to any others.

In this particular Dublin takes lower rank than the English cities. She, although more than a mere provincial city, like Liverpool or Manchester, lacks the metropolitan institution which they possess. This is a subject we cannot dismiss without some notice. The wise spirit of modern legislation has led to the enactment of various Acts of Parliament empowering the municipal bodies in the cities and towns in Great Britain and Ireland to levy special rates for public museums, libraries, parks, and pleasure grounds. Some of the English cities have, as we have seen, made use of those powers, and have thus created in their midst institutions esteemed to appertain peculiarly to a metropolis, Dublin lies behind; her corporation have not proposed, nor do they appear likely to propose, to use their powers, either to form public pleasure grounds, such as might be formed in Stephen's-green, or to create either a public library or a public museum.

They are satisfied to waive their right, and so far as they are concerned, yield the metropolitan position of Dublin; but happily for Dublin, it is her right, not as a city of 250,000 inhabitants, but as the metropolis of Ireland, to have metropolitan institutions, and as such metropolis, for the benefit of not herself alone, but for all Ireland. She is entitled to have those institutions maintained by Parliament. The three metropolitan cities of London, Dublin, and Edinburgh, and these only, have Parliamentary grants for their public institutions. This is their right, their prerogative, because they are seats of government, the political centres to which all in each of the three kingdoms of England, Ireland and Scotland respectively, must necessarily tend, and where everything of a national character intended for the whole nation must be established. Adopting this view, a view with important consequences and considerations, as I have stated in the outset, we must, in any practical attempt to secure a Free Public Library for Dublin, have recourse to government and Parliament, and not to local municipality.

Appealing for state aid, we may urge, as it can be more forcibly urged than on the present occasion, the justice, the wisdom, and the sound policy of applying some portion of the education grant in this way. The defects and evils of existing arrangements may be shewn, as they can be shewn, to be admitted even by those interested in their maintenance, and it may be argued, as it can be argued, that sound principles of government and a thorough knowledge and practice of them are no less necessary in Dublin and Ireland as in any part of the United Kingdom.

An opportunity for practically discussing and enforcing our claims in this matter, will, in all probability, shortly be presented to us. It is very

likely, nay, almost certain, that during the next Session of Parliament a Committee of the House of Commons will be appointed to enquire into the subsidized scientific institutions of Dublin. In the best interest of those institutions, and of this city, this inquiry is called for, and should be as searching, as open, and as complete as possible. The library question must come within its scope, and it is to be hoped that there shall be enough of public spirit in Dublin to sustain those acquainted with the facts in coming forward to give such evidence as will not only establish the fact of the great desire for, and great value of such an institution as a free public library, but also as to the quantity of materials at hand for its establishment and maintenance. We have a fine public building which might be applied to this purpose; we have a library (Marsh's) which, refused as it has been to another, would be available, I believe, to form the foundation of the free public library now advocated. The privilege of obtaining copies of every new book now possessed by another library could be transferred or added to the new one, which would also be the proper recipient of all parliamentary papers, patent specifications, reports of commissioners and governmental departments; and to aid its private benevolence and public spirit would be more likely to be directed than to any other library, whether those partially opened or wholly closed to the public. With these materials, and a fair parliamentary grant, there can be but little doubt our Irish public library would soon become an institution of which this country and this city might be proud, as a symbol of its progress and of its earnest desire to promote equitably and unintrusively the education of all classes of the people, and the advancement of our common country.

If, then, the work be a good one, the opportunity for doing it near, the prospect promising—let us arise and do it—and doing in a good cause *let us do with all our might.*

#### OPENING OF STEPHEN'S-GREEN.

A MEETING of the Usher's-quay Ward was held on the evening of the 12th inst. in the Bakers' Hall, Bridge-street, in support of the movement for opening Stephen's-green as a public park.

Alderman PLUNKET occupied the chair, and said that he experienced great pleasure in calling that meeting in compliance with the numerous and most influentially signed requisition presented to him. He wished to express his opinion, that the opening of Stephen's-green should be for the benefit of the people.

After some resolutions were moved and seconded,

Mr. M'Evoy (Hon. Secretary) stated the steps already taken for the opening of the Green. The Albert Testimonial Committee endeavoured to have the Green opened as a public park, and the testimonial erected therein. In this they failed, and then Mr. G. Woods Maunsell, who advocated in 1859 the opening of the Green to the citizens, again took up the question, but the bill he proposed did not meet with the favour of the corporation. Subsequently the present movement was commenced, and he (Mr. M'Evoy) published a pamphlet on the subject in furtherance of the movement. Mr. M'Evoy referred to the meetings which had been already held, and the measures in progress to secure this great advantage for the health and recreation of the citizens.

Mr. N. Sinnot, T.C., said that although Stephen's-green was distant from that part of the city, yet the people of that district would, he was sure, gladly avail themselves of the opportunity of spending an agreeable hour or two in that public park. It was surrounded by many features of an attractive character, which would draw the people there. He was happy to think the movement was in excellent hands, and in a fair way to succeed. The corporation, he was sure, would do in the matter whatever the public feeling of the city required, and whatever was calculated to benefit the people. As a member of that body he would be glad to assist in doing whatever would be becoming the corporation, and would be for the good of the city. The Usher's-quay Ward would do its duty in promoting the movement by petition and by subscriptions. For the present he would himself subscribe £1, and he hoped to induce some of his friends to subscribe.

Mr. M'Evoy stated that about £200 had been already subscribed towards the expenses of the bill.

Mr. Macdonogh moved a resolution, calling on the parliamentary and municipal representatives to sustain the application intended to be made to government for an annual grant to sustain St. Stephen's-green as a public park. He said, that in order to secure the success of this movement it was necessary that it should be taken up with spirit and determination throughout the whole city. It was said by some persons that the object of the movement was to increase taxation, but this was an unfounded statement, unless it was to be said that taxation to the amount of a fraction in the pound would justify

it. The citizens, having regard to the public good which would be done by opening Stephen's-green as a public park, would not be influenced by any such consideration.

Mr. Finucane seconded the resolution, and in the course of his observations stated Stephen's-green belonged to the city, and was never intended by the act of 1814 to be made a preserve for a few children and nursery-maids to the exclusion of the citizens. Why should the children of the people living within reach of the Green be compelled to take exercise and to stay either in the streets, where they were in danger of being run over, or in confined or unhealthy yards or halls, where their health was impaired, and their moral constitutions polluted. It was said that, were it not for the commissioners, Stephen's-green would still have a ditch round it, and be a nuisance in the city; but since 1814, as was well known, a vast deal of improvement had been made in various places and things in Dublin, and he had no doubt that if the Green had remained in the hands of the corporation it would be now a highly ornamented, handsome public park.

Alderman Plunket vacated the chair, and Mr. Sinnott, T.C., having been called thereto, the meeting shortly after adjourned.

#### ROYAL IRISH ACADEMY.

A GENERAL meeting of the members was held on the evening of the 11th inst. in the Academy House, the Very Rev. Dean GRAVES, President, in the chair.

The Rev. Dr. Reeves, secretary, having read the minutes of the last meeting, which were confirmed, and the names of the gentlemen proposed to be balloted for as members of the academy, said that he had the honour of proposing, as member, the Earl of Charlemont. His lordship being a peer of the realm had the privilege of being balloted for without his name having previously appeared on the books of the academy. The founder of the academy was the Earl of Charlemont, grandfather to the present earl, who, in the year 1775, was elected president of the academy. His eldest son, who succeeded him as earl, was elected in November, 1795, and his second son, the Hon. Henry Caulfield, was elected as member in 1798, and was connected with the academy down to his decease, so that a long interval had been filled up by the three individuals who honoured the roll as members of the academy.

Mr. Wilde seconded the resolution, which was passed unanimously.

Edward Blyth, Esq., F.R.S., read a very interesting paper on the existing species of the stag (elaphus), and gave several illustrations to show the differences between the stags of the different countries, illustrated by their antlers, which he exhibited with the view of sustaining his assertions, and in the course of his observations evinced deep and varied knowledge, and the results of extensive travel and research. The paper was referred to the council for publication.

The Rev. Samuel Haughton submitted a paper, "Notes of Animal Mechanics, Part 1st, on the muscular mechanism of the hip and knee joints in man, and in some of the lesser monkeys," and exhibited some well-executed drawings illustrating his views. The reverend and learned gentleman went on to prove, by the results of anatomical investigation, certain connection existed between the muscles of the hip in the human subject which hitherto was not supposed to be the fact. He also gave some interesting facts relative to the formation and arrangement of the muscles and joints in the quadrumania family.

The Earls of Charlemont and Donoughmore; C. H. Foot, B.A.; James Digges La Touche, and Major Poole, 8th Hussars, were unanimously elected members of the academy. The proceedings then terminated.

#### PROPOSED FREE LIBRARY.

ON the evening of the 11th inst. Mr. M'EvoY delivered a Lecture (given in this number) in the conversation room of the Dublin Library. "On the utility of establishing a Free Library in this City, to be endowed and maintained by the State."\*

Mr. SIDNEY, Q.C., presided.

Mr. M'EvoY argued that Dublin, as the metropolis of Ireland, should have all those metropolitan institutions which are elsewhere maintained by parliament. A free public library was one of those. Public money granted for educational purposes could be applied in no more useful way than in providing public libraries, museums, botanic gardens, &c. In a national system of education it was impossible to

please all parties, and, consequently some found themselves excluded from all benefit from a fund to which they equally contributed with those benefited, and those whose principles happened to have the majority in their favour. Besides this, the middle classes were excepted from national education, although not from national contribution. In a public library the middle classes and all others of whatever denomination might share equally in the benefits of the institution. And the education of the adult population, through this means, was no less worthy of attention than the education of the children, who, if left after school years without the means of acquiring further knowledge, and retaining the memory of what they had learned, would have received little benefit from their early education. Mr. M'EvoY further urged that Dublin was the only city of equal population in the three kingdoms which had no free public library such as they had in Liverpool, Manchester, Glasgow, and Birmingham, open to all classes without subscription. In these institutions the only title for admission to read was decency of behaviour, and he would like to see the same means of instruction in Dublin.

On the motion of Mr. C. A. Bagot, seconded by Mr. Finucane, the thanks of the meeting were unanimously accorded to Mr. M'EvoY for his able lecture.

Mr. C. A. Bagot having been called to the second chair, a vote of thanks was passed to the chairman, and the meeting separated.

#### INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A GENERAL meeting of the Institution was held in the Museum Buildings, Trinity College, on Wednesday evening, the 13th inst.

Mr. C. Vignoles, president, delivered a lengthened address. The Rev. S. Haughton, F.T.C.D., read an able paper "On the best mode of calculating the resistance to fracture of large iron beams, when suddenly struck."

Mr. Vignoles, C.E., was connected with the Liverpool and Manchester Railway, he was engineer of the Dublin and Kingstown, the first Irish line, and has achieved a European reputation by his works in Russia, Spain, and the Brazils.

#### TURNER'S IMPROVED FIRE-PROOF CONSTRUCTION FOR FLOORS, CEILINGS, BRIDGES, &c. \*

THIS construction is, like others for floors, composed principally of iron and concrete; but the improvement consists in the more perfect combination of materials, so as to form one united thoroughly-bonded mass, and the omission altogether of timber to sustain the concrete, and the straps and laths which are employed as a preparation for plaster ceilings.

To effect this, iron joists of open construction are used, and the concrete is arranged to go *under* as well as *over* and *through* the joists. This would secure the strongest combination of the materials; but joists of the ordinary rolled iron may still be employed with the advantage of their being entirely imbedded in the concrete. Iron ties are secured to each couple of joists, to assist in holding up the concrete when set. A temporary floor is placed under the joists, at such distance below them as may be desired to have the concrete. On this floor, wedge-formed earthenware cups are laid, with the smaller open end down, at equal intervals all over the surface. Having made this arrangement, the concrete is delivered into its place, and, when set, the temporary floor is withdrawn (to be used elsewhere), and the earthenware cups will have been picked up by the concrete, and securely imbedded in it, and thus will be formed one compact mass of iron and concrete, having a perfect key below to receive the plaster ceiling.

A space may be formed in the concrete between each two joists upon a segment of earthenware and thus the weight of the floor would be greatly reduced, while its strength and rigidity would be preserved.

In cases where it may be desirable to reduce the thickness of the floor, the wood joists may be notched upon the iron ones, and the space between them filled with concrete to within, say, an inch of the floor.

The following may be mentioned as some of the advantages of this construction:—1, the greater depth of concrete, and the complete combination of materials into one mass, not being, as it were split up into separate pieces by the iron joists; 2, the increased rigidity and strength of the floor in consequence, and the economy of iron material; 3, the preservation of the under side of the joists from fire; 4, the omission of timber to support the concrete, and of wood straps and laths for plaster; 5, no lateral

thrust as from arches, the weight being discharged vertically upon the walls, and the floors tying them together, instead of having a tendency to overthrow them; 6, its adaptation to floors of any bearing, which may be spanned by iron girders without intermediate support; 7, its suitability to receive any description of surface—wood, stone, tiles, or any other; 8, the cost being no more than that of other "fire-proof" floors formed principally of iron and concrete.

The earthenware cups forming keys for the plaster ceiling are supplied at a cheap rate by the patentee Mr. Thomas Turner, 204, West George-street, Glasgow.

#### INAUGURATION OF THE GOLDSMITH STATUE.

THE ceremonial of inaugurating the statue of Oliver Goldsmith, recently placed in front of Trinity College, took place on the 5th inst., at twelve o'clock, in presence of the Lord Lieutenant, the Lord Chancellor, the Provost, and a vast assemblage of the citizens. For some time previously the statue, which is by Mr. Foley, had been erected on a wooden pedestal to enable the committee to determine the character of the most suitable permanent pedestal, and on the completion of the latter, according to the original design, the figure was draped until His Excellency's pleasure as to the inauguration was made known. The *pose* of the figure, the elegance of outline, and the dignity of bearing so wonderfully expressed in the statue, whether viewed in its entirety or criticised in detail, have, in the judgment of the Irish public, demonstrated the right of Mr. Foley to the position of first of Irish sculptors. The most fastidious taste or the most carping dispositions have failed to discover a blemish, and those who came to scoff the work have remained to praise. The committee having satisfied their minds as to the nature of the pedestal, caused the permanent form to be recently built, and since its completion the statue has been draped until the public ceremonial of inauguration. The Lord Lieutenant himself was the first, some six years ago, to suggest and urge its erection, and gave at that time the magnificent subscription of £100 for the Goldsmith Statue Fund.

A spacious platform had been erected around the statue for the accommodation of the personages who were to take part in the ceremonial and for the subscribers.

His Excellency arrived at twelve o'clock precisely, and was received by the members of the statue committee, and conducted to his place on the platform.

Professor J. K. Ingram, F.T.C.D. (who was in academic costume) came forward and read the following address to his Excellency:—

The Goldsmith Statue Committee, having completed the task entrusted to them, desire to state briefly to the subscribers and to the Irish public the circumstances under which this enterprise was undertaken, and to place on record their acknowledgments for the support by which they have been enabled to bring it to a successful issue. The project of a national memorial of Oliver Goldsmith was originated by his Excellency the Earl of Carlisle, who has thus shown an interest in the literary glories of our country, which is well worthy of the imitation of Irishmen. His Excellency headed the subscription list with a munificent donation to the fund, and seconded the efforts of the committee throughout the course of their labors by his cordial and generous encouragement. Her Majesty the Queen and the late illustrious Prince Consort honoured the movement with their gracious favour, and aided it with their royal bounty. The country generally responded to the appeal of the committee, and contributions were received not only from every part of the United Kingdom, but also from Irish residents in India, and settlers in the Australian Colonies. The execution of the statue was entrusted by the unanimous vote of the committee to John Henry Foley, Esq., an Irishman, and confessedly one of the first sculptors of our time. Mr. Foley generously subscribed towards the expense of the work the sum of one hundred pounds, and, zealous for the honour of his native country, exerted all the powers of his art, on what, to him, was truly a labor of love. The statue has been for some time placed on a temporary pedestal, in order that the committee might be able to form a correct judgement as to the best position in which it could be placed. An opportunity has thus been afforded of obtaining the verdict of the public on the merits of the work; and there has been an unanimous expression of opinion that it is one of which Ireland may justly feel proud, not only as a worthy memorial of historic greatness, but as an evidence and trophy of living genius. It was the wish of his Excellency the Lord Lieutenant that the statue should be erected on such a site that, whilst it would contribute to the adornment of the city, it would associate the memory of the poet with the university in which his early studies were pursued. The board of Trinity College thus became

\* By reference to early numbers of the DUBLIN BUILDER it will be seen that this subject was treated by us, but that the Free Libraries of Liverpool, Manchester, &c., which we visited, are maintained by a public rate, and *not* by the State.

\* From the *Building News*.

specially interested in the work, and the committee have owed much to their kind and liberal patronage. They not only from the first warmly entertained the project, but subscribed largely to the fund, and have at their own expense erected the pedestal on which the figure of the poet now stands. It only remains for the committee, on the part of the general body of subscribers, to present the statue, now happily completed and placed on its final site, to the Provost, Fellows, and Scholars of Trinity College. It will remain to our posterity, and especially to the youth who frequent this seat of learning, a visible symbol of the grateful and affectionate admiration which Irishmen must ever feel for the genius and writings of Oliver Goldsmith.

The Provost then briefly addressed the Lord Lieutenant, requesting him to inaugurate the statue.

In obedience to his Excellency's command the green drapery that concealed the statue was withdrawn, and the statue was displayed on its permanent pedestal, and in all its artistic beauty amid enthusiastic applause.

The Lord Lieutenant delivered a most eloquent oration, in the course of which he said—It is now about six years ago since I stood a short distance off, on a spot not out of sight us, to do honour to a truly Irish and most delightful poet, Thomas Moore. In the performance of that grateful act of homage, I took it upon me to suggest that on the spot where we now are there should be raised a statue of Oliver Goldsmith. The proposal seemed to be at once approved. I will not say it has been hurried into completion, still by the zeal and liberality of the many interested it has been accomplished; though not exposed for the first time to the view of the citizens, the figure now stands upon its appropriate pedestal, and I think we shall agree that any delay which may have occurred in the proceedings has been amply made up for by the grace, dignity, and excellence of the finished work. Living biographers have done full justice to his history; and an eminent orator, at once the representative and ornament of this university, has unfolded all his high gifts of mind with filial reverence and congenial ability. We contemplate a career, not free from imprudence, from error, nor even from ridicule, but redeemed by the most guileless simplicity, by the most romantic benevolence, by the most manly independence—we contemplate a genius, of which no more accurate or pity summary can be given than in the words which his great friend, Dr. Johnson, inscribed upon the stone which bears his name in Westminster Abbey—"There was no style of composition which he did not essay—none he essayed, which he did not adorn;" but of so much variety and of so much excellence, if I were called upon to select the most striking specimens, I should naturally name "The Deserted Village," "The Traveller," above all, perhaps, "The Vicar of Wakefield." Why, the walls of the Royal Academy of England would not know themselves if a single year came round without exhibiting a subject from the "Vicar of Wakefield." Still, novelist, historian, satirist, essayist, dramatist, as he was, it is mainly as a poet that we represent to ourselves Oliver Goldsmith.

His Excellency having quoted some *morceaux* from "poor Goldie's" compositions, concluded by observing—"Even here we are gathered round the poet's statue before London has erected a single statue in the open air to any of England's mighty bards. At the beginning of these remarks I referred to the fact that while engaged in the inauguration of the statue of Moore, I ventured to anticipate our work of this day in presenting to Dublin the statue of Goldsmith. This was six years ago; but let not six years more elapse before we shall have added the statue of Burke. See, the College authorities have most wisely and considerately left a corresponding space which absolutely requires some one to fill it, and who so fit for it as he who was probably the greatest intellect of Ireland—the consummate orator, philosopher, and statesman, Edmund Burke. See, the very statue of our Goldsmith seems to invite the presence of him who was both the most cherished companion of his social hours, and the readiest and the truest friend in his sore and frequent need. I know that this work has already enlisted the sympathy and exertions of many eminent men and public-spirited citizens. I trust that no long time will elapse before, on this very spot, where the historic recollections, the architectural beauties, the main thoroughfares, all the pulses of Dublin life most converge, the passer-by, as he halts for a moment, may look up, not without patriotic pride and emotion, to the statues of Goldsmith and Burke.

Lord Talbot de Malahide, and Mr. Whiteside, M.P., Q.C. (Goldsmith's biographer), afterwards addressed the meeting in brilliant speeches respectively, proposing and seconding a vote of thanks to His Excellency for presiding at the inauguration. The Lord Lieutenant briefly acknowledged the compliment, and the proceedings terminated.

#### THE GEOLOGICAL SOCIETY.

THERE was a general meeting of the society on Wednesday evening, in the Museum Building, Trinity College. Papers were read by the Rev. Professor Haughton, M.D., F.T.C.D., "On an attempt to calculate the duration of time involved in geological epochs," and by Dr. Alexander Carte, "On the recent discovery of bones of the Polar bear in Lough Gur, county Limerick, with observations on their comparison with bones of the cave bear, in the collection of the Earl of Enniskillen." Mr. A. Montgomery, exhibited a specimen of granite in limestone, from a quarry near Rathfarham.

#### ON LIMES AND CEMENTS.\*

(Continued from page 2.)

*Trass or terras.*—In the valley of the Rhine, between Mayence and Cologne, and in various localities in Holland, a substance of volcanic origin is found, called trass or terras, which has been extensively employed throughout that region, particularly by the Dutch engineers, for the production of hydraulic mortar. It is derived from immense pits or quarries, occupying the sides of extinct volcanoes, and enjoys in nearly every particular the distinguishing properties of Italian pozzuolana, closely resembling it in its composition and in the details of its manipulation, requiring to be pulverized and combined with rich lime, in order to render it fit for use, and to develop any of its hydraulic properties.

The trass used in Holland is obtained principally from Bunn, Andernach, and from the village of Dordrecht, exclusively devoted to its production, and at the confluence of the Rhine and the Meuse.

Trass is of a greyish colour, has an earthy appearance, and is found in beds that are sometimes coherent, though usually composed of a heterogeneous mass of pulverulent lumps, from the size of a small pea to that of an egg. Sulphuric, and even concentrated hydrochloric acid, attacks it with readiness, leaving a residue of insoluble silica. Smeaton regarded it as inferior to the Italian pozzuolana in some essential particulars, and mentions, as one of its objectionable features, that of throwing out unsightly efflorescences upon the faces of walls in which it is used, which attain such a degree of hardness as to render their removal with instruments necessary, especially in positions where smoothness and regularity of surface are essential, as in water conduits, navigable sluices, &c.

More recent experiments have led to the suspicion that Smeaton either made use of a lime ill-adapted to the purpose, or, what is perhaps more probable, that he unduly augmented its proportion, which should rarely exceed the ratio of one to one.

Arènes is the name given to a species of ochreous sand, claimed by some to be of fossil origin, and found abundantly in France, in the Department of Dordogne, and in several localities on the tributaries of the Loire and the Somme. On account of the large proportion of clay which many of them contain, which often reaches as high as 70, they can be formed into a paste with water, without any addition of lime, and are often used in that state for the walls of buildings constructed *en pisé*, as well as for mortar.

Mingled with rich lime, they give apparently excellent mortars, which attain great hardness under water; and, in hydraulic quickness, compare favourably with the most energetic hydraulic limes.

It is doubtful, from some careful experiments that have been made, whether their properties, as regards the ultimate strength and harshness of the mortars made from them, are improved by calcination, or otherwise. Their hydraulic quickness, however, is greatly increased thereby. Their colours are various, such as red, brown, yellow, and sometimes white. They contain from 10 to 70 of clay, the balance being a mixture of coarse and fine calcareo-silicious sand; and have hitherto been principally found upon the summit of small hills, or forming the superior strata of plateaux bordering water courses, but rarely in the valleys. These beds exhibit the characteristic physical features of alluvial deposits, and are probably accretions of diluvial or tertiary earths, transported from a distance. This conclusion excludes the idea that they have been subjected to the action of volcanic heat, and leaves us to account by some other hypothesis for their hydraulic properties, and their close resemblance, in other respects, to the Italian pozzuolana. The most reasonable supposition is, that they owe their hydraulic energy, when mixed with the paste of fat lime, to the presence of silica, not in the state of quartz, but in a form favourable to its free combination with the lime, in the production of an insoluble silicate. To account for the hydraulic energy in crude arènes requires a more lengthy discussion of certain chemical reactions, than can with

propriety be introduced here. It will, therefore, be deferred to the chapter containing the "theory of the subaqueous induration."

When the arènes were first discovered, great attention was paid to their examination, and with such favourable results at the outset, that they immediately took rank among the most valuable sources of hydraulic mortar. Subsequent experiments, however, have not fully realized the high expectations originally entertained with regard to them, or verified their claims to any superiority in initial energy over the pozzuolana and trass; while the effects of time upon the mortars composed of them, have established the fact that, with few exceptions, they should be classed among the most feeble pozzuolanas, that they contain ingredients which exercise a hurtful influence upon mortars in the air, and that immersed in water, they attain but a medium degree of ultimate hardness.

Properties similar to those possessed by the arènes have been discovered in granwacke, psammite, granite, schist, basalt, and other rocks, when in a state of disintegration. They must, however, be considered as very feeble pozzuolanas, in the crude state, and acquire but a slight increase of hydraulic energy by any degree of calcination. Even their feeble powers, however, confer upon them this advantage, that, for mortars not absolutely immersed in water, when green, and when there is ample time for their properties to develop themselves before submersion, they can be employed in larger proportions than any species of sand, wholly inert, would admit of.

It may be said that a mortar has set when it has attained such a degree of induration that its form cannot be altered without causing a fracture—that is, when it has entirely lost its plasticity. As the precise moment when this takes place is somewhat difficult to ascertain in practice, it is important that some more rigorous standard of comparison should be established. The common method is to make use of an iron or steel wire point loaded to a given weight; and the mortar is assumed to have set when it has become sufficiently stiff and firm to support the point without depression.

Some cements are remarkably quick in exhibiting their hydraulic property and will lose their plastic state immersed in water at 65 degs. Fahr. in one or two minutes, but afterwards proceed very sluggishly in their induration. These, therefore, setting aside the question of their value in other respects, are admirably adapted to constructions under water, or in positions subjected to immediate submersion. There are others, again, which, though comparatively slow in developing the first indications of hydraulic energy, yet, in a few hours, greatly surpass the former in withstanding the wire test, as well as in their ultimate strength and hardness, and are therefore to be preferred in all positions where a very quick induration is not specially important. The former are remarkable for what we propose to term hydraulic quickness or activity; the latter for hydraulic energy or power. In order that we may be able to detect and recognize these somewhat obscure properties, it is necessary to have at least two testing wires, which differ either in their size or weight, or both. General Totten, for his experiments carried on at Fort Adams, R.I., during several years prior to 1830, used a 1-12th inch wire loaded to weigh  $\frac{1}{2}$  lb., and a 1-24th inch wire, loaded to weigh 1 lb. We have used the same in all our tests, making in every instance two cakes of the mortar under consideration, by forming them in a circular mould or ring  $1\frac{1}{2}$  in. in diameter, and  $\frac{5}{8}$  in. deep. As soon as these cakes are prepared, which is done by pressing the mortar into the ring with a spatula, and smoothing off the upper surface, one of them is immersed immediately in water of an established temperature (65 degs. Fahr.), and the periods of time which it requires to be able to bear respectively the 1-12th inch wire, weighing  $\frac{1}{2}$  lb., and the 1-24th inch wire, weighing 1 lb., are accurately noted by the watch. The other cake is left in the air (also brought to 65 degs. Fahr.), until it supports the 1-12th inch wire, and is then immersed in water, and the time required to bear the small wire and heavy weight ascertained.

The wire test of hydraulic activity, when applied to cement paste without sand, does not furnish even an approximate indication of the relative value of mortars of the same cements when mixed with a full dose of sand; for a quick cement might contain one-half or three-fourths of its volume of inert matter ground up with it, and consequently be incapable of receiving much sand, and still be superior in hydraulic activity to another, although the latter might be entirely unadulterated, and its capacity for sand unimpaired. In pronouncing on the value of cements, from a comparison of their relative hydraulic activity, they should, therefore, be mixed with two and a half to three times their volume of sand. Even with this precaution, the result is far less reliable than some simple device for trying the strength of the mortars when ten or twelve days

\* From a valuable practical treatise on limes, cement, and mortars, by General Q. A. Gilmore, U.S. Army. Trubner and Co., London.

old. As an evidence of the truth of this remark, it may be stated that, although eminent hydraulic activity or quickness is not necessarily accompanied by inferior hardness and strength, and conversely, neither as a slow-sitting cement necessarily a strong one; still, within the range of the experiments which furnish the tables of this work, it is somewhat remarkable that the quickest cements gave the worst results, and the slowest ones the best.

The effects of a variation of temperature upon the hydraulic quickness of mortars, whether derived from hydraulic lime, hydraulic cement, a mixture of common lime and pozzolana, or produced by artificial means, is very marked; so much so, indeed, that in all comparative tests of this kind, it is important to adopt some fixed standard of temperature, not only for the water with which the cement is mixed, as well as that in which the cement is immersed, but for the drying ingredients and the surrounding atmosphere.

To illustrate the necessity for these precautions, we will instance two kinds of United States cements. With the dry cement and water for mixing at 90 degs. Fahr., one of these cements immersed in the state of paste in water at 90 degs. Fahr., supported the 1-12th inch wire loaded to  $\frac{1}{2}$  lb. in  $1\frac{1}{2}$  minutes; the other required 4 minutes to attain the same set. Lowering the temperatures to 65 degs., the former required 6 minutes, and the latter 17 minutes; while at 35 degs., the respective periods were lengthened to 39 and 82 minutes—showing for a depression of 55 degs. in the temperature of the paste (viz., from 90 degs. to 35 degs.), a corresponding prolongation of the period required to set, amounting, in the one case, to  $37\frac{1}{2}$  minutes, and in the other, to 1 hour 18 minutes.

Hence, all cements are not equally sensitive to a variation of temperature; also, those varieties which contain an excess of caustic lime may exhibit a superior degree of hydraulic activity, due to the heat generated in bringing this lime to the state of hydrate.

#### ARCHITECTURAL ASSOCIATION OF LONDON.

THE members of the Architectural Association met on Friday Evening last, the 8th inst. T. R. SMITH, Esq., President of the Association, was in the chair.

The president drew attention to the architectural drawings of Mr. R. Phené Spiers, which were hung up in the room, and which had obtained the gold medal of the Royal Academy. He congratulated Mr. P. Spiers upon his success.

Mr. Matthews, hon. secretary, read the report of the librarian. The adoption of the report was carried.

Mr. Lacy W. Ridge asked the advice of the members of the Association in this matter:—Mr. George R. Burnell had prepared a Paper to be read before the Examination Class at the last meeting on Tuesday, on the Strength of Building Materials; but as there were only three members present, Mr. Burnell of course refused to read his Paper. He (Mr. Ridge) considered the members of the class were much to blame for not attending upon the occasion of Mr. Burnell's lecture. He wanted to know what he, as secretary of the examination class, was to do?—The president advised that a letter should be sent to Mr. Burnell expressing the regret of the Association, and requesting Mr. Burnell to read his Paper before the members of the Association at some future day.

Mr. Adams then read a Paper analyzing the provisions of the Metropolitan Building Act.

Professor Kerr said that the Paper was an excellent description of the provisions of the Metropolitan Building Act, showing a thorough appreciation of the principles which were on the surface of the act. He might quote the words of one of the oldest surveyors, when he said to him (Professor Kerr), in relation to a builder: "I would go on my knees to get him to alter the work, before I would take him to a magistrate." He considered that to be a sad state of things; and the time would come when it would have to be altered. Mr. Adams had brought a piece of mortar, which had been exhibited to them, and which was recently declared to be good material by a magistrate. Now, he had the greatest respect for the magistrate who had decided against Mr. Andrew Moseley, the surveyor; but he was sorry to hear him declare that that rubbish was mortar, especially as a worm was, before the magistrate, found in it. He contended that the reason why magistrates act as they did was this; and he would mention it because, if they found out the cause of any hitch, they might discover how to overcome it:—The police magistrates seemed to have a very natural objection against any one coming into their court to assist them in their judgment; and, consequently, they often acted in the way they did. There was nothing in the Building Act which any one magistrate in the metropolis could not thoroughly comprehend in

one evening's study. For his own part, he had the greatest possible objection to go before a magistrate, not because of the trouble, but from a perfect satisfaction that, if possible, the decision would be given against him. He differed with Mr. Adams in considering that the footings were a weak point in the Building Act. Mr. Adams had also referred to the vexed question of the inspection of secure dwellings by district surveyors. He considered it a hard matter that the surveyors should inspect them without any remuneration. Now, no man could by law be held responsible for anything without he received fee or reward. The parish was bound to make all discoveries, but the district surveyor was to report upon them. With regard to detached buildings, some builders in the country set the rules of the Building Act at defiance, but this was much to be censured. He considered that all exemptions ought to be made not absolute, but subject to the Board of Works. The Professor then referred to the discretionary powers of the surveyors. The law, he said, provided that public buildings should be constructed as directed by the district surveyors. Some persons thought that the district surveyors had a discretionary power to set aside the Building Act. This was not so; they had only the power to hinder any additional impositions which might be made. A vote of thanks was then passed to Mr. Adams for his paper.\*

#### ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A GENERAL meeting of the Institute is to be held at the Royal Hibernian Academy, on Thursday evening next, the 21st instant.

Mr. J. H. Owen, hon. secretary, has announced his intention of reading "A Condensation of an Article by M. Viollet le Duc, on the Development of Mediæval Architecture."

The following is the ballotting paper to be presented at the meeting:—

CANDIDATES	CLASS	PROPOSED BY	SECONDED BY
J. S. Mulvany	Fellow	Sandham Symes N. Montgomery	J. R. Carroll F. V. Clarendon J. H. Owen
J. Bermingham	Student	J. H. Owen C. D. Astley	W. Stirling R. A. Gibbons
William Doolin	Associate	Thomas Drew J. H. Owen	E. T. Owen Francis Nolan

#### LAW NOTE.

##### AN ARCHITECT REFUSING A CERTIFICATE.

*Meade v. Caldbeck.*—Plaintiff instituted an action to recover damages from defendant, who is an architect, for refusing to give a certificate that certain works done for a third party were duly executed.

Counsel for defendant moved for liberty to plead and demur. It was sought to file an equitable defence to the effect that, owing to disputes between the builder and his employer, the defendant was unable to certify what work was done.

No rule on the motion.

The *Engineer* of August 15th, in its description of Benson's Great Clock, says, "As engineers, we can say that it really approaches much nearer the perfection of mechanism than any other example of clock work we have yet seen on anything like the same large scale." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post with two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. B. Benson received a Prize Medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

\* It is to be hoped that the provisions of the London Building Act will be thoroughly well digested with reference to the new act sought to be obtained from Parliament for Dublin.

#### ANOTHER NEW BUILDING ASSOCIATION.

A PRELIMINARY meeting was held yesterday evening, at the Prince of Wales' Hotel, to take into consideration the establishment in Dublin of a Building Association in connection chiefly with the Civil Service. J. E. GARDINER, Esq., of the Customs Service, on being called to the chair, briefly explained the objects of the meeting, and said that this was a movement which had been made in consequence of the success which attended similar societies in England.

Mr. W. Daly, secretary *pro tem*, said that, in the first place, he should tell them that his attention was directed to the Freehold Land and Building Society of London, whereby several millions had been realised in building suitable residences for the working classes, and, impressed with the importance of having such a society extended to this country, he wrote to London, and, after some correspondence, the London society declined to extend their operations to Ireland. Mr. Daly referred to a number of other building societies in Birmingham, Leeds, and other large towns which had been most successful, and having explained the advantages of these societies, not only to the investors but to the working classes, he proceeded to read the prospectus of a building society which the officers of the civil service were striving to establish in London. It was considered that a society of this kind would not be so effective if confined to the civil service, and it was therefore determined to throw it open to the general public.

Mr. Daly, in reply to a question, said that the most approved course to be adopted was to grant loans by ballot.

Mr. G. W. Finlay, Poor Law Commission Office, proposed, and Mr. E. Solesby, of Court of Common Pleas, seconded:—"That we hereby approve of the formation in this city of a Benefit Building Association, under the provisions of the act 6 and 7 William IV., cap. 32, on the principle of the Official and General Building Society of London, to be called 'The Irish Official and General Building Association,' and that steps be adopted for having the same duly registered, in pursuance of the provisions of the said act."

It was also resolved:—

"That a provisional committee be now appointed to draw up a prospectus, setting forth the objects of the society and its advantages, together with the rules and regulations necessary for its government."

"That William Daly, Esq., of the Poor Law Commission Office, be appointed Secretary to the proposed association."

The first meeting of the committee was ordered to be held on the 21st instant.

#### Correspondence.

##### JOINT-STOCK COMPANIES—THE LIMITED LIABILITY ACT.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—That joint-stock companies (limited) are of advantage in opening up new channels for trade, as well as developing those already in existence, few will deny, and under restrictions they are likely to be productive of a large amount of good to the industrial masses of society; but it is a truism that "what is everybody's business is nobody's," which is well exemplified in them, for it sometimes occurs, either from this cause or from apathetic indifference, the project once started derives no benefit from the trading experiences of its proprietors, and is left all but exclusively to the guidance of an inexperienced secretary, who only feels interested in the receipt of his salary; hence an evil of some magnitude arises.

At the present time when these companies are engaging so much attention, and likely to exercise an important influence in every department of trade, it occurs to me few are aware of the nature of their operation. According to the act, no shareholder is liable for more than the amount of the shares which he has purchased, consequently, if the speculation be not of a thriving character creditors have nothing to look to but the assets, which in some cases may realise nothing.

It is positively certain that with limited liability moral obligation ceases, because a system of careless trading may be adopted, or recklessly called into action with impunity. The consciences of individual shareholders satisfied in the conviction of having paid in their money, therefore no longer accountable, regardless of the consequences to creditors who, relying on the high commercial status of the proprietary, supply their goods without limit, and who, when payment of their accounts is demanded, are legally met with the reply, "you cannot make me liable sir." The law could easily provide a remedy, making it compulsory upon joint-stock companies to wind up when they can no longer meet their engagements, or individually they should proclaim them-

selves as not accountable for the acts of their company. It is patent to all that an enactment confining the responsibility of individual traders to the exact amount of capital invested, would be notoriously unjust, yet the principle applied in the one case is merely a distinction without a difference in regard to the other.

Some months since a person called at my office, representing himself as the secretary of a recently-formed company trading under the Limited Liabilities Act (and having a most influential array of some of the highest and many most respected commercial names as shareholders), stating his director had offered £300 for a house as offices, but upon consideration they had decided upon taking one temporarily until they could meet something which would suit their requirements better, and requesting to have some works executed.

Suspicion being removed by the recent formation of the company, as well as the names of its proprietors, some of them enjoying municipal offices, and even aspiring to the highest civic dignities, I at once consented to do what was required. So far so well, the works were executed, the account furnished in due time, and a promise of payment made, but repeated after-applications were without effect, and I was eventually obliged to sue by civil bill and obtained a decree, and am now in a position to issue execution, but being informed by one of the proprietors that all calls upon the shares are paid up from the beginning, and previous to the date of their order to me nothing now remains but their trading assets, which are only value as waste paper, together with a table and a few chairs in the sanctum of the directory, which are equally valueless. Under these circumstances I would ask, through the medium of your journal, are not all the proprietors morally liable, if not legally, so long as they publicly permit the sanction of their names to be used as a means of obtaining credit? Certainly under representations which would be designated in ordinary trade dealing as false pretences, and which possibly might be liable to criminal prosecution.—I am, sir,

A BUILDER.

## Public and Private Works.

The disposition so prevalent among the upper and middle classes of city populations to forsake the noise and bustle of the streets, and seek more retired and salubrious residences in the suburbs, has been recently manifested in Limerick. It is, doubtless, partly traceable to this source, that in this fine city, which contains several streets, that scarcely suffer by comparison with the best parts of Dublin, excellent town-houses are at a discount, while numerous cottages and villas are springing up within a short distance from the city. Amongst others, a row of small, but neat and commodious houses, has been erected on the Military-road by Edward Cruise, Esq., called Wellington-terrace, all of which were occupied immediately on their completion. The north or Clare side of the Shannon, however, seems to be the most attractive neighbourhood, having been for some time past laid out into roads, which are generally well planted and kept in order, and form the favourite promenade of the citizens. A fresh impulse has been given to building operations in this direction, since the purchase of a large part of the property by Thomas Revington, Esq., who has erected a row of twelve houses, called Eden-terrace, somewhat larger than those last mentioned, which, as soon as completed, were in considerable request. This terrace is treated architecturally, so as to present a prominent centre and wings, by which the monotonous character so difficult to avoid in this class of building, is, to a great extent, relieved. Several detached residences have also been erected on various parts of Mr. Revington's estate, and a villa of considerable extent, for Edward J. Collins, Esq., R.M., is now in progress. The style is Italian, with bold projecting cornice to the roof, rusticated basement and quoins, a bay window, and a projecting porch, with doric columns. There is a campanile tower at one side of considerable height, commanding a fine view of the city, and down the Shannon. The stables, offices, and entrance lodge, are to correspond with the house. The architect of all the works above described is Mr. W. Fogarty, of 23, Harcourt-street, Dublin.

## General Items.

Behries, the sculptor, has died in the Middlesex Hospital.

The pantomime at Drury-lane is said to have cost £8,000. All this money is lavished upon canvass and paint, and tinsel, which in a few weeks will become a heap of rubbish. Magnificence in theatrical matters can scarcely be carried beyond the point it has now reached.

The Town Council of Rochdale have agreed upon

the erection of a new Town Hall, the estimated cost of the shell of which is £20,000. Prizes of £100, £60, and £40 are to be offered for designs.

The new quarters for married soldiers, erected at Canterbury at an expense of nearly £10,000, are now ready to be occupied, and only await the inspection of the authorities. Amongst the many improvements introduced is Taylor's patent ventilating process, which, if successful, as anticipated, will probably be introduced into other buildings of the same nature. This is designed to ventilate the whole of the rooms, altogether eighty in number, and provision is made for passing the air through heated shafts, so as to warm it in winter. The lavatories and drainage are said to be very complete.

One of the schemes of the day is a grand international alliance of hotels, so that all parts of Europe are to be in hotel correspondence—London, Paris, Vienna, Berlin, Brussels, Antwerp, &c.

According to an official document just issued, the declared value of iron for railroads exported in eleven months ended 30th November was £3,073,025, against £2,549,792 in the preceding year.

A French naval officer has invented a method of preserving the plating of iron vessels from oxidation. Specimens of iron, covered with copper, have been exhibited in perfect preservation after having been immersed in the sea for several months. The iron is not only preserved from oxidation, but on placing it in contact in the sea with a metallic surface of copper, the galvanic effect is completely destroyed.

According to a new regulation made by the authorities of Paris, whenever a railway train is delayed, immediate information is to be given to the Commissary of Police of the locality nearest to the station. Advice will then be immediately sent to all the large towns on the line, as to the cause and duration of the delay.

A new fire-escape has been invented by Mr. Power, chief of the Worcester police. It consists of a light iron frame easily placed upon a window sill, and of a simple system of wire or other ropes and pulleys, by means of which a flame-proof canvas sack or receptacle is placed on the ground, and thus far presents an advantage that, whilst it is as efficacious as the old fire-escape, it is cheap and easily obtainable, and within the obtaining of every household.

## Miscellaneous.

The *Daily News*, July 1st, speaking of Benson's watches in the Exhibition, says, "Here are arranged a fine selection of watches manufactured by him on the latest and most approved principles of horological science. When we compare them with the specimens of ancient watch-work which are placed beside them, or even with those worn by our grandfathers, the immense advance in this branch of the mechanical arts is at once apparent." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's Illustrated Pamphlet on Watches (free for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Class 33, Honourable Mention, Class 15; 33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

NEW BUILDING ASSOCIATION.—It is, we learn, in contemplation to form, principally in connexion with the Civil Service in Ireland, a "Building Association," under the provisions of the Act 6 & 7, Wm. IV, cap 32, and a preliminary meeting of gentlemen favourable to the project will shortly be held, at which the necessary steps will be taken with a view to the immediate establishment of the proposed society on such a basis as, it is hoped, will ensure its success. Associations of this character exist in almost every town of any importance in England, and have conferred vast advantages upon their shareholders. In one association in Leeds a sum of over £200,000, is due to its shareholders, whilst it appears from a recent work on "Building Societies," that between 1847 and 1860, there was invested in four of these institutions in Birmingham upwards of £508,000. In London, building associations have met with unparalleled success, and have since their formation received several millions of money. Such results as these may not be realized in Ireland, at least for a considerable time, but there is no reason why, if properly managed, such associations should not be as successful as our other public undertakings, and be proportionately remunerative to their shareholders.

PROPOSED IMPROVEMENTS IN PETER'S CHURCH.—At an influential meeting of the Parishioners of St. Peter's, held in the Vestry room, the Ven. the Archdeacon of Dublin in the chair, it was unanimously agreed that the present condition of the Parish Church is utterly unbecoming its position and the sacred purpose for which it is designed; and it was resolved that immediate steps be taken to bring this matter under the notice of the Ecclesiastical Commissioners, and to raise such a sum as shall be sufficient, with their assistance, to re-pew the Church, erect a new front, and effect such other improvements as may be considered advisable. Subscriptions are being received.

THE LETTERKENNY RAILWAY.—On Thursday the first sod was turned by Mr. Stewart, and it is expected that the line will be open and in good working order within a couple of years. A railway between Derry and the mercantile capital of north-western Donegal ought to be a matter of immense advantage as well to the merchants of this city as to the commercial and agricultural classes of the adjoining county. The new line, bringing Letterkenny within an hour's journey of Derry, will unite that part of the county of Donegal with the railway system of Ireland, and the result must be to benefit farmers, traders, and the community in general. Now that the work has been begun, we trust that this railway will be pushed energetically forward, so as to make up for the large amount of time which was lost in preparing to commence.—*Londonderry Journal*.

THE SLATE QUARRIES OF WALES.—During the past year an extraordinary amount of activity has characterized the slate trade of Wales. The demand has been so great that buyers never expect their orders, even if small, to be executed within six months, and in many instances contracts are declined altogether owing to the press of demand. The old-established quarry proprietors of North and South Wales have reaped handsome returns as the result of this activity, and extensive new quarries are being opened in order to meet the increasing demand. The Limited Liability Act has also been taken advantage of in connection with the trade, and during the year numerous limited liability companies have been successfully promoted and have commenced operations either in opening new ground or extending old quarries. It is believed that, at the present time, the number of hands employed at the slate quarries is double that of twelve months ago, and the number is gradually increasing as the quarries are opened.

THE UTILIZATION OF SEAWEED.—At the meeting of the Philosophical Society of Glasgow, on the 16th ult., Mr. E. A. Wünsch read a Paper "On the Utilization of Seaweed," illustrated by chemical tables and specimens of plants. He took a rapid glance at the statistics of "kelp," the production of which is now about 10,000 tons per annum, but could be almost indefinitely increased if the difficulties of climate in the drying process could be overcome. The supply of seaweed on our shores is practically inexhaustible, being estimated by one authority at 21,000,000 tons per annum; while the present consumption, both for kelp and for green manuring, does not reach 1,000,000 tons. The wrack cast up on our shores during the winter season is by far the largest in quantity and the most valuable in quality, and is now proposed to be saved and dried artificially by a contrivance for burning "wet fuel," by which the seaweed itself is made to contribute towards the heat required for drying large quantities of it, at a cheap rate, at all seasons of the year. Other mechanical appliances for largely increasing the present supply were suggested.

VENTILATING LONG LEVELS.—In the Latrobe tunnel, in Virginia city, Nevada territory, a mode of ventilation, said to have been in use amongst the ancient Germans, has been introduced. It is reported that when the tunnel was in only a few hundred feet, an air-shaft had to be sunk, and at about the same distance further another was put in: at this point the bottom of the shaft was closed up, except a hole about 10 inches square, through which the air is conducted into the further extremity of the tunnel. The draft is so strong that no other shaft has yet become necessary. The tunnel is now about 2,600 feet. The Santa Fe Mine has adopted similar system of ventilation.

To soothe the sufferings of humanity and ameliorate the pains of disease, are the grand objects of medical science. This is efficiently demonstrated in the curative virtues of Lea's Gout and Rheumatic Pills, advertised in our columns. The cures effected by this invaluable medicine would fill volumes.—*Daily Telegraph*.

DUBLIN BUILDER OFFICE, 42, Mabbot-st.

It is respectfully requested that amounts of accounts for Advertisements may be paid to Mr. PETER ROE, soon as convenient after same being furnished.

Subscriptions to this Journal are in all cases payable in advance.

# The Dublin Builder.

VOL. VI.—No. 99.

## UNVEILING OF THE DARGAN STATUE, AND OPENING OF THE NATIONAL GALLERY.

THESE two ceremonials, so replete with national interest, took place on Saturday, the 30th ult., in presence of a vast assemblage of people; His Excellency the Earl of Carlisle officiating in each instance. It is almost unnecessary to remind the public, that the statue of William Dargan, which now stands on a granite pedestal in front of the National Gallery and facing Merrion-square, has been there placed, to perpetuate the memory of the deep debt of gratitude which Ireland is under to that great benefactor, for the facility afforded to the development of her resources and industry by the great Exhibition of 1853, the immense building for which he produced, at his own cost, and presented to the nation for the time being.

We were the *first* to suggest, that a statue should be raised to Wm. Dargan on Leinster-lawn, and that statues to Her Majesty the Queen and the late lamented Prince Consort, who honoured the Exhibition with a visit, should likewise occupy suitable positions. It is gratifying to observe—whether we get credit for it or not—that the suggestion has been so far partially carried out, and we trust that we may be afforded the pleasure of seeing it completed by the addition at no very distant period of the others named.

The “Dargan” statue is of bronze, and eleven feet in height, inclusive of a block of polished Aberdeen granite fixed on the top of the pedestal. The figure, which is in a leaning attitude and dressed in the ordinary walking garb of a gentleman, with the right hand passed between the buttons of the vest, is of rather easy *pose*, but exhibits by no means a graceful outline; nor, is the well-known venerable, benevolent, and—we may add—handsome countenance of the original, faithfully portrayed in the enduring bronze. The artist, Mr. Thomas Farrell, R.H.A., has neither succeeded (and we state it with regret, considering that his artistic high reputation) in catching the expression of the mouth, nor the form of the nose, so we must take exception to our contemporary critics who pronounce the visage to be a “perfect likeness.”

Around the statue a spacious dais was prepared with tiers of seats rising therefrom for the accommodation of several hundred persons during the inauguration proceeding—which occupied about half an hour,—and this was at the sole expense of the Messrs. Martin, the prince merchants. Messrs. Todd, Burns & Co., also contributed for the occasion a valuable Brussels carpet. Mr. Dargan himself was *not* present, but the Lord Lieutenant, in his usual eloquent and happy manner, paid a fitting compliment to his industry, his energy,

and his benevolence; after which, amidst loud cheers, His Excellency commanded the veil to be withdrawn, and the statue became, for a short period, the subject for admiration and criticism respectively of the assembled multitude.

The following report of the Trustees of the Dargan Fund will supply further particulars:—

MAY IT PLEASE YOUR EXCELLENCY—We, the trustees and committee appointed at the close of the great exhibition held in this city in the year 1853 to provide for the permanent commemoration of the invaluable services rendered to Irish industry and enterprise through that exhibition by William Dargan, beg respectfully to approach your Excellency for the purpose of reporting the steps we have taken in the performance of our grateful duty, and to deliver up to your Excellency and the other Governors of the National Gallery, the memorial of Dargan which has been erected in this place, the site of the exhibition building. In order to transmit to posterity his name in connection with the chief object he contemplated in promoting the Exhibition of 1853, which was mainly to stimulate and encourage native industry, we have endeavoured to bring into existence an institute in which the public mind may be educated to appreciate the graceful and the beautiful, and thus to give an impulse to the introduction of artistic skill and refinement into the ordinary appliances of every day life, a result which was successfully promoted in England by the wise forethought and cultivated taste of the lamented Prince Consort, and which it has been the honorable aim of Mr. Dargan to endeavor to effect for us in Ireland. To accomplish this end our committee, with the full approbation of the subscribers, and when the sanction of parliament for the undertaking had been obtained, handed over by deed £5,000 of the funds subscribed to trustees appointed by the act for the erection of the National Gallery of Ireland, of which the Dargan hall was to form a principal feature. It still remained for us permanently to associate the name of Dargan with this great national undertaking, and, by the aid of eminent artists, to perpetuate the features and bearing of the man through whose munificence, directed by science, this noble work was successfully achieved. For this purpose we availed ourselves of the skill and genius of Mr. Catterson Smith, President of the Royal Hibernian Academy, and Mr. Thomas Farrell, R.H.A., of whose pencil and chisel the portrait in your gallery and the statue now before us are the creation. It is now our final duty to transfer to your Excellency the guardianship of that statue, which, standing, as it does, on a block of native granite, we believed to be fully worthy of the position it occupies and the man it represents. We have now fulfilled, and we hope not unworthily, the task confided to us; and on resigning our trust, while we painfully remember that during the ten years which have elapsed since it was undertaken many of our fellow labourers, and four of the six trustees appointed to administer the Dargan Fund, have passed away, we rejoice that now, at the close of our labours, he whom we have met to honour is still in the full enjoyment of health and vigour, ably pursuing his useful and dignified career in connection with the city he has so largely benefitted. And we have further to congratulate ourselves that we are permitted to resign that trust into the hands of a Viceroy, not more distinguished for his classic taste and love of art, than for his high appreciation of men who, like William Dargan, devote themselves to the service and improvement of their fellow-citizens.

We subjoin the following statement of accounts:—

Gross amount of subscriptions ..	£5,758	5	0
Paid building trustees ..	£5,000	0	0
Do. for portrait and frame ..	321	18	0
	5,321	18	0
Balance ..	£438	7	0

This balance with interest on investments has been applied for the erection of the statue.

TALBOT DE MALAHIDE, Chairman.  
JOSEPH BOYCE, } Trustees.  
JOHN LENTAIGNE, }  
VAL. O'B. O'CONNOR, }  
T. M. GRESHAM, } Auditors.  
ALEXANDER BOYLE, } Hon. Secs.  
ROBERT KANE, }

When the reading of the address was concluded, his Excellency the Lord Lieutenant said—Let the statue be unveiled.

While the inauguration of the statue was being proceeded with, the interior of the National Gallery gradually filled; and when

His Excellency and suite, together with the Lord Chancellor, the Lord Mayor, the Archbishop of Dublin, &c., followed by a vast crowd, arrived at the foot of the grand staircase, it was with much difficulty that passage was obtained to the other extremity of the hall, where suitable seats were prepared for the above named, and a select number of spectators within an enclosure. The *coup d'œil* of the gallery itself, with its handsome coved and bracketed ceiling, continuous lantern and trellised pannels; its morone colored walls adorned with magnificent pictures, combined with the various colours in the habiliments of the assemblage, was most imposing and artistic. Indeed, for its extent, which is, we believe, about 200 feet, the principal gallery is one of the handsomest and best arranged of any in the kingdom; though we think it a palpable error in the plan, to have constructed it out of level with the remainder of the building from which it is partitioned, and which hereafter, under enlarged requirements, it might be found convenient to add thereto. The sculpture-hall immediately underneath, and of similar dimensions to the gallery, is likewise a noble and appropriately arranged apartment, beautified with columns and paved with tiles whose rich hue contrasts favourably with the coldness of the surrounding objects. The light from a series of side windows can also, by an ingenious device, be regulated as may be desirable. The general appearance of this hall strikingly resembles the classical courts at the Sydenham Crystal Palace. The double lighted staircase from this apartment to the gallery overhead is, though spacious, uncomfortable, as all winding staircases are, however well contrived; but considering that the whole building has been put together by piecemeal, and constructed mainly in imitation of a defective pattern—viz., the corresponding wing forming the Royal Dublin Society's museum—the general result is not so unsatisfactory as might have been anticipated. For some of the arrangements credit is due to Captain Frank, R.E., but we understand that Sir R. Griffith, Bart., was the author of others. The workmanship has been performed in admirable style by Messrs. Cockburn and Son, builders; and the general fittings and furnishings by Mr. J. J. Byrne, of Henry-street, upholsterer.

The Director, Mr. George F. Mulvany (a gentleman on whose well-earned and distinguished position we heartily congratulate him) initiated the inauguration proceedings by reading the address of the governors and guardians of the National Gallery of Ireland to the Lord Lieutenant; and His Excellency having replied briefly thereto, followed by the Lord Chancellor, the gallery was formally declared opened to the public.

We subjoin the address in question:—

MAY IT PLEASE YOUR EXCELLENCY—The governors and guardians of the National Gallery of Ireland desire to express the sincere gratification with which they receive your Excellency within its walls, and invite you, as the representative of Her Gracious Majesty, and through your Excellency's official connection with this board, as its chief member, to declare these galleries henceforth open for public benefit and instruction.

Although the facts connected with the origin of this National Institution have been from time to

time fully put forward in widely circulated addresses, and more especially recorded in the address to your Excellency's predecessor, the late Earl of Eglinton, on the occasion of his laying the first stone of this building, on the 29th of January, 1859, the governors and guardians conceive that at least a condensed statement should be laid before your Excellency and the public on this the closing day of their primary duties as promoters, and the commencement of the not less important duties of conservation and further development.

In 1853 was held, upon Leinster Lawn—including the site now occupied by the National Gallery of Ireland—the Great Industrial Exhibition, in which the fine arts occupied an important position in connection with the industrial development of nations and of human refinement. The general interest excited by the collection of works of art—ancient and modern—then brought together, suggested to many, who had long desired a permanent gallery of art in Dublin, the practicability of a successful organisation for that object. The Irish Institution was established before the 1st January, 1854, under the presidency of the late venerable Earl of Charlemont, who, to the prestige of an historical name, added to that zeal, liberality, and highly cultivated taste could bring to aid such a national object, in which the best energies of a number of distinguished noblemen and gentlemen were engaged.

The Institution was founded to hold annual exhibitions, with the ultimate object of establishing a permanent gallery. It held seven annual exhibitions of contributed works; but, upon the close of its first, in 1854, its committee of management was informed of the wise intention of the committee appointed to collect funds to commemorate the distinguished public services of William Dargan, Esq., as the founder of the Exhibition of 1853, to contribute the larger portion of its funds, with the sanction of the subscribers, towards the erection of a national gallery. The governors and guardians were incorporated by acts of Parliament, in furtherance of this object; and, building trustees having been also appointed, the sum of over £5,000 was paid over to them by the Dargan committee, and further sums, amounting to £21,000, have been obtained, with the sanction of the Treasury, by Parliamentary grants.

The paintings now brought together as national property have been obtained by means of private subscriptions, amounting in all to £3,000, supplemented by a small parliamentary grant of £2,500, by a few donations or bequests, and, finally, by deposits or transfers on the part of the trustees of the National Gallery of London. In many cases the trustees of the London Gallery have had to purchase whole collections in order to obtain certain works which they desired, and the treasury sanctioned in such cases the offer of the works not required for that gallery to those of Dublin, Edinburgh, and Kensington. Recently the necessity of devoting one principal room of the London Gallery to the Turner collection required the removal of 33 works, which have been so distributed. Such works are, however, only to be regarded as deposits. Of the pictures now exhibited, 71 have been obtained by purchase, 31 have been deposited by the trustees of the London Gallery, 25 have been presented; and one oil painting portrait of Lady Morgan, and the Taylor collection of water-colour drawings, numbering 103 have been bequeathed.

The collection of casts from the antique, which form an important feature of the Irish National Gallery, and one distinct from either that of London or Edinburgh, has, in like manner, been obtained by private subscriptions and donations.

When the governors and guardians look back on the efforts fruitlessly made to establish a National Gallery in Dublin previous to 1853, and to the difficult task that was then before the promoters of the project, they feel satisfied that they may congratulate themselves and the public at large on the result of their labours to the present time. A commencement has been made, a collection of works of art has been brought together as a nucleus in point of interest and excellence far beyond their most sanguine expectations, and they can only say that it now lies with the Irish public themselves to improve and expand it to the requirements of the nation. The greatest masters are not as yet adequately represented, and it can only be the work of time and liberal expenditure, under control of sound judgment and watchful of opportunity, to secure truly representative works.

It is the duty of the governors to make fully known, that while parliament has granted the sums requisite for the building, and has in some degree aided the formation of the collection, the Lords of the Treasury, though providing, by parliamentary grant, a very moderate annual maintenance, discourage the idea of future grants for purchase of works of art, and therefore the governors must depend on the public spirit and liberality of the wealthier classes of the country for such aid as will

make the gallery, by its collection of examples of the highest classes of art, worthy of the nation, and adequate to its functions of affording suitable means for the education of public taste, and a healthy stimulus to the development of native talent.

Signed on behalf of the governors and guardians,  
MAZIERE BRADY, C., Chairman.  
GEORGE F. MULVANY, R.H.A., Director.

#### THREATENED CORPORATE OPPOSITION TO THE OPENING OF STEPHEN'S GREEN.

A REPORT from Committee No. 3 was read at this day's meeting of the town council recommending the employment of parliamentary agents, and the sending over of the usual parliamentary deputations to oppose the bill now before parliament for the opening of Stephen's-green as a public park.

It will certainly be a somewhat extraordinary spectacle should it be realized. The appearance before parliament of agents and deputationists from the town council of Dublin to oppose the extension of the privileges of the people by whom the council is elected, and out of whose pockets their corporate income is derived. Still stranger when it will be shown that a majority of that very Council have, by their signatures to requisitions for public meetings and otherwise, declared their assent to the principle of the bill which they would be there to oppose.

The opposition of the corporation is said to be based upon the clauses in the bill transferring the custody of Stephen's-green to the Board of Works. Now what are the facts? When Mr. G. W. Maunsell five years ago (then a leading member of the corporation) proposed that the opening of Stephen's-green should be carried out by the corporation, What response did he receive? Nothing but the passage of barren resolutions in favour of the opening. Beyond this the town council could not be induced to go. They were ready to open their mouths to receive what sugar-plums the gods would send them, but to do anything themselves to provide for this great public benefit, it was too much; much more than what Mr. Maunsell or any other person should expect of them. Thus received, the project was suffered to fall into abeyance till revived again in 1862 by Mr. Justice Fitzgerald in the Prince Consort memorial committee. This committee proposed extending a portion of these funds in opening Stephen's-green, but they declined, in consideration of their position as trustees for a fund raised to commemorate the late Prince Consort, to engage in litigation with the Stephen's-green commissioners. Here was an excellent opportunity for corporate intervention. They had the government with them. They had the funds of the Albert committee to defray a portion of the expense of the opening—in short they lacked nothing but the will to succeed in having passed into law—with the unanimous acclamation of all sects and parties—last year, a bill for the opening of Stephen's-green.

But it was not done. Nay more, when Mr. Maunsell, with great public spirit, came forward to introduce a bill, and when parliament showed its favor towards the project by the extraordinary indulgence of suspending the standing orders—when nothing remained for the success of the bill but the assent of the Dublin town council—how did that body act? It assumed the "patriotic" and "national" position of protectors of Dublin from the degradation of having within its boundaries an "Albert Park!!" Better let Stephen's-green be forever closed, cried our corporators, than have it opened and called after the husband of our Queen. Magnanimous corporators—consistent patriots—who at civic banquets so loyally toast in champagne and sparkling Burgundy, "Her Majesty the Queen," "the Royal Family," &c., &c. Their patriotism is never permitted to interfere with their turtle and champagne; it is a luxury reserved for indulgence only, when the opening of a public park for all classes of the people is concerned.

And now, we are to be told the corporation, as the representatives of the citizens, should not permit the intervention of the Board of Works; that is to say, that after repeatedly declining to do anything themselves, they are to object to anyone else doing

what they themselves, or the majority of them, have declared to be a public necessity. They will not permit the city to be taxed for the maintenance of the green, but when it is proposed to obtain a parliamentary grant, to be administered under the Board of Works, then the civic rights are in danger.

Let the town council of Dublin discuss this question with the full knowledge of the fact that, public opinion is no longer to be trifled with; in a word, they must elect with any further delay, to come forward as promoters of a bill for the opening of Stephen's-green, or else appear in opposition, to prove to the legislature from whom all their powers are derived, that they are not the fit and proper persons to be entrusted by the legislature with the carrying into effect of the enlightened policy of modern times, which seeks by opening parks, pleasure grounds, museums, and public libraries, to humanize and elevate the masses of the people.

#### CONVENTUAL CHAPEL, BALLINASLOE.

THE new Conventual Chapel about to be erected in this town is in the Gothic style, and comprises nave, chancel, sacristy, and tower. The approach to the chapel is by a large moulded Gothic door, supported by buttresses on each side through entrance hall, to the right of which is a stairs leading through tower into chapel. The chapel is lighted by two large gothic windows in east and west gables; the former has four lights, and the latter three, together with six windows of two lights each on either side. All the windows on chapel floor, as mentioned, are all cusped traceries. The basement is divided into refectory, store, pantry, entrance hall, &c. The tower to the set off of the spire is 40 feet, including tower and spire; it rises the height of 90 feet, surmounted by an ornamental cross. The whole length of chapel, including all projections from out to out, is 84 feet; its breadth, including same, is 34 feet. The height from base of chapel to apex of gable is 55 feet 6 inches. The builders are Messrs. Clarke and Seals, of Ballinasloe. The architect is Mr. J. F. Kempster, C.E., county surveyor. The cost of the works is little less than £2,300.

#### A CITY OF BRIDGES!

WHEN all the bridges now intended to span the Thames are carried out, London may then be well called "The City of Bridges." Springing out from the future Thames embankments, the noble array of metropolitan bridges will form a sight unequalled in the universe for magnificence; it will be the finest structural display in the world; and thoroughly in keeping with the capital of a warlike nation. In a recent number of the DUBLIN BUILDER was given an account of the foundations of the new Charing-cross bridge. Another bridge, of a similar character, designed by the same engineer, Mr. Hawkshaw, and undertaken by the same contractors, Messrs. Cochrane and Co., and intended for the City Extension of the Charing-cross Railway, is being erected between Banksia and Cannon-street, City. It will be twelve feet wider than that at Charing-cross, in order to take five, instead of four, lines of rails, and side-ways will probably be made for passenger traffic. We have likewise given descriptions from time to time of the Chelsea suspension and of the new Westminster bridges, which are magnificent structures of their respective kinds.

The *Times*, May 7th, speaking of Benson's watches in the Exhibition, says:—"Undoubtedly, however, the finest show in this respect is made by Benson, who offered prizes for designs for watch-cases at the South Kensington Museum, and who by this means has secured some of the most exquisite ornamental details for watch-cases that are shown in the building." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

PROFESSOR SMIRKE ON ARCHITECTURE  
AND THE FINE ARTS.\*

(Continued from page 10.)

AFTER making every allowance for the charm of variety and the monotony of uniformity, especially in street architecture, I cannot but think that the Englishman's claim of right to do what he will with his own, and adopt the style that may seem good in his own eyes, is to be lamented as tending to make our architecture motley and our buildings incongruous with each other, causing our gables to be of every conceivable angle and our columns of every imaginable proportion. But so it must be until the republic of taste shall submit to a dictator, or the vision of an eminent writer of the present day shall be realized, who dreams of some happy future when we shall *all, by common consent*, agree to build in accordance with the canons of the 13th century.

But there is another class of enthusiasts with whose views it is impossible not to sympathize. Full of hope and confidence, they watch day and night, in the full assurance that a new style will one day spring up, fresh and bright, from the mint of Genius, ready for the current use of the remainder of the 19th century. I have already, in former lectures, said enough to show that I can hold out little hope of such a new birth, or, at all events, that the effort to generate such a phenomenon would be productive of any creditable result. The experience of all ages shows that the fluctuations of style are the result of causes over which man can exercise but slight control. The varieties of soil, of climate, of available materials, are among the obvious causes of diversity in architectural style: the discovery of a new material, or of a new region—the requirements of religious, political, or commercial movement—these have been the chief agents that have given birth to those modifications of style which mark the history of our art.

It may not be unprofitable to occupy a few moments in noting some instances of the operation of these external influences. The style now known as Byzantine owes its real origin, *not* to the inventive labour of any individual artist of Byzantium, but to the struggles for Imperial power in Rome which led Constantine to establish the seat of his government on the Bosphorus, and so brought Eastern and Western art into *such* combination—each imbuing the other with many of its peculiarities—that this “*Tertium Quid*,” the Byzantine style, came into existence. Again, the style known as that of the Renaissance, is traceable, not to the mere ingenuity of the artists of that period, but to the extraordinary growth of the power of the Turks, who, sweeping before them the degenerate remnants of Roman power, pillaged Constantinople, and scattered its comparatively polished inhabitants over Europe, there to sow the seeds of a taste for Classic literature and art. The style of architectural decoration called *Raffaellesque*, after the great artist who first practised it, really owes its origin, not to the inventive powers of that master, but to the eager excavations in search of Classical antiquities which led to the *accidental* discovery of the Baths of Titus, the beautiful decorations of which building suggested to Raffaele their resuscitation. Then, if we turn to another class of architectural design, we shall find that castellated structures, with their lofty towers and frowning machicolations, totally altered their style and aspect at about the 15th or 16th century, not from the caprices or ingenuity of artists, but because some unknown person had chanced to discover the chemical effects of combining in certain proportions nitre, sulphur, and carbon, thus totally altering the mode of warfare. If we descend to times nearer to our own, we shall find like examples of the influence of accidental causes over the fate and fortunes of high art. Napoleon for awhile found it his policy to take Imperial Rome as his model, and to obliterate, as far as possible, the reminiscences of the ancient *regime*—hence, Percer and Fontaine, following out, not an æsthetic law, but a political necessity, inundated France, and by consequence, Europe, with representations of Curule chairs and the Lictors' fasces; and at once the florid school of Louis XVI. was superseded by the severer forms of Classical antiquity.

I might draw farther illustration from the ardent revival of Mediæval art in our own days. An enthusiasm which all the labours of a Carter, a Lysons, a Britton, and the elder Pugin failed to kindle blazed forth at the call, not of archæology, but of a class of religionists who sought to feed the eye and the imagination with the materials of a more *objective* worship. But I have adduced enough to show how secondary a part man's *inventive* powers seem to have played in bringing about the revolutions that mark the history of art. He may seek to lead, but he finds himself condemned in no small degree to *follow*: he may catch the favouring gale,

but the helm is held by other hands: he may cultivate, and graft, and train, but the seed has been sown for him.

In saying this I would not be thought to depreciate individual aspirations to originality; but I would dissuade you from being misled, by the specious cry for *something new*, to attempt the dangers of that wild and perilous pursuit. Seek rather for that which is *good*, than for that which is *new*, and in this search you may perchance fall in with something *new* which is *good*.

The genius of our forefathers has conceived two great styles into which all architecture, as hitherto developed, may be ultimately resolved—the Classic and the Mediæval. These are the two great mines in which you have to work; they are not only exhausted, but they are practically inexhaustible. They are two systems which, however gradual in their growth—however originally intermingled—have now become perfectly distinct and widely different; yet both are alike true and simple—both are alike rational and consistent, for both are based, more or less, on the laws of nature and the rational wants of man. The spirit of party, which is apt to enter into most of our speculations where the mind is free, enters somewhat too largely into the republic of art; and architects, as well as connoisseurs, are too apt to range themselves as *partisans* of this or that style. So long as this spirit tends only to promote emulation, and to raise up zealous patrons of art, it is *not* to be lamented; but when, as such a spirit is apt to do, it narrows our view or warps our judgment, the effect becomes injurious to the cause of art and of truth.

For myself, I see no reason why both styles should not flourish together in like honour. There is no *monopoly of style* in the works of nature. She excites our admiration, awes us, delights us with every possible variety of means, with all the magic of colour, figure, and dimension. From certain laws, it is true, she *never departs*—certain principles are with her fixed and immutable: but beyond those of truth and of aptitude, what bounds does she submit to? She loves to resort to a thousand expedients; she is fain to adopt a thousand different modes of doing the same thing, surprisingly varied. Why, then, should we—though humbly following her, as becomes us, at a remote distance—why should we conceive ourselves under any obligation to adopt as our rule of design one special system? We see her expatiating over the whole material world, importing beauty from endless sources—why should we *run in a groove*, and hold our own to be the only orthodox line in which true taste can be permitted to run?

Other more suitable occasions may present themselves for a detailed comparison of the two styles just referred to; but there is one point of distinction so broad and so unquestionable, that I cannot refrain from here adverting to it—I mean the subordination of horizontal lines to vertical lines in pointed architecture, and of vertical to horizontal lines in classical architecture. If we regard the latter in its whole range, from the primæval efforts of Egypt down to the latest vagaries of the Borromini school, we find horizontal lines always *dominant*; the entablature in some shape is scarcely ever wanting; cornice, coping, balustrade, string-course—all have a horizontal tendency; and when vertical lines are resorted to, there appears to be a perpetual eagerness, as it were, to interrupt their continuity. Whilst, when we turn to Mediæval architecture, from its earliest distinct development to its final extinction, a never-failing tendency to vertical lines and upward extension is manifest. When a constructive necessity occurs for a horizontal feature, it is kept insignificant by faint projection and frequent interruption. *Height*, in fact, appears to have been the *dominant thought* of all Mediæval architects. This striking and fundamental distinction is the chief cause of that impassable line of separation which now exists between these two great systems of design—each so beautiful, yet so different.

I should be ill expressing my own feelings, if I were not to urge on you a close, diligent study of both these styles; for both are alike deserving of our attention. The younger style we may pronounce, as compared with the elder, perhaps, more free and picturesque, more plastic and manageable, more varied and copious in its details, more intimately associated with our history; and in ecclesiastical structures, the habits of four or five centuries have interwoven it with our religious feelings. On the other hand, the elder style we may regard as more symmetrical, more grand and severe, more refined and polished; whilst, in some of its latter phases, it is more applicable to festive and cheerful purposes.

The great aim and object of all style, as such, is to produce certain forcible impressions on the mind, which impressions are usually classed under two leading heads of the *sublime* and the *beautiful*. I shall *not* launch out into any metaphysical inquiry on the nature and sources of these two wide

topics. The field of inquiry has been so often and so ably trodden, that it would be difficult to gather any new flowers in such a search. The subject has been amply discussed; from Longinus down to Alison, the sublime and beautiful have been favourite topics with the highest intellects and the profoundest thinkers. To such sources, then (if you should have the curiosity to pursue an inquiry from which I cannot promise you *very much* fruit), I would refer you for the study of the two great instruments by which our art is supposed to acquire its power to affect the spectator's mind.

I hope, however, it may not be held presumptuous in me to say, that, amidst the profusion of written learning lavished on these topics, not a few fallacies may occasionally be encountered. You must therefore read with thought and attention, remembering that what is *well* said, is not always *truly* said. Thus, Alison, too eager to prove his favourite dogma, that there is no such thing as inherent beauty in any object, will advance opinions to which all the refinement of his polished pen will scarcely avail to command our assent. He states, for example, that “what we call beauty in colour, is not due to any original or independent beauty in the colours themselves, but to associations we connect with them.” He tells us, too, that “no forms, or species of forms, are themselves originally beautiful, but that their beauty, in *all* cases, arises from their being expressive to us of some pleasing or affecting qualities.” Against this theory we have but to set up the very opposite theory of *another* writer, that great and original genius, Hogarth, whose whole book is devoted to prove the inherent beauty of one particular line—the *one*, curvilinear, *line of beauty*—as if the sources of beauty were not endless, as if a *line* had an intrinsic beauty independent of the use to which it was applied, or the nature of the object of which it forms the external boundary!

With no greater violation of truth, we might attempt to define the *hue* of beauty in painting, or the *note* of beauty in music. Again, it is a prevalent and plausible theory that the true beauty of an object consists solely in its fitness for the purposes for which it is destined. I readily admit that *unfitness* for its purpose is a fundamental defect to which nothing ever can, or ought, to reconcile us. But to urge that utility is *all* that is required to impress us with a sense of beauty, would surely be going too far. In Nature, the mother and mistress of all arts, there are many illustrations to which I might appeal. The *legs* of a peacock, for instance, are surely more directly useful than its *tail*; but how unseemly are they, when compared with that gorgeous appendage. No doubt there is great beauty in the fitness of the leg for its purpose, but there is beauty in its *plumage*—of another kind, it is true—yet I conceive even more effective in producing lively pleasure in those who contemplate it. The beauty of the leg speaks rather to our reason than to our feelings, whilst that of its plumage needs no exercise of reason to command our admiration. It is that *latter* kind of beauty which the Germans, borrowing from Greek sources, have taught us to call *æsthetic*, and which, I think, needs your chief study; for it is a kind of beauty far more difficult to understand, or define, or hold in our intellectual grasp. The beauty of *FITNESS* may be measured and weighed by the easy standard of common sense; the other, more subtle, more immaterial, may be perceived, and yet not measured or even explained. Like a wreath of mist, the rainbow, the mirage, or the northern aurora, it is a reality; it is there, before us, in a thousand forms of loveliness; yet the vision eludes that closer scrutiny we desire, and refuses to submit to the test of a stricter investigation.

Unfortunately for the teacher of art, it is far more easy to say what is beautiful, than to say wherein that beauty consists. A sense of what is beautiful in the *physical* world operates like the conscience in the *moral* world; which impels or deters, often, without the invention of reason. We often, perhaps indeed *usually*, perceive what is morally right or wrong at once and without any process of examination; so the recognition of beauty is an intuitive result, at which we ought to be able to arrive before we have formed any definite idea of the cause, or have sought to investigate the motives upon which our judgment is founded. A true student, however, will not rest satisfied with this vague impression, but will endeavour to search out its causes; and whatever may have been the errors into which men of genius may have been misled by their confident reliance on some favourite theory, the student should be thankful for the hints which philosophic inquirers have afforded to aid them in their search.

It is, of course, an essential part of the task of a lecturer on our art to bring before your notice examples of the highest qualities of the art practically presented to us in the masterpieces which time has spared. Our art may boast a proud pre-eminence among the sister arts in its *capacity* to present such examples.

\* Lecture I.—Delivered before the Royal Academy of Arts on Tuesday, January 7.

In addition to the durability of its monuments, it has been truly said of Architecture that she alone is able to excite emotions similar to those excited by the contemplation of the great works of nature. If such be true, it is *indeed* a very noble incentive to genius that it should be permitted to the architect so to distribute and deal with mere inert matter—with fragments of rock on pieces of burnt clay—and so to pile them up as to make them the source of a high intellectual pleasure, and even to strike us with awe and astonishment.

Besides the two primary qualities of sublimity and beauty, a claim has been set up for a third attribute or quality as worthy to be classed with them, and as forming one of the great aims of art; though I am by no means satisfied of its claim to be treated on a footing of equality with them. I allude to the *picturesque*—a word of modern Italian origin, designating that which is well suited for the painter's art. I believe it was Uvedale Price who first attempted to define distinctly the attributes of the picturesque, and claim for it an independent position.

Picturesqueness seems to be a term, in our art at least, more applicable to the combination of forms than to any one form. A single object, as a cornice or a column, may be said to be beautiful, or even sublime, but it can hardly be said to be *picturesque*. There must, I think, be *variety* of lines, or of tints, or of chiaroscuro, in order to constitute the true picturesque. One of the most eminently picturesque single objects I know is the Pharos at Genoa; but, even here the structure itself can scarcely be so designated; it is its *position*, its *substructure*, and its *accessories*, which impress it with that peculiar character.

It is this dependence of the picturesque on a happy combination or grouping of forms, rather than on the artful design of any one form, which renders it a dangerous object of pursuit with the architect. It can rarely be the result of premeditation—it should come unbidden. Certainly, the happiest and most charming instances of this quality of art have been the result of accident. Perhaps the castles of the Middle Ages, especially those of the 13th and 14th centuries, abound, more than any other class of buildings, in the ingredients of the picturesque. Which of us, for example, could ascend the long flight of steps leading to the higher and inner gateway of the great castellated monastery of St. Michael, near Avranches, without fancying that some sublime genius, pregnant with all the poetry of architecture, had designed that gate and moulded its scenic turrets with no other object than to fill the spectator with awe? Yet we may be sure that nothing could have been more remote from the mind of these builders than to *make a picture*. The barbarian, the keep, the menacing machicolation, the deeply-recessed archway, the varied outline, the broad chiaroscuro, are all features happily incidental to the *military wants* and exigencies of those times; and yet who is so utterly and almost necessarily regardless of the picturesque as the engineer?

Even in domestic architecture, if we examine any highly picturesque building—Haddon Hall, for example—we shall not fail to find that the agreeable effects in which it abounds are by no means the offspring of studied irregularity, or of any *jînesse* of art; the embayed window is thrown out just where the *view* invites one. The fire-place projects in bold relief, and its smoke tunnel is carried quaintly off to one side, simply because the ease and comfort of the occupant required that those objects should be placed in those situations. The result *happens* to be highly picturesque; but it is so, as it were, by accident. There is no reason whatever to doubt the ability of the old builders fully to appreciate the effect of all their arrangements, but there was no *straining after that effect*. A bold, almost careless, freedom of design characterized all their work. I need scarcely repeat, that a laboured imitation of these happy accidents is sure to lead to failure and disappointment—sometimes, indeed, to the ridiculous. I do not counsel the young practitioner to disregard those superficial arts of design which please the eye; but it should be his chief aim and first consideration so to do his work that each part should answer its purpose thoroughly well, and it is very doubtful whether he can adopt any process better calculated to secure a pleasing result.

Before quitting these general views, I think it incumbent on me to advert to one of the dogmas of our art, the soundness of which is undeniable, but which is attended with some difficulties.

Painting and sculpture are so fortunate as to have, in *nature*, a standard of excellence for ever before them, a frequent recurrence to which keeps them on their true course. But Architecture is less able to draw her inspirations from that pure source; her wants are too artificial; she is too dependent on the requirements of man to enable her to look implicitly up to nature. But architecture, still,

has a ruling principle, which is *truth*. From Vitruvius downwards, this has ever been taught, although in practice it has often been grievously disregarded.

There is an honest simplicity—a plain manliness—about *truth*, which wins our regard, whether in ethics, or aesthetics. But whilst we recognize truthfulness as a cardinal virtue in our art, as well as in morals, we must take care not to allow that analogy to carry us too far.

We often meet in the practice of our art with necessities utterly inconsistent with beauty—hard lines, unsightly angles, heavy, graceless forms, imposed on us by structural requirements. It would be a mischievous error to suppose that, because in our social conduct there should be no deception nor concealment whatever, we are therefore bound to expose to view those mechanical deformities from which we cannot escape; whilst to depart from the form that is mechanically the *right* form, only to make it more agreeable to the eye, would be a still graver error. That there should be a politic concealment sometimes studiously resorted to, some ingenious art practised occasionally—such, for example, as the concealed buttresses and the hidden ties and props common in our old buildings—seems therefore to be an unavoidable condition of our calling. In the most naturalesque schools, nature is not, and never has been, copied with a stern adherence to exact truth. The simplest leaf requires *treatment* to fit it for the purpose of decoration; and treatment implies some modification or humouring of form or of colour—in short, *some* departure from nature, and consequently, from truth.

Nearly allied to this is another principle of our art, which, although by no means universally acted upon, yet justly claims our most respectful submission. We should have a care how we introduce into our design anything which does not serve *some* good purpose. I do not mean that mere *utility* would justify a *deformity*; nor do I mean that every architectural feature in our design should be a structural necessity; but that, although it may not be to add strength, or to afford support, it should at least have its appropriate *purpose*—a valid reason should be assignable for it, some good end must be sought to be attained by it, some offensive angle or feature to be removed, some unsightly blank to be relieved, some monotony of line to be broken, some needed light or shadow to be introduced, some discord in form or colour to be allayed. Doubtless, it is a maxim worthy of all acceptance, that utility is one of the most important elements of beauty; yet those who recognise architecture as a *fine art*, will admit that simple, bare utility, is not the sole aim of our art. This qualification of the really valuable and important principle of usefulness, will, I fear, scarcely meet with *general* sympathy; the utilitarian current sets in so strongly in some minds that it well-nigh carries all considerations before it. It is enough to say that neither painting nor poetry, nor music, nor letters, nor any of the arts which embellished life, can lean for support on *that* class of intellect which refuses to assign to them a footing within the domain of social usefulness. In the estimate of such minds, architecture must be content to take rank with boot or button making. With all respect for so inestimable a guide in the common business of life as *utility*, I will venture to encourage you by pointing out to you the prodigal munificence which has arrayed the lily of the field, which neither toils nor spins, in a raiment of surpassing glory—which has given to the birds of the air, not merely their needful feathers, but a plumage of infinite beauty—has lavished on the shell-fish of the deep seas tints which no art can reproduce, and the *pearl* which princes are proud to wear—nay, *virtue* itself has found a fit companion in the *beauty of the human form*:—

Gratior pulchro veniens in corpore virtus.

Why then should architecture be forbidden to indulge, moderately and wisely, in some *graceful utilities*?

It is the fear of excess and abuse that alone renders this indulgence dangerous; and to arm the student against such danger, is one of the foremost duties of the art-teacher. Truthfulness and usefulness must indeed be taken as our guides in the highway along which we may travel unwearily and without danger. It is when we diverge into the bye-paths and inviting lanes of mere aestheticism, that we most need to be on our guard against failure.

I have now detained you quite long enough on these general views. Our art is a peculiarly practical one, and needs to be dealt with in details rather in generalities. I shall therefore now close my present discourse, by addressing to the architectural student a few parting words. You are set out on a pilgrimage which will need much preparation, and a large fund of enthusiasm, to cheer you on your way. Set out on it with a conviction that an abundant store of knowledge is the best provision you can make for the journey. Besides obtaining a thorough mastery over your own art, cultivate an

acquaintance with the sister arts. It will be wholesome to bear in your memory the very intimate relation which subsists between *all* the departments of high art which find their home within these walls. Together they will ever flourish or decay; each needs the aid of the other. It is for architecture to build the sanctuary; it is for painting and sculpture to spread out their treasures for its perfection; it is for *them* to give life to its inanimate walls, by peopling them with the story of past times, by refreshing us with the charms of natural scenery, and by making them the depositories of those memorials which link the living with the dead.

Above all things, in your pilgrimage, be especially anxious to dismiss and discard for ever from your minds all petty feelings of personal jealousy. Pull at no man's skirt; outrun him, if you can, in the race of honourable rivalry; but depend upon it, your progress will be impeded, not promoted, by the indulgence of professional jealousy or censorious criticism. Let not your spirit be weighed down, nor your course turned aside, by any such sinister, unworthy objects. The rivalry in *labour* is the best and only useful rivalry. You will find the buoyancy of self-reliance wonderfully assisted by that lightness of heart and cheerfulness of spirit which never fail to accompany an habitual goodwill towards others.

#### MACHINE FOR TRANSMITTING, EQUALIZING, AND REGISTERING HUMAN POWER.

By reference to our advertising columns it will be seen that a new apparatus for the above purpose has been patented by Messrs. Daniel and Ryan of this city.

It seems peculiarly adapted for prison use, and is, no doubt, a most ingenious contrivance, being applicable for driving pumps, grinding corn, or any other purpose for which motive power is requisite. It is so arranged that if any one labourer of a number should cease working, he will not necessarily interrupt the others, except in so far as such cessation may reduce the amount of combined power.

The frame work is combined so as to form a number of compartments or divisions, one for each man, to separate each labourer from the other. Motive power is communicated to the main shaft by cranks placed in each of those compartments. Should any one of the number remain idle the ratchet of his crank will travel over his idle part, and produce a noise which will signalize the cessation of work in the corresponding compartment.

The main shaft actuates a registering apparatus placed at one end of the shaft, which gives notice when a certain quantity of work has been performed, and when relays of men are required.

There is at present in Kilmainham Prison one of these apparatuses in use for pumping water, and it has, we understand, given the greatest satisfaction since its adoption.

The *Field*, April 21st, 1861, speaking of Benson's Argentine, says, "This material, possessing and retaining a perfect resemblance to silver, can be manufactured at a trifling cost into articles of plate for ordinary household use, as well as ornaments of a more pretentious character." This splendid material is a compound of various metals, with a heavy deposit of pure Silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the Argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures; both in Argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, Argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson, Branch Establishments, 46, 47, and 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

## FRENCH GOTHIC ARCHITECTURE.\*

I BEG again to bring under the notice of the Institute, the photographs of the Architectural Photographic Association. I understand that last year's subjects, although forming a series very interesting in itself, did not give general satisfaction. They were not considered of a character sufficiently generally-interesting. The committee have endeavoured to remedy this defect for the present year, and I think you will admit with some success. The photographs for this year consist of a series of subjects chiefly taken from buildings in France belonging to the 12th or 13th century. In bringing these under your notice, it occurred to me that the description of each subject by itself would be a fragmentary and unsatisfactory mode of presenting them to you, unless accompanied with some general views of the subject which might serve to connect them all in one series. I have, therefore, thrown together some observations on French Gothic architecture generally, which these photographs will serve to some extent to illustrate. I cannot pretend that what I have to say on this subject is original; but, as a résumé of the most recent opinions of eminent French writers, particularly M. Viollet le Duc, on some points hitherto much disputed and even misunderstood, I trust that these remarks may not be without interest.

The architecture of France, during the 11th and 12th centuries, was composed of many different kinds, and each kind had a province or district to itself. It, in a manner, resembled the architecture of ancient Greece in this respect. The Doric, Ionic, and Corinthian styles were developed each in its own country, and were afterwards fused into one style by the Romans. In the same way the various styles which took their rise in the numerous provinces from which the Romans had been expelled, and over which Charlemagne and his successors reigned, were each marked in their early development with a local peculiarity, and were all at length absorbed in the Pointed Gothic style which took its rise in the Ile de France in the middle of the 12th century.

No study is more interesting than to trace the causes which produced these varieties of architecture in the Middle Ages. We have no time at present to enter into this subject fully; but I shall endeavour to indicate the architectural divisions or provinces of France from the 11th to the 14th centuries, and to describe briefly the characteristics of the style of each province.

From the retirement of the Romans, till the time of Charlemagne, we have very few remains of buildings left; but from the end of the 8th century, we can trace the progress of architecture in Lombardy and on the Rhine. In those parts of Italy where Roman buildings abounded, the style during the Middle Ages was a debased Roman or Romanesque style. At Rome, for example, the old Roman style lingered on during the whole period of the Middle Ages, till its revival in the 15th century. In the more remote parts of the country, where both the Roman people and their works had been destroyed by the Goths, a style of a different kind, with which we are familiar under the name of Lombard architecture, arose, retaining the usual Roman plan and general disposition, but in detail exhibiting the rude efforts of the Lombards to imitate the Byzantine ornaments and sculptures which were constantly presented to their notice by their commercial intercourse with the East. The Byzantine plans and vaulting (by domes on pendentives) were also sometimes copied in the buildings of Northern Italy—as for example, in St. Mark's, in Venice. On the Rhine, where the Carolingian Emperors chiefly resided, we naturally find many important buildings in a comparatively new style. For this country had never been completely civilized by the Romans, and the remains of Roman buildings which would have served as models were few. The plan and general arrangements were derived from the style then practised in Lombardy, which formed part of the German Empire, but the ornamental features were original and rude. They may have got a direction from the Byzantine ornaments of the period, but they were certainly carried out in a manner peculiar to the country and the people.

Turning to France, we naturally look for traces of early art in Provence, the favourite province of Rome, where many Roman buildings existed at that early period, and many remain even to the present time. Of these, the Roman amphitheatres at Nîmes and Arles, the Pont du Gard near Nîmes, the theatre and arch at Orange, the Maison Carrée at Nîmes, &c., are familiar examples.

Provence may be said to have hardly lost its Roman civilization, as was the case in the countries further north, but to have changed it slowly to its Mediæval form of expression. It was the country

where the romance and poetry of the Middle Ages had their birth, and along with these came its new style of architecture. It was natural that here, as in Italy, a Romanesque style should prevail, i.e., a style in which not only the form of the plan and general features should be derived from the Roman, but also the minutest forms of the ornamentation. Accordingly, we find in Provence a style strikingly Romanesque in almost all its features, as we shall see immediately.

There is one feature of these Provençal churches which has led to much discussion—viz., the use of the pointed arch in that region as a constructive feature at a very early age. This fact has misled many writers on the architecture of Provence. So ne of these, knowing that the cathedral of St. Denis, built by the Abbot Suger in 1144, was the earliest example of pointed vaulting in the North of France, imagined that there could be no earlier examples elsewhere. They accordingly settled the date of these Provençal churches as necessarily later than 1150; and not being able otherwise to account for the resemblance of their details to Roman work, they assigned them to about the time of the Renaissance in the 16th century. Other writers on these churches have supposed them to be of greater antiquity, and refer to the pointed arches as the earliest instance of the use of that form of vault in Europe. Amongst these is Mr. Fergusson, who makes some of them as old as the time of Charlemagne; but the French archæologists now place them in the 11th and 12th centuries. The sculpture, however, introduced in portals is frequently of an older date than the church—being the remains of some earlier building preserved in the new one. There are many instances of ancient sculpture preserved in this way, both in the North and South.

The pointed arch was used in Provence for vaulting in a very different manner from the pointed vaulting of the North. The vaults are all plain tunnel vaults, i.e., they have no cross vaults or groins; but the simple vault running from end to end of the church without a break, exactly like the vault of a tunnel or bridge. The aisles of the ancient type were preserved and vaulted with semi-barrels which served to resist the thrust of the central vault. On the outside or extrados of the vault were laid the tiles which formed the external covering of the roof, and thus, no wooden roof being required, a perfectly fire-proof building was produced. With regard to these constructive features, we shall have more to say bye-and-bye. The porches of these Provençal churches form a very interesting series. In that of Notre Dame de Doms, at Avignon, the details are all essentially Roman, having Corinthian columns with pedestals, entablature, pediments, &c., complete. This church is supposed by Fergusson to be of about the age of Charlemagne (say A.D. 800); and the pointed vault of the nave having similar detail, is assigned to the same age. It would seem, however, to have been built in the 11th century, the Roman work being partly old sculpture re-used and partly new work copied from the old. St. Trophime, at Arles, is of about the same age, and has a similar pointed vault. The porch is of the 12th century, and was built when the body of St. Trophime was deposited in this church—viz., 1152. It is much less purely Roman than that of Avignon; but the details show many forms of foliage, &c., still retained along with new general arrangements. The horizontal cornice is entirely gone, to admit the arch of the doorway, the useful parts of the pediment only being retained. The cloisters of St. Trophime are of the same age as the porch, and show exactly the same style of ornament. It will also be observed that the vault is of the tunnel form, strengthened with some transverse arches. This church of the 11th century shows the style of sculpture then in use in Provence. The whole porch and cloisters are covered with sculpture, and all of a good character for the period. The large figures of the Prophets at each side, and of Christ surrounded by the emblems of the Four Evangelists in the tympanum, are very good, and contrast most favourably with similar sculpture of the same period in the North. On the lintel are the Twelve Apostles, remarkably freely executed. On the right side are the saints, and on the left the condemned sinners held in flames by a great chain. These sculptures remind one strongly of the similar processions of saints so common in the basilicas of Italy. Round the archway are angels with wings. All these features we shall find reproduced in the North, in the doorways of the great French cathedrals. However much the South may have been indebted to the North for construction, there is no doubt that the South was the school of sculpture for the North. Accordingly, as we go north, we find that sculpture diminishes. In the South (as in Italy) the Roman sculptures remained and gave rise to this new school, which in its turn became the original of other schools further north. I understand that in the museum of Toulouse, and elsewhere,

specimens of native sculpture may be seen of almost every age, from the actual works of the Romans till the 11th century. The art did not die out and again become revived, but seems to have continued in an unbroken series through the whole of the Middle Ages. Many examples of similar porches exist in Provence. They form a regular series, and show the steps by which the style advanced. That of Tarascon is similar to St. Trophime, but not so rich. Unfortunately, the sculpture of the pediment and lintel are gone. This lintel, with its sculpture, reminds me of a style of arch moulding very common in Italian Gothic, and which the specimens before us serve to explain. These show that this form of lintel is simply the last trace of the Roman cornice entablature, the sculptures occupying the frieze. In the cornice or upper moulding at Tarascon, the modillions are still preserved. At St. Gilles the cornice itself is fully shown, but is stopped off at the central door. When used with sculpture, as in Provence, it has some purpose; but in Italy, it becomes both meaningless and ugly, and contrary to all true principles. In these examples, there is a mixture of Roman ornaments with new moldings and also new ornaments—the dog-tooth, for instance, with the old moldings. A still richer example of the porches of Provence is that at St. Gilles. It consists of three doorways, similar to above, united by a row of columns and niches filled with large sculptures. In detail it is similar to the others; but it would appear from its style to be an early example, probably about the year 1090. The frieze contains a sculptured history of Our Saviour's last days—over the south door the Triumphal Entrance into Jerusalem, then the Betrayal, the Judgment, the Last Supper, the Garden, the Scourging, Bearing the Cross, the Crucifixion (in the tympanum), and the Burial and the Resurrection.

There are many similar porches in Provence, and every example of the architecture of the district shows evidence of Classic details—some of them so strikingly Classic that they might well mislead those who believed they belonged to the Renaissance period.

The churches of this province closely resemble those of the Romanesque style in Italy—such as Pisa—while those on the Rhine resemble the style of Lombardy. They have the dome at the intersection of transept. The towers are strikingly like the campaniles of Italy; and in detail, as we have seen, they both resemble the Roman buildings from which they take their common origin.

Having now taken a glance at the progress of sculpture during the Dark Ages in Provence, let us turn our attention to the rest of France, and see how architecture was progressing there. We find that there are two great schools working by different means, but tending towards the same end—viz., the development of the new style with completely vaulted roofs. The first of these is the school of Aquitaine, extending its influence over the whole of the West of France, the other the school of Auvergne or Burgundy, extending its influence over the East, North, and South.

The characteristic feature of the architecture of the province of Aquitaine is the dome or pendentive. This is an Eastern form, and was at that time commonly used in Byzantium and the Eastern Empire, as it still continues to be in Russia and Greece. It was brought from Byzantium to Venice, where St. Mark's is the familiar example of it. The plan of St. Mark's consists of a square compartment with other four square compartments attached, one to each side of the central square, in the form of a Greek cross, and over each square a dome—the porch at the west end, and the apse at the east as usual.

Now, I think it is one of the most striking facts in the history of architecture that we should find in the middle of Aquitaine, at Périgueux, an almost exact copy of this arrangement of St. Mark's. The church of St. Front does not vie with St. Mark's in beauty of colour or richness of materials; but the plan is, not only in disposition of parts, but even in its dimensions, a close copy. It is noticeable that the arches carrying the dome at St. Mark's are circular, and here they are pointed. The pendentives are corbelled with horizontal joints, not arched; and I have no doubt that the pointed form of arch was used, in this instance, simply because it was much more easy of construction with pendentives than the circular form, and not from preference. The way in which the existence of St. Front is explained is, that the trade of the East with the West is carried on by Venetian merchants. The passage of the Straits of Gibraltar being dangerous and tedious, the merchants formed a path from the ports of Marseilles and Narbonne, across the South of France to the west coast, where they shipped again at La Rochelle, or Nantes, for England and the North.

This road passed through Périgueux, and it is supposed that, being about the middle of the journey,

\* By David MacGibbon, Esq., architect. Read before the Architectural Institute of Scotland on the 13th ult.

it became a depot whence the centre of France was supplied with goods. This traffic with the Venetians brought to the knowledge of the inhabitants the wonders of Venice and the East; and the architect who built St. Frond evidently either was an Italian from Venice, or a native architect who had studied at Venice. Although this is a plausible explanation, it is merely conjectural; the extraordinary fact still remains of a complete building, in a new style, set down in the centre of Aquitania.

The introduction of a new style is generally a slow process. It begins modestly with alteration of the mouldings, and spreads gradually over every feature till the whole is clothed in the new style. Such was the mode in which the Renaissance of the 16th century was accomplished; or, should the new style commence with the structural features, its first efforts are timid and irresolute, and many trials are required to render the new forms complete. Such was the course of every other style during the Middle Ages; but here we have a glaring inconsistency, the existence of which has not yet been fully explained. Whatever the origin of St. Frond may have been, its existence led to the erection of many other churches of similar design—none, however, were exactly the same. The Greek cross was a form not liked by the Aquitanians, and so they added more cupolas to the nave, so as to give the church the form of the Latin cross.

St. Frond was founded in 984. During the course of the succeeding century (the 11th) the church of Souillac was built. Here the eastern dome was transferred to the nave, thus making two cupolas in the longer arm of the Latin cross, while the choir had the apse only projecting beyond the cross. The cathedral of Angoulême had three cupolas in the nave. These churches were all constructed without aisles—this probably arose from the difficulty of lighting them. As it is, they are very imperfectly lighted, and with aisles it would hardly have been possible to light them at all. The present windows would be shut up by the roof of the side aisles. As regards the sculpture and decoration of these churches, with their cloisters, portals, &c., they were similar to those of Provence, but scarcely so rich in sculpture. Their chief distinguished features are their cupolas or pendentives, and their being single aisled, or without side aisles.

In Anjou and along the Loire we find the same form of long aisleless churches as in Aquitania, but the Northern influence is in many instances shown in the vaulting. In place of the dome, the square compartments are roofed with large intersecting vaults. These, however, are groined more in appearance than in reality. They are, in fact, domes, with cross ribs to strengthen them. This influence is seen in the vaults of Poitiers, and even as far north as Le Mans. The cathedral of Angers (beginning of 13th century) is a good example of this pseudo-groining. The simple apse with the semi-dome is usually retained without a chevet. This, of course, is natural when there are no aisles. Many examples of actual domes exist, but generally used in a peculiar manner, as in side chapels, &c.; nor are we without examples of chevets, as at Fontevault, 12th century. Anjou, in fact, is a transitional district. It shows traces of both North and South in all its features.

Although this style became afterwards absorbed in the Pointed Gothic of the North, it still retained great influence over the forms of the buildings of the West of France, and it is well worth our while to pay some attention to it, because from it arose those peculiar forms of vaulting which were practised in England and over the whole of this country.

(To be continued.)

### THE STREET TRAFFIC OF LONDON.

VARIOUS expedients have been proposed for relieving the pressure of the street traffic of the city of London,—among the more important of which are new railways, new police regulations, and new streets. On every business day in London, upwards of 700,000 persons enter the city by its various approaches, and leave it again in the evening for their homes, at the West-end, in the suburbs, or in the country. Several hundred thousand persons represent a population equal to the whole inhabitants of South Wales, or of the city of Manchester. Drawn up in line, two deep, standing close together, they would occupy an extent of over 120 miles; and ranged six deep, they would take more than twelve hours to march past a spectator at the rate of 100 paces a minute. Of the 700,000 persons, and upwards, entering and leaving the city daily (exclusive of those entering the West-end and other parts of London), it was ascertained by the officers of the city police, in the month of May, 1860, that an average of 535,000 proceeded on foot, and 171,000 in vehicles, making a total of 706,000 persons. The number of vehicles ascertained at the same time to enter the city every twenty-four hours,

was 57,765; which, if drawn up close in line, would occupy a length of about 260 miles, reaching from London to York, and extending more than fifty miles beyond the latter place. The closeness with which the vehicles follow each other in the streets may be inferred from the fact, that between ten and eleven a.m., on Wednesday, the 19th November, 1862, it was ascertained that the total number passing Bow Church, in both directions, was 1,255; of which 348 were omnibuses, 584 cabs, and 282 carts, drays, vans, and waggons, besides 41 trucks and barrows. The numbers and proportions of vehicles passing the same place between four and five p.m. on the same day, were ascertained to be as nearly as possible the same. It is not, however, merely that these vehicles pass into the city and out of it daily, but they bring goods to be discharged from them, or they come for goods to be loaded into them, as the case may be, at the various shops and warehouses in the city. While this is being done,—and the bales of dry goods, parcels of groceries or ironmongery, barrels of oil, wine, spirits, or beer, are passing between the vans, wagons, and trucks, and the warehouses,—the thoroughfares are more or less interrupted, occasioning those blocks of street traffic of which we have recently heard so much.

With the London and North-Western Station at the narrow inlet of Liverpool-street, Old Broad-street will be completely gorged. And as if the London and North-Western traffic were not enough, it is even proposed to throw the Great Eastern traffic upon the same crowded and narrow approach into the city. Then there will be the enormous traffic thrown by the South-Eastern and South-Western Railways into Cannon-street, with no better direct line of communication to the centre of the city than Walbrook, along which there is room for only a single vehicle to pass. There will be the Dover and Chatham Railway at Farringdon-street, throwing a heavy additional traffic upon Ludgate-hill and Newgate-street, already much too narrow and greatly overcrowded. There will also be the Metropolitan and Great Northern at Moorgate-street, with their additional loads of traffic thrown in at that point. When these terminal lines are all at work, we believe Mr. Heywood will cease to call for more city lines; and he will probably have occasion to reverse his opinion as to the block of the city thoroughfares being remediable by the construction of more railways.

It is clear, therefore, that to provide effectually for the proper accommodation of the traffic of London, the city authorities must do as the Parisian authorities have done—widen the streets. "*It is a perfect delusion*," said Sir Richard Mayne to the committee, "*to suppose that anything will effectually relieve the traffic of the streets of London except widening the streets.*" No doubt the process is a costly one; but London is rich, and is willing to be improved; and the time has arrived when the London thoroughfares must have relief at whatever cost.—*Railway News.*

### ROYAL IRISH ACADEMY.

On Monday evening last there was a general meeting of the academy. The Very Rev. Dean Graves occupied the chair.

Rev. J. H. Jellett, F.T.C., read a paper on "The Refraction of Polarized Light," in reference to which he had made a series of experiments. He said his object was to ascertain the accuracy of the law given by Fresnel for the change in the plane of the polarization of light produced by refraction. With that object he had made certain modifications in an instrument originally constructed under the direction of the late Professor McCullagh, with a view of attaining a higher degree of accuracy than that previously obtained. The result of his observation of a large number of liquids was, that the law of Fresnel was nearly accurately true, the greatest deviation observed not exceeding ten minutes. He had applied the law of Fresnel, as well as his own observations, to the determination of the question whether the termination of a fluid be abrupt or gradual, and he had come to the conclusion that the phenomena observed require us to believe the termination was abrupt. In fact, if it were not so, the change in the plane of the polarization would vanish.

Rev. Dr. Carson, F.T.C., moved that the paper be laid before council for publication. It would be satisfactory to those members of the academy who took an interest in the subject, that they should have an opportunity of considering most strictly the important and interesting results which had been arrived at.

Rev. Dr. Haughton, F.T.C.D., observed, that he only rose for the purpose of expressing his concurrence in the views which had just been laid before the council. He had the pleasure of assisting professor Jellett in several of the experiments which that gentleman had made, and their observations

exactly coincided. Professor Jellett gave an important and valuable contribution to science.

Rev. Dr. Carson observed that it was very desirable that their practice should be assimilated to that of the Royal Society of London, where all papers were read by the secretary, and discussed, as a matter of course, before the council had decided whether they should be sent for publication.

The President said he felt here that justice would be done by the council to the communication of Professor Jellett, characterised as it was by all the varied ability which he possessed.

Mr. Wm. Lane Joynt exhibited an ancient Irish bell, called the "Bell of Burren." It had been received by him from Mrs. O'Loughlin, the widow of a gentleman who some years ago lived in the Castle of Newtown, in the barony of Burren, and who was the descendant of a long line of princes of the name of O'Loughlin. It had been known for several years in the valley in which it had been obtained, and he had heard of the respect which was paid to it. It was said to have been used in the elimination of truth in disputes between parties. He offered the bell merely for exhibition. He concluded by asking Dr. Reeves for his opinion of the bell.

Rev. Dr. Reeves thought the bell was of the eleventh or twelfth century. It was an example of the quadrangular to the round bell. It was not perfectly circular. He trusted Mr. Joynt would be able to ascertain the name of the patron saint of the church with which the bell had been connected, and they would thus be afforded means of tracing its history.

A vote of thanks was passed to Mr. Joynt.

The Rev. Dr. Reeves read a communication from F. J. Foot, of the Geological Survey, on an ancient Irish quern, found about one hundred years ago in the parish of Clonmacnoise, near Ballinasloe, and which was presented to the academy. He exhibited a curious brooch sent to the academy by Charles Cobbe, Esq., of Newbridge.

Thanks were voted to the donors.

Edward Blythe, Esq., F.Z.S., made a communication on the occurrence of the "*Bos frontosus*" in the superficial deposits of Ireland. The learned gentleman referred to several skulls of the species in question, which he exhibited, and which had been found in various parts of Ireland.

The Rev. Dr. Haughton said that he trusted that that gentleman would communicate his views more at length, in a written form.

The secretary said the academy had been presented with two quarto volumes of beautiful Chinese drawings, presented by William Eassie, Esq., of High Orchard House, Gloucester.

Thanks were unanimously voted to the donor.

The meeting then adjourned.

### CHEAP RAILWAYS.

Mr. Murray, the consulting engineer of a company formed a short time since to provide tramroads for the north of India, made the following remarks on the employment of horse-power for cheap and light railways:—

In a horse railway, the cost of original construction is less than on a locomotive line, inasmuch as the gradients can be made more in unison with the land traversed, and this requires no deep cuttings nor heavy embankments. The rails also may be of much less weight per lineal yard; and, more than all, the wear and tear, when in use, would be comparatively little. Horse-power is effective on a line where locomotives are inapplicable, while on a descent the horse obtains much relief from the effect of gravity. A level line of railway with short planes worked by animals seems, therefore, the most appropriate for the upper parts of India, where the moving power is at hand; whereas locomotives would have to be brought from England, and on their arrival in the country would have to be conveyed a long distance into the interior, at a great expense.

We take from the *Friend of India* the following description of the carriages in use upon the line.—

They consist of a light platform stiffened by a girder on each side, instead of a ponderous floor having to support heavy sides, while by using doors at the ends of the carriages the great advantage of a free communication from one end of the train to the other is secured when it is in motion. By passing a draw rod through the carriage, to which it is attached by springs, and fastening all the rods together, moreover, the strain is avoided which wears the timber of the ordinary carriages, and jolting is prevented by making an articulated whole instead of a series of independent parts merely united at the ends. The result is that one third-class carriage carries two hundred people squatting in the fashion which Asiatics prefer, in two tiers above and below, with ample space between, and weighs no more on the wheels than the ordinary carriage which carries fifty passengers. The difference is

just that between six tons and thirty tons. The length of the light carriage is, of course, much greater than usual, being fifty feet, and each has three pairs of wheels, of which those at each end turn so as to suit the smallest curve. In practice this has been found a great improvement on the old system. The wheels only are not much lighter than usual. The rails are a fourth of the usual weight and price, but of superior iron; and the sleepers, which cost one rupee each, or a fifth of the ordinary price, are bars of the best teak, resting on two cubes of teak at either end. Lightness and the first quality of material are secured, on an average, at a fourth of the cost of heavy railways, in every item of rolling stock and permanent way. Side by side on the road, and at the same level, the pedestrian, the hackery, and the pack bullock jog along, presenting a singular contrast to the dashing train. The contract speed is twelve miles an hour, but the special train went well at thirty. The whole of the party of sixty gentlemen who were conveyed from Nul-hatee to the half-way station of Bokhara, from the Lieutenant-Governor to the engine-driver, declared that experience of the reality removed their doubts, and exceeded their most sanguine expectations.—*Railway News.*

#### THE EXHIBITION PALACE AND WINTER GARDEN COMPANY (LIMITED).

THE second ordinary general half-yearly meeting of this company was held this day at their offices, 112, Grafton-street. The Duke of Leinster in the chair.

Mr. H. Parkinson, secretary, read the directors' report and statement of accounts.

The chairman moved that the report should be adopted. He would not have to trouble the meeting by giving them any lengthened statement of the operations of the company, as they were all stated in the report. He hoped that in the course of next year the Exhibition Palace would be open, and would give satisfaction to the proprietary and the public. The object the directors had in view was to manage the affairs of the company to the advantage of the shareholders and the public.

Mr. William Dargan seconded the adoption of the report.

Mr. Stevenson said that he thought it was the duty of the shareholders to pass a vote of thanks to the officers who had so admirably conducted the affairs of the company.

Mr. Edward Fox said it was only six months since they had last met in that room under less sunny prospects than those which they enjoyed at present, and, to use a nautical phrase, they had been "under bare poles." They had been deeply indebted to Mr. Benjamin Lee Guinness, to whom it was most creditable to have formed in his own mind materials for them to work on. Since they last met the hands of men had raised up a splendid building which would prove a source of recreation to the masses and of profit to the shareholders, amongst whom were men who entered on the project from a spirit of philanthropy, and who did not care for loss provided they served their fellow-men; but he (Mr. Fox) was

sure that all would have a substantial return for the money which they had invested.

The chairman said that he could assure the meeting that, from the time that he joined the board up to the present moment, he had not seen a difference or an unpleasant word expressed in that room. The sole object of the directors was the promoting of the interests of the shareholders.

Mr. Benjamin Lee Guinness having been called to the second chair a vote of thanks was passed to the Duke of Leinster, to which he briefly replied, and the proceedings terminated.

#### Public and Private Works.

Sundry works are to be executed at the church of Fahan Lower, county Donegal, according to plans by the architects to the Ecclesiastical Commissioners.

A new Wesleyan chapel is to be erected at Belfast; Mr. W. J. Barre is the architect. Tenders will be received till 1st proximo.

The church of Loughgall, Co. Armagh, is to be enlarged. Plans by the Ecclesiastical Commissioners' architects.

The trustees of the proposed Bethel Episcopal Church at Kingstown advertise for plans for a structure to cost about £3,000. They say:—"The architect's fees are to be five per cent on the outlay, including plans and all extras, if employed. Two sums of £10 each will be given for the two plans esteemed by the trustees next in order of merit to the one they may adopt, and £20 will be given for the plan most approved, in case the designer of those plans be not employed to carry out the undertaking. The plan selected, as well as those for which premiums may be given, to be the property of trustees. The plans to be deposited at the chaplain's residence, at the Bethel, not later than the 20th instant. The trustees do not pledge themselves to accept any of the designs sent in, or to pay the expenses of their preparation."

#### Miscellaneous.

The *Illustrated London News* of November 8th, when describing Benson's great clock, says: "The movement of this clock, next to that of Westminster, is the largest in the world, and in point of quality of material, and finish of workmanship, it is unequalled by any known." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with de-

scriptions and prices; it acts as a guide in the purchase of a clock or a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate Hill, London. Branch establishments 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

SCOTCH IRON.—The development of the iron resources of Scotland makes steady progress. In 1829, the year after the introduction of the hot-blast process, the total yield of Scotland was 29,000 tons. Fresh discoveries of iron ores being made, new works were erected, and in 1851 the production had increased to 760,000 tons per annum; the price that year averaging 40s. 1d. per ton, and the stock at the end of the same amounting to 350,000 tons. To-day there are 134 furnaces in blast, and the computed production for the year now terminated amounts to 1,160,000 tons, thus showing an increase of 80,000 over 1862. The value of the make for the year at the present price represents £3,800,000. The average number of furnaces in blast were 127, employing about 45,000 men, and producing an average of 22,320 tons of pig iron weekly. According to authentic returns the quantity of pig iron exported and consumed locally reached 1,105,000 tons. The total stocks are now 775,000 tons, thus showing 55,000 tons of an increase. The price is now 10s. per ton higher than the average price of the last eighteen years, and the highest reached since the revulsion of trade in 1857.

SELF-ACTING CROSSINGS.—A writer in a late number of the *Organ für die Fortschritte des Eisenbahnwesens* (of Wiesbaden) lays claim to the prior invention of "Wood's self-acting crossing," recently patented in England by an American engineer of that name. In this description of crossing, the two wing-rails, or the rails usually fixed on either side of the crossing, have each a slight motion about a centre, at the chain on which the ends of the wing-rails are fixed. The German engineer states that he made crossings on this plan at Zurich in 1856. This fact alone does not, however, constitute a prior publication in England.

DEATH OF GEORGE M. MILLER, C.E.—We regret to record the death of Mr. Miller, well known as the engineer-in-chief of the Great Southern and Western Railway. Mr. Miller had held the important appointment in which he was known to the public since 1847, and was greatly respected both by those who were associated with him in the office of the company, and those whom he met in the discharge of his duty.

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FIG. 3.



FIG. 2.



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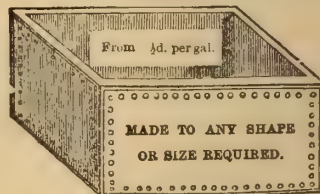
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# The Dublin Builder.

VOL. VI.—No. 100.

## THE METROPOLITAN RAILWAYS OF THIS SESSION.

NEVER, since the memorable year of 1845, when countless plans were laid for ploughing up the country far and wide with the iron roadway of the steam horse, where the rustic seclusion was formerly unbroken save with the lowing of the herd or the throb of the busy mill, and the shriek of the locomotive had never penetrated, has such an excitement been manifested for carrying its ravages in new directions in the face of all opposition, as will be shown during the present session.

But the incursions of the railroad are now designed to take a new direction. Having pursued its course in a varied net-work over the green plains and waving corn fields, it is now destined to carry its resistless advances into the very penetralia of our cities. Countless plans have been made for relieving the teeming streets of London of their overcrowded traffic, and sums of money have already been deposited that might excite the admiration of a millionaire. On one line alone, only a mile in length, a million of money has been expended.

The city railway mania has extended itself to our own metropolis. Already the most energetic opposition on the part of our citizens could hardly save our most fashionable streets from the intersection of unsightly and opaque railway bridges, to the destruction of all the symmetry and perspective in which cities are wont to pride themselves. But it is hardly to be expected that any amount of opposition will be sufficient to resist the multiplied pressure of five companies, each eager to carry their projected works into the heart of our busy thoroughfares. As it amounts, therefore, to almost a moral certainty that we are destined to have a metropolitan railway, the question naturally arises: first, is there any real necessity beyond a mere speculation for executing such a project; secondly, is it likely to prove a paying speculation; and, thirdly, what is the best plan on which it may be carried out? It does not follow, because the five that are at present prominently before our notice are the only ones out of the many which have been discussed during the last six months that have been brought before parliament, that they or any of them should take the precedence in merit of all the others; and, in fact, out of the whole five, there are but two that are deserving of particular notice. The one is Mr. Barry's, and is a modification of the original plan, but stripped of its most objectionable characteristics; the other is due to Mr. Barton, the talented engineer of the Dundalk and Enniskillen Railway.

The question of a metropolitan railway, then, briefly resolves itself as follows:—first,

how may it be constructed, involving heavy expenses and the purchase of property at exorbitant prices as it does, so as to prove remunerative to its shareholders? and secondly, how may it be carried out with as little detriment as possible to the beauty of the city? There have been altogether, since the question was first started, three classes of railways proposed; those which were to tunnel under the city; those which were to cross the streets, and those which were to run round the city. Now each of these have their own peculiar disadvantages. With regard to the first class, the process of tunneling through the sewers and gas-pipes of a city is not only attended with heavy outlay, and subsequent darkness and discomfort to passengers, but would also prove a most inexpedient method of connecting a number of high level stations. On the other hand, it would be almost impossible to carry a line entirely across our streets without serious detriment to light and ventilation, and considerable inconvenience both to foot passengers and vehicles. The plans of the third class, proposing to run round the city, would be more agreeable to passengers and less likely to be injurious to property, but they are incompatible with the idea of a central station, and have therefore been rejected. Again, the question of the utility of a central station, and its most suitable position, has been a source of considerable discussion. The most certain method of determining the point is by a consideration of the traffic most likely to ensue upon the junction of the five railways that enter our city. The Kingstown and Bray may be said to carry on principally a passenger traffic; the Southern and Western, and the Midland are largely engaged in the importation of goods and cattle; that of the Belfast line may be said to be of a mixed character, but the influx of both goods and passengers into our city will be much diminished by the opening of a short sea passage from a northern port. If then the several lines were connected without a central station, some transference of goods and cattle might take place from the Southern and Western to the Midland, for the sake of being forwarded to the quays by the Liffey branch. A few passengers, averaging perhaps four daily, might wish to pass by the Kingstown mail train direct to Cork or Galway; but there would be no traffic sufficient to guarantee a profit upon even a moderate outlay. If, on the other hand, an arrangement were made for all the railways to meet in a really central station, the passenger traffic resulting would be very considerable indeed. Not only would the advantages be great to travellers arriving by the Southern and Western lines, but the benefit conferred on the residents of Bray and Kingstown, who carry on daily business in Dublin, would be inestimable. The convenience of being carried into the heart of the city must be greatly appreciated indeed, when for this reason alone many prefer to travel from Kingstown by omnibus, although requiring double the time. It follows, then, that the success of our metropolitan railway will mainly depend not only on the existence of a central station, but on the posi-

tion where such a station is placed. Were it at Portobello, or some equally remote locality, as proposed in some plans, it would afford less convenience to passengers by the Kingstown and Bray lines than if they were to alight at the present respective termini. There can be little doubt, however, that the site selected in the two plans alluded to above, in the immediate vicinity of the Bank, is in every respect most eligible, and one from which the tide of business passengers will radiate almost equally in every direction; it would have the effect of increasing the passenger traffic of both the Kingstown and Bray lines, the whole of which will inevitably pass over the junction railway, and become a large source of emolument.

If, however, the construction of a central station may be looked upon as an essential characteristic of the success of a metropolitan railway, it must be under one restriction, and that is, that it be designed for the accommodation of passengers, and of passengers only. If it be expedient in the highest degree to devise some means for the rapid conveyance of business-men into the centre of the field of their daily labours, it would be attended with quite the opposite result to turn into such a station the general goods traffic of all the railways. Not only would an immense area of costly property have to be purchased, but the streets would be ploughed up, the thoroughfares blockaded, and the stream of general business interrupted by the tremendous tide of traffic that would arise from such a concentration, and the space already devoted for that purpose at the several termini, vast and costly structures, would become waste ground. It might be attended with useful results to have a general station for cattle in the vicinity of the new market, and a connection of all the lines with the Liffey Branch would remove all necessity for their being driven through the streets.

Although we have laid down the position that the few schemes that have received sufficient support to enable them to find their way into parliament, should not exclude a general discussion of all the features of this *questio vexatissima*, yet we have seen no plan that offers so fair a prospect of success as that of the Dublin Railway, which has just passed standing orders. It effects a complete connection of all the railways, it does not disfigure any of the leading streets, and it combines many advantages, as even a glance at the plans may show. It would far exceed the limits of our space to review many other meritorious plans which have been proposed, presenting individually striking features of originality; but we cannot conclude without briefly noticing one which for boldness and daring is equal to any that have been undertaken in London. It consisted in arching over the Liffey the whole way from the King's-bridge terminus to Carlisle bridge, the span to consist of two arches. The Great Southern and Western was then to be carried down on arches over the centre pier, and on arriving at Carlisle bridge it was to open into two branches, to join the Amiens-street and Westland-row termini, spanning Sackville-

street and Westmoreland-street with ornamental bridges. The arches underneath the railroad were to be converted into shops, the renting of which would in itself form a considerable source of emolument. A magnificent road would be thus formed the whole way to the Park, the sewer nuisance would be removed, and house property along the line immensely raised in value. Should none of the present plans succeed in passing this session, we hope that the above scheme will be amongst the first that will next year be brought prominently forward.

#### NEED OF AN IMPROVED MODE OF EGRESS FROM PUBLIC BUILDINGS.

THE late lamentable accident (if accident it can be called), at Santiago, in Chili, has already called forth numerous observations from "the press." Of the "*causa et origo mali*," the display of gorgeous pageant, to enlist the enthusiasm of crowds mostly composed of females, we need say no more than that we wish to avoid it as a subject that has already been thoroughly exhausted, and foreign to the object of this journal, from all desire of creating undue alarm; and to the votaries of fashion, either in crowded churches or in theatres, or ball-rooms, we would suggest that the access to all places of public worship and amusement should be so arranged that perfect freedom of egress should be as much, if not more, attended to than ingress. Take, for instance, our own Theatre Royal. To enter the dress and second circle, one chief, and one secondary flight of stairs only are provided; and the crowd, swelled or attenuated as it may be, must descend and reach the street by the one chief staircase, scarcely broad enough to allow sufficient room for the departure of the occupants of the dress circle on an ordinary night. What would it be in a fire!!! We have ourselves witnessed in that small but admirably conducted place of public amusement, the Queen's Theatre, the panic that would naturally attend a sudden cry of "fire," promptly and energetically stopped by the well-timed interposition of the proprietor; and yet, had it not been for this, the sacrifice of life and property, owing to the narrow chance of escape, might have been incalculable. Some really effectual steps should therefore be taken to ensure to our places of public worship, instruction, and amusement, not only an easy mode of access, but a safe line of retreat. Look at our places of public worship. Each destined portion of aisle and gallery should be approached externally by wide avenues, so constructed, that they could be easily shut against a current of air likely to afford impetus to a sudden conflagration; and these approaches should be also arranged in such a manner as that, for the purposes of escape, they should present the least possible obstacle. Better still, perhaps, it would be, if different avenues for exit and entrance could be established, so that there could be no mistake as to where people might escape upon any sudden panic.

Places adapted to public amusement should be even more carefully guarded. Take, for example, the "Ancient Concert Rooms;" once in the concert room itself (if the issue of tickets be not too unlimited) plenty of space is at the service of the great public, but if a prima donna of note, a renowned violinist, or any other celebrity likely to create a crowd, should appear, then Brunswick-street and Lombard-street are both beset, if not thoroughly stopped; at the commencement, and at the end of a concert, how hard even to reach Westland-row in a cab. In case of fire, Santiago would be almost rehearsed. Again, in the case of Merriem-hall, suppose it filled, as it has been, and often, no doubt, will would not the audience, on a sudden cry of fire, be filled, really immolate themselves in their frantic, but alas! ineffectual efforts to escape?

What is the state of our other public buildings and hospitals in this respect? We fear the only help and cure would be as much water as could be

obtained on the instant. Suppose a sudden alarm of fire in the Lying-in Hospital, Rutland-square; imagine the helplessness of the victims, both old and young; yet there is only one way of entrance, and (we believe) the same way out, while the internal arrangements of the building, which the patients cannot take advantage of, are eminently calculated to fan the flame of any sudden outburst of fire. We believe that in the construction of the exhibition building of our Dublin Crystal Palace this principle of easy access and egress is carefully attended to, and we would, referring to the theme that suggests these remarks, impress upon those to whom the management of our places of public worship, amusement and instruction are entrusted, the lesson that the Dublin Winter Garden Company has given them, and say, remember the calamity of Santiago.

#### THE PRINCE CONSORT MEMORIAL.

THE Corporation of Dublin have granted the site in College-green, facing Trinity College, as fixed on by Mr. Foley, R.A., for the erection of the Statue in memory of the late Prince Albert, where it will shortly be placed.

#### NEW BUILDINGS AT ENNIS, CO. CLARE.

THE new National Bank-house, at Ennis, erected from the designs, and under the superintendence of W. F. Caldbeck, Esq., architect, is now just complete, and is a handsome and imposing building, occupying a very prominent and well-selected site in the new street adjoining the bridge of Ennis.

On the ground floor is a spacious office, fitted up in the best manner, suitable for an extensive banking business, with a handsome entrance porch on one side, to give access to the office, and to the manager's office, or private room; and on the other side an entrance door and spacious hall, leading to the portion of the house allotted to the manager as his residence—occupying the two upper stories of the house, with a return at the rear extending to the garden, containing ample accommodation for a private family, with suitable out-offices attached.

The building is well executed in all its details, being Byzantine in style, and built of the limestone of the locality, which being of a superior quality, admitted of being worked in the very best manner.

### Correspondence.

#### THE PRINCE ALBERT STATUE.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—There are three sites spoken of for this statue. One in the crowded thoroughfare of College-green, another in the centre of the College Park, and a third on Leinster Lawn, opening on Merriem-square. As a citizen of Dublin, I venture to offer an opinion as to which of these three sites is the most choice for the purpose. I think College-green is too crowded a thoroughfare where, if a man were to stop in order to take a proper view of the Prince's statue, he would run the risk of being driven over. It is meaningless to associate him with the idea of a banking establishment, and equally meaningless to identify with the Irish parliament house, for surely Prince Albert was no advocate for the restoration of Ireland's "Legislative independence." Next, as to the proposed site in the College Park. I think the College Park also ineligible, because it is too secluded for a public statue, and also because, like the bank or parliament house, Prince Albert has no association in common with it. But whilst there are these and other palpable objections (too tedious to enumerate in a letter) against the statue being placed either in College-green or the College Park there appears to me many reasons why Leinster Lawn should be chosen as the most appropriate site. In the first place, Prince Albert was the patron of the Fine Arts, and the house of the Royal Dublin Society and the National Gallery, both situate on the Leinster Lawn, from the principal centre where objects of Irish taste and refinement are being collected. It is also situated in the most fashionable part of our city, opening on the most magnificent square in the three Kingdoms; and, if any spot in Ireland was dear to the mind of the late Prince, this must be regarded as that spot.

EDMOND W. O'MAHONY.

### Public and Private Works.

A new National Bank-house, similar in style and arrangement to the one erected at Ennis, is to be immediately commenced in the town of Boyle, Co. Roscommon, and another house of the same class, but in the Italian style, in the town of Newcastle, west, Co. Limerick, W. F. Caldbeck, architect.

The following new works have been recently executed by Messrs. J. & E. Barker, contractors, of this city:—Arklow Church, Diocese of Dublin—new floors, dwarf walls and joists; new pewing; pulpit, reading-desk and chancel decorated and varnished. Rathore Church, Diocese of Meath—new vestry with neat cut stone dressings; two new Gothic windows in cut stone; new chancel and rails. Clonard Church and Glebe—similar works to church, and extensive works at Glebe-house. We learn that the above works have given satisfaction to the parties concerned.

A new residence, in the Italian Style, has just been finished for James Young, Esq., J.P., at Harristown, Castlereagh, Co. Roscommon, W. F. Caldbeck, architect; the cost, £1,400 to £1,500.

The premises situated on the Royal Canal, near Newcomen-bridge, formerly occupied by Mr. Jasper Rogers, are being fitted up as an iron works, by Mr. Athol, late of the North Wall Foundry.

Extensive farm-offices and stabling is about being erected at Clonlough, Co. Westmeath, for Colonel Foulke Greville, M.P., for which plans and specifications have been prepared by W. F. Caldbeck, architect.

The War Department require tenders for various building works and repairs at the barracks and forts on the Irish Stations. The contracts to be kept for three years.

Clane Bridge, Co. Kildare, is to be rebuilt, at a cost of £2,100. The Grand Jury will receive tenders.

Extensive works are now in progress at Tinode, Co. Wicklow, comprising billiard-room and stable offices, in addition to the residence lately erected for W. F. H. Cogan, Esq., M.P., W. F. Caldbeck, architect.

A new house, now finished, has been erected at Coitage, Rochfort-bridge, Co. Westmeath, at a cost of £1,300, for Miss Sheil, from designs by W. F. Caldbeck, architect.

Tenders are required by the Limerick Harbour Commissioners for mason work to be executed adjoining the dock, up to the 29th inst.

The Port of Dublin Corporation seek for tenders for the supply of 148 tons of refined rapeseed oil, for Irish light-houses.

An extensive range of offices are now being finished at Moore Park, Kilworth, Co. Cork, W. F. Caldbeck, architect.

The *Morning Star*, March 7, 1861, speaking of Benson's Argentine, says:—"It must commend itself for its cheapness, as well as for its similarity to the more precious metal." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz.—spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishments, 46, 47, and 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

A prize of £50 has been offered by the Royal Society for Prevention of Cruelty to Animals for a vermin trap "which shall either, without inflicting torture, secure vermin alive, or instantaneously destroy them."

## FRENCH GOTHIC ARCHITECTURE.\*

(Continued from page 22.)

We now turn to the other great division of France. This includes the royal domain of Ile de France, with Burgundy and Auvergne on the south, Champagne on the east, and Normandy on the north. It was in this district that "true Gothic," as it is called, took its rise,—that style in which the use of the pointed arch was carried to its full limits. It appears from the few remains now existing, that up to the 11th century the churches of this district were usually of the form of the old Roman basilica, with centre aisles and two side aisles, separated from the central nave by a row of pillars or piers, carrying the upper wall in which the clerestory windows were pierced. The roofs were of timber, the only vaulted portions being the apse and its semi-dome. This was the old traditional form so common in Italy. The first modification of it seems to have taken place in Auvergne, Burgundy. By some remarkable accident this province was the cradle of the great orders of monks, whose enormous establishments, at Cluny, Cîteaux, and Clairvaux, were amongst the marvels of the Middle Ages. Unfortunately, the great churches of these orders were swept away at the French Revolution; but from drawings of them still existing, and from the similar smaller buildings of the country, we can gather what their appearance was. As was natural to ecclesiastical orders, they adhered most tenaciously to traditional forms. Their churches were, in fact, great basilicas, retaining the narthex or ante-porch, the central nave and side aisles, and the domical apse of the ancient type. They had also many indications of their original Roman derivation in their detail. This was natural enough in a district where many Roman buildings remained. The pilasters of the Roman gate at Autun became the type of the pier and shafts of the Burgundian style, which have all a strong tendency to the pilaster form.

What we have chiefly to do with at present, however, is the fact that these rich monastic institutions, throughout the whole period of their establishment in France, were constantly endeavouring to cover their churches with some less perishable material than timber, which they found in those rude times to be a very insufficient protection, the churches being constantly burned down by the turbulent inhabitants. In the early times of the monasteries, their churches were small, and the vaulting a tolerably easy matter; and when they afterwards became powerful and wealthy, they were enabled to erect large buildings, and to carry out the system of vaulted roofs on a large scale. This they did not only at the parent abbey; but wherever they established their numerous offshoots, they carried out the same style of architecture; by this means they contributed greatly to the growth of architecture in the Ile de France during the 11th and 12th centuries. But during the same period, another very remarkable series of buildings was rising to the north of the Royal Domain. The Normans had, during the 10th and 11th centuries, succeeded in establishing their power firmly on the soil of France, and, about 1050, they began to devote their energies, which had hitherto been directed to invasion and conquest, to the erection of churches as monuments of their fame. They seem to have derived their style from the direction of the Rhine—at least, we find no trace of the Roman details of the South, but quaint zig-zags and other Byzantine ornaments which were in general use on the Rhine. They devoted themselves with great energy to the carrying out of their great works, and erected in the short period between 1050 and 1100 almost all their most important churches, the number of which is considerable. It must be borne in mind that the great Norman churches—those at Caen for example—were prepared for timber roofs, and were not originally vaulted, although they were so finished in the succeeding century.

The Ile de France was thus, at the beginning of the 12th century, surrounded with districts actively engaged in the erection of important monuments. It was unworthy of the Royal Domain to be the last in following this great movement; but, unfortunately, the King's power and resources had been so crippled by foreign and domestic troubles that he had hitherto been unable to attempt any work of that nature in his domain. Now, however, in the 12th century, under the reign of Louis le Gros and Louis le Jeune, the monarchy made a great advance, which was continued and extended by Philip Augustus, and culminated in the reign of St. Louis. These reigns extended over the whole of the 12th and the greater portion of the 13th century, a period of the greatest activity in Northern France. The power of the King had become, to a considerable extent, consolidated; by means of the monks the people

had been instructed; and they now showed the influence of good government and instruction, by devoting their means and talents to the cause of commerce and the arts. There were but two arts open to their choice, either war or architecture—of the powerful support given to the former and of the energy of the country at this period, we have ample evidence in the Crusades; while, on the other hand, the great cathedrals of the North show with what zeal the cause of architecture was supported. As the laity obtained knowledge and power, they began to question and discard some of the monkish traditions, and to lose some of their former reverence for the monastic institutions; and in place of contributing, as heretofore, to the enrichment and magnificence of the abbeys they desired to adorn their own cities, which they were then forming into independent municipalities, and to erect churches which they might call their own. In this they were most strenuously supported and encouraged by the bishops and feudal lords, who had long been jealous of the power of the monasteries—the first, of their religious powers and influence; the second, of their importance as feudal superiors. Hence arose their gorgeous edifices which cover the soil of the North of France in such profusion, and with them, too, rose that style which now became dominant—absorbing all the others, and extending itself not only over the whole of France, but influencing every country in the Western Empire.

Such were the political conditions under which the architects of the period worked. Let us now take a rapid survey of the steps which led from the simple basilica, with its wooden roof, to the fully developed Pointed Gothic.

One of the chief points to be attended to in the history of Gothic architecture is the vaulting. It is now generally admitted that it was the exigencies of the vaulting which led to the adoption of the pointed arch, and that from its use as a constructive feature followed the pointed ornamental forms of Gothic architecture. As already mentioned, the only vaulted portions of the oldest type were the apses at the west end. In the 10th century we find efforts making to vault the aisles around the choir (Vignory, Haute-Marne) with a circular barrel vault. In Auvergne, and northwards in Burgundy, from the 11th century the wooden roof for the nave and aisles was superseded by a stone vault. The traditional Roman form of vaulting with intersecting semicircular vaults had been tried, but found too difficult of execution on a large scale. This led to the simple tunnel vault being used. It was extensively employed from the 11th century in Auvergne and the monastic churches of Burgundy, and extended its influence into Provence and as far as Toulouse on the south, and into Switzerland on the east. The use of this form of vault (the plain tunnel) seems to have arisen simply from the inability of the builders to construct a more complicated kind of vault with the means at their disposal. It is a kind of vaulting of which we have many instances in Scotland—both in our castles and churches—where it has evidently been used on account of its simplicity of construction. This kind of vaulting has one very great disadvantage—viz., its darkness. It is impossible to light it up. It is, therefore, evident that however well it might suit the bright climate of Provence, its dullness would be intolerable in the more northern districts. We accordingly find that many efforts were made to invent some kind of vaulting which would allow of more light being introduced into the churches.

In these barrel-vaulted churches, the thrust of the central arch is usually resisted by that of the semi-barrel vaults of the aisles; it is clear, therefore, that to lift the central vault up so as to admit light over the roofs of side aisles would endanger its stability, as there would be nothing to resist the thrust. One remarkable method was tried at the Abbey of Tournus, in Burgundy, where the arches of the vault are turned across the nave, in place of along it, and windows are introduced at each end of the cross vault. But the appearance of this, inside, was so bad that it was not generally adopted. The section of this method is exactly the same as that of a domed church—hence, perhaps, its origin. In Poitou, and part of the West of France, another system was attempted in the 11th century. The aisles were raised to the height of the nave, and their intersecting vault with them (St. Issore près Poitiers); but neither was this found a sufficient remedy for the darkness, while it destroyed the proportions of the building. The plan tried in Auvergne was (as at St. Issore) to heighten the whole church and introduce a gallery over the side aisles, from which a borrowed light could be obtained into the nave. This was found to be a tolerably satisfactory solution of the difficulty, and was adopted by the religious orders of Burgundy in their great abbeys. While these efforts were being made in Auvergne, Northern France was not idle. There, from the 10th century, the side aisles were sometime vaulted with parallel

barrel vaults at right angles to the nave, or with intersecting vaults. The central nave, owing to the difficulty of vaulting wide spans, was usually covered with a wooden roof (e.g., St. Jean, Chalons-sur-Marne, end of 11th century—Pré Notre-Dame au Mans, La Trinité et St. Etienne de Caen). Examples of this kind probably existed in Normandy in the 11th century, but they have all been swept away. These aisle arches were found useful for resisting a pointed tunnel vault, which form was introduced from Auvergne (e.g., Linoges, Chantillon-sur-Seine, Fontenay). But the great difficulty here, as in Burgundy, was the want of light in the vault. The builders found that, with a wooden roof they could raise the central ceiling high enough to get a clerestory; and the same was tried with the pointed tunnel vault about A.D. 1100, in several cases, but the thrust of the central vault was too great, and led to the destruction of the buildings. Buttresses were then applied opposite the transverse arches (as at Autun); but these also were found too weak, and they had subsequently to be strengthened with flying buttresses.

It was at this stage, in the beginning of the 12th century, that the Clunians reconstructed most of their religious establishments. The great church at Cluny and the abbey of Vézelay were rebuilt between 1089 and 1140. Cluny adhered to the old type; but at Vézelay an attempt was made to raise a plain semicircular intersecting vault over the nave. This is an early effort; for after this, about 1150, the great churches at Autun, Sualien, and Beaune were built with pointed vaults. At Vézelay, the buttresses used were found too small and had to be strengthened in the 13th century with flying buttresses.

About 1160, there was built in front of this church a narthex or porch, after the rule of Cluny, which had a pointed vault with groins. These vaults are abutted by those of the side galleries; but the latter are not constructed in the usual way as simple semi-tunnels. They also are groined, so as to admit large windows between nave and aisle. This building is one of the most interesting specimens in France, so far as the history of French Gothic is concerned. We here find the transition from the old to the new style of vaulting apparent in all its elements. The side aisles are groined, so as to admit large windows in the outer wall, and between aisle and nave, *above the spring of the arch*. This was hitherto the great difficulty. It will also be observed that the vault does not now carry the exterior roof, as in the old examples. It rests on a separate wooden roof raised above the vaulting. This was always the case in the "true Gothic." The vault being raised, in each bay, as high as the side as in the centre, could not easily be roofed, except by a false roof raised above the whole.

There was only one step now required to render the vaulting complete Gothic, and that was—either, first, to remove the upper gallery and lower its roof to the side aisles, leaving only the transverse arches standing on flying buttresses to resist the thrust of the central vault, now all collected by groins on the points opposite these transverse arches, or, second, to retain the gallery and heighten the central vault so as to get windows over the roof of gallery, the thrust of the vault being resisted by flying buttresses raised to a sufficient height. The latter was the method adopted, as for example at Notre Dame de Paris, Noyon, Soissons, and many other churches built in the Royal Domain during the latter half of the 12th century, within which time the style was fully developed. The moment that this idea had been carried into effect, of groining the central nave and supporting its thrust (all collected by the groins or single points) by flying buttresses, the transition from the old to the new style had been reached. We cannot at present trace the development of each feature of the new style, or we should see how there followed, by a natural progress, the strengthening of the groins, which had at first been used merely as a decorative torus, but were now soon turned into useful constructive features, for the support of the filling-in of the vaults. From the exigencies of the vaulting proceeded also all the other constructive features—such as flying buttresses to resist the thrust, and pinnacles to add weight to the buttresses, mullions and tracery to support the glass.

By this new vaulting the side arches could be raised as high as the central vault, and so windows of large size could be admitted. This was eagerly seized on as an opportunity for the display of stained glass, a new kind of decoration which has just been introduced. The more the system of vaulting and buttressing progressed and was understood, the less of the solid wall was required. Bit by bit the side walls became absorbed by the windows, and finally the whole sides of the churches became, as it were, glowing sheets of stained glasses. Even the space for the lean-to roof of the aisles, usually occupied by a dark triforium, was found heavy and unsat-

\* By David Macgibbon, Esq., architect. Read before the Architectural Institute of Scotland on the 15th ult.

factory, and by the alteration of the form of the roof was also taken possession of for stained glass. Thus at Amiens, the nave (built 1230-1240) has the dark triforium, and the choir (built 1255-1265) has a glazed triforium.

Along with the development of the vaulting and construction, there arose also a new system of decoration. The new construction became, in fact, the motive of the new decoration. The old traditional style was left entirely behind, and everything was new and natural. The buttresses, pinnacles, and vaults, were all features of a character purely constructive, and yet they were so formed and clothed with ornament expressing their purpose, that they became also the ornamental features of the style. So also the capitals, string-courses, cornices, were all cut with bold vigorous foliage, expressing by their life-like forms the living character of the style; and the ancient method of carving figures, animals, &c., without reference to the purpose of the features on which they were placed, was entirely abandoned. The sculpture also became natural and truthful, and, although simple, of wonderful power and expression. Thus, the old traditions of many dark ages were superseded by science, poetry, and love and study of nature.

It has often been maintained that the Gothic style was imported into France. The Crusaders have got the credit of bringing it back with them from the East. The Saracens have been supposed to have introduced it by way of Spain and the South. And the South has, in its turn, been said to have given the North the idea of the pointed arch. As the history of the Pointed style has been more carefully studied, so its origin has become clearer and simpler. By tracing the early history of architecture in France, we have been able to see the very steps by which the style advanced; the actual difficulties which had to be surmounted; and the way in which these were, after many failures, finally overcome. We have also seen that the North did borrow some of its features from the South, to which it was indebted chiefly for its sculpture. But so far as Gothic architecture is concerned, the South owes all to the North. The style of the Royal Domain is in advance of the rest of France, in point of time as well as grandeur of design. The Ile de France was the centre whence the style radiated, extending its influence as the Royal Domain extended. The epoch of the great cathedrals in the Royal Domain was from 1180 to 1240. Philip Augustus died in 1223, and all the principal dioceses in the Royal Domain had then rebuilt their cathedrals, or were far advanced with the works. It is a fact, scarcely credible, that in that short period of 60 years were erected:—the cathedrals of Paris, Chartres, Bourges, Noyon, Laon, Soissons, Meaux, Amiens, Arras, Cambrai, Rouen, Evreux, Sees, Bayeux, Coutances, le Mans, Angers, Poitiers, Tours; and those in the allied dioceses of Reims, Sens, Chalons, and Troyes in Champagne very soon followed. In Burgundy, Auxerre and Nevers, the nearest to the Royal Domain, rebuilt their cathedrals; whilst Autun and Langres, further off, preserved their edifices of the middle of the 12th century.

In Guyenne, which was still in the hands of the English, Perigueux, Angoulême, Limoges, and others retained their old churches. As the English were driven off, the style extended; but after the 14th century the spirit of the people had changed. They had found other vents for their talents and industry besides architecture, and the great buildings ceased.

As an illustration of the Gothic architecture of the Royal Domain and its dependencies, I would now request your attention for a few minutes to the very interesting series of photographs from the portals of some of the important buildings of that district. Those published by the Architectural Photographic Association comprise a series of the five west doors and two side porches from Bourges; the great west door from Auxerre, with portions of its beautiful sculpture enlarged; and the west portal at Sens, with portion of dado enlarged; and I have added, above, some photographs of Notre Dame at Paris, and the porches at Amiens and Reims.

These are all of the principal period of Gothic art above referred to, between 1180 and 1240, or at least before the close of the 13th century. Auxerre belongs to the end of the 13th century.

Amongst the other traditions preserved and practised by the monks, was the use of the narthex or atrium in front of their churches. Those built by the Order of Cluny were large and important—they were not open, however, like the early Italian specimens, but vaulted and enclosed. Those of the Cistercians were, in accordance with the strict rules of that Order, small and shallow. The central doorway of the narthex at Vezelay (already referred to as built in 1160) is a good example of the style of sculpture at that period in the North of France. It will be observed that it is much inferior to that of the similar work in Provence, of about the same date or earlier; and also that there is less of it—no

figures on a large scale at the jambs of the doorway, such as those at St. Gilles and St. Trophime. This is a necessary characteristic of the North, where the artists had no models left from the time of the Romans, while such abounded in the South. Through the whole North, there are but few specimens of figures on a large scale at this early date.

In the new Gothic style, the traditional form of porch was entirely discarded. It suited well the exclusiveness of the monasteries, but was not wanted in the new cathedrals—the churches of the people. The readiest access was the best for these; and so we find, where porches were used at all, as at Chartres and Laon, they are open and free; while at Paris, Amiens, Sens, Reims, Bourges, &c., there are no porches at all, but wide open doorways.

These portals are arranged on a plan, which, in general distribution of parts, is the same in them all. At the base of the west front there are three large doors—the central one is the largest, and opens into the nave; the side doors open into the aisles. At Bourges, the portal has five doors, as it has five aisles—one door to each aisle. The doors are always well-recessed with deep sloping jambs, and sometimes a square reveal (Amiens) before coming to the slope to give a deeper shadow. The lower part of this splayed jamb usually forms a dado, either plain (north door, Reims); the west porch has a curtain ornament) or ornamented with diapers and bas-reliefs in enclosing figures (Amiens, Sens, Paris), or an arcade (as at Bourges), or both (as at Auxerre). The enlarged photographs of portions of the dados at Sens and Auxerre give a good opportunity for studying that portion of the porch—in both, we see the Wise and Foolish Virgins, at upstarts; at Sens, figures in the upper part, probably relating to those larger ones formerly above, and grotesques of animals; at Auxerre, a very beautiful series of sculptured panels: the upper arcade seems to contain two figures of prophets in each arch, with the angel communicating their message in the centre, and in the panels beneath are subjects from the Old Testament, amongst which may be noticed Creation, Joseph, Samson carrying off the Gates, and the History of Daniel, &c.

On the dado rest the columns supporting the arch, set, in early examples and in the North, in nooks (side doors, Bourges), the angles between being ornamented with foliage are carved into secondary shafts. More generally, however, the columns are set along a plain splayed jamb. The statues are either placed against the columns, standing on corbels (Amiens, Reims, Paris), or between them (Bourges). In late work the columns disappear, and the figures are set in niches (Auxerre). These figures have always canopies over them—sometimes attached to the shaft (Amiens), or forming part of cap as at Sens, or springing above the cap as at Bourges and Reims.

The arch above is filled with rows of figures, running up between the mouldings, one row over each column, the tabernacle over each figure serving as a base for that above. These figures are always in a certain order. The first or inner row represents angels, then saints, martyrs, kings, &c. At Auxerre the niches are filled with subjects, each having several figures representing martyrdoms, &c. Between these rows of figures are mouldings boldly marked—at Bourges, carved with foliage. The tympanum within the arch is filled with sculpture, and usually in several tiers. At Sens, the tympanum is filled with a kind of tracery, containing figures representing the martyrdom of St. Stephen. At Reims the tympanums are filled with stained glass, the sculpture being above in the gable. Generally, the gable is occupied with a simple rose (Bourges) or quatrefoil or other opening.

Where there is a central mullion, it is occupied by the statue of the person to whom the door is dedicated. The subjects of the sculpture of each doorway have all reference to this central figure. When it is our Saviour, as it generally is in the great cathedrals (as in the central door at Bourges and Paris), the pedestal on which he stands contains figures of David or the prophets. The Twelve Apostles are ranged on either side against the jambs. The dado contains emblems of the virtues and vices. On the upstarts at the door are the Wise and Foolish Virgins. On the lintel is represented the Resurrection, the weighing of the souls, and the separation of the elect from the lost. Above, in the tympanum, Christ in judgment and angels holding the instruments of the Passion. In the angles, the Virgin and St. John kneeling. The niches in the arch are filled with angels adoring, martyrs, confessors, kings, and patriarchs.

The mullion of one of the lateral doors of the west front is generally occupied by the Virgin and Child (Paris and Bourges, left door; Amiens, right; Reims, central door). Her feet rest on the serpent. The pedestal contains a history of the Creation and Temptation. Over the Virgin's head, forming a canopy, is the Ark of the Covenant. In the jambs the Magi, the Annunciation, Visitation, Circum-

cision, and David; on the lintel, kings, or Moses and Aaron and prophets; above, the death, burial, and raising of the Virgin; and in the tympanum, her coronation; in the arches, angels and prophets.

The third door is generally dedicated to the patron saint of the diocese (at Amiens, St. Firmin). The figures in jambs have relation to his history, or saints venerated in the locality; and the sculpture in the tympanum contains the legend of the saint, the history of the translation of his reliques, &c.

At Bourges, one of the doors on the right is dedicated to St. Stephen—his statue is on mullion, and his martyrdom in the tympanum; the other to St. Ursin and St. Just, whose preaching the gospel in Berry is represented in tympanum.

Over the portals of the cathedrals dedicated to the Virgin there is a row of kings—not as was formerly supposed, kings of France, but kings, ancestors of the Virgin.

It has been remarked that the sculptors of the North derived their ideas from the South. It must, however, be further noticed that the scholars soon outstripped their masters. The subjects of the sculpture in the South are generally scriptural; those of the North include also the legends of the saints and all kinds of history and allegory. In the South, the old traditional subjects were always treated over and over again; whereas, in the North, although the great representative of the Last Judgment generally occupied the main portal—which was its traditional situation—the sculptors could not rest satisfied with the constant repetition of the same ideas everywhere. They, therefore, broke loose from the ancient traditional subjects, and chose new ones more to their mind; and when they did represent the old subjects, they thought nothing of taking all sorts of liberties with them; and, as we trace the history of the art, we find the sculpture become more and more natural, both as regards the nature of the things represented and their mode of treatment. This is a type of the style, and indicates its tendency in all its branches.

#### ROYAL IRISH ACADEMY.

A GENERAL meeting of the members of the Royal Irish Academy was held on Monday evening, the 8th instant.

The Very Rev. Dean GRAVES, D.D., in the chair.

The Rev. W. Reeves, D.D., secretary, read the minutes of the previous meeting.

James Warren, Esq., and Charles H. Foote, Esq., were admitted as members. The Rev. J. H. Jellett read, in continuation from previous meeting, a paper "On the Refraction of Polarized Light." The object of the author was to show that the observations which he had detailed to the Academy at the previous meeting were perfectly reconcilable with the laws of Fresnel when rightly interpreted. In fact, it was only necessary to assume that the density of a fluid increases as you approach very near to its mathematical boundary. The learned professor gave some mechanical reasons, extracted from the work of Monsieur Jamin, to prove that this increase of density actually takes place.

The paper was referred to Council for publication.

Mr. Harding presented the original manuscript, from which his memoir on "Townland and other Surveys" of a public character in Ireland, extending from 1640 to 1688, had been printed. The form differed from that in which it had issued from the press, in consequence of the pressure put upon him to economise the Academy's funds. Mr. Harding also presented a neatly-bound volume of his memoir, which he said contained an introduction not included in the copy distributed to the academicians, and which he recommended to their notice.

The thanks of the Academy were passed to Mr. Harding for his valuable present.

Dr. Reeves announced the presentation to the Academy, from Lord Talbot, of 50 parts of *Phycologia Australica*, or the History of Australian Seaweeds, by Dr. Harvey, Professor of Botany, for which thanks were returned.

Mr. J. Ribton Garstin, LL.B., exhibited a curious bronze steelyard or balance, evidently of considerable antiquity, lent for the purpose by the Rev. George Nesbitt Tredennick, Vicar of Kilbarron, on whose property, near Ballyshannon, county Donegal, it was lately found, about three feet under ground, by one of his tenants, when clearing away a mound of earth and stones which appeared to have been part of what was considered a Danish fort or "rath." There are several of these in the immediate vicinity. The steelyard is now in two parts. One is a round bulb of lead weighing over 1½ lb. It is covered with a thin coating of bronze, which is rudely ornamented on one side. To this it is supposed there was attached a hook on which was hung the article to be weighed. From the opposite side extended the arm, 9 inches long, which is now detached, having been broken off by the person who found it. It is graduated with small holes, and it is remarkable

that there are found on both sides. The end next the bulb is flattened, and bears the marks of three holes through which evidently passed a wire or pivot by which the machine was suspended. On this arm a travelling weight, now lost (unless the bulb be it, as suggested by the President), moved as in the weighing machines now in common use. From the appearance and ornamentation of the steelyard, it is thought that it must have been a standard balance, and it might be useful in helping to discover the ancient weights used in Ireland. Unfortunately the weight was somewhat mutilated by the finder, who imagined from the bright colour of the bronze, that it was gold, and, therefore tore away part of the covering—when only lead was to be found! Mr. Garstin mentioned that a number of bronze celts, arrow-heads, and ancient Irish implements, a bronze sword and hatchets, coins, &c., have been found in the immediate vicinity, and many of these are in the possession of the Rev. Mr. Tredennick.

After a few words from the Rev. Dr. Reeves, Mr. Hardinge, and the President, a vote of thanks was passed to the Rev. Mr. Tredennick.

#### ON FRESCO PAINTING AS A SUITABLE MODE OF MURAL DECORATION.\*

TWENTY years ago the Royal Commissioners on the Fine Arts determined that fresco painting might be applied with advantage to the decoration of the Houses of Parliament. The benefits then promised from the adoption of the process have, either by fatality or fault, failed in realization. After labours extending well nigh over a quarter of a century, the commission is dissolved, the frescoes are in decay, and a new method, imported from Germany, has obtained the ascendancy. The frustration of hopes reasonably entertained, that in the revival of painting a new and great era was about to dawn on our national arts, now comes as little less than a calamity on the country. It had been thought that a mode of mural painting which the practice of the greatest artists of the Middle Ages had proved to be durable, economic, and architectonic, might, with success, in these our modern times, be applied to the internal decoration of public and municipal buildings in the metropolis and provincial cities. I repeat that any disappointment of this well-grounded anticipation must be regarded by architects, painters, and art-workmen as no less than a calamity, for it is manifest that if we allow a hostile verdict to be given against fresco painting, a large field which was open to an art development high in style and popular in the wide area of its teaching and appeal, becomes practically closed. I, for one will rebel against any such fatal judgment. The hostile verdict, if verdict there be, has been founded on partial and insufficient evidence, and I think that good service will be done to the cause of noblest art by the attempt which I shall now proceed to make, to marshal concisely and clearly the facts of this fresco trial, just as they are. It will be seen that the experiment was not made in England until after mature deliberation. It will be shown that any failure or decay in the frescoes executed at Westminster is partial, and within the reach of remedy; and the conclusion, we believe, will come as irresistible, that the method which, in the hands of Raphael and Michael Angelo, was the vehicle for the noblest thoughts, is still an art fitted for all time, in which the arm that is strong will rejoice, and the mind that is large must glory.

It is scarcely needful that the well-known process of fresco should be described. In order, however, the more clearly to comprehend the facts of the case as they at present stand, a short explanation may be desirable. I will call your attention, then, to three several important points in which frescoes contrast with oil painting and easel pictures. First, as to the material or surface upon which the artist works. Easel pictures are painted upon panel or canvas, the recipient surface being dry. In contrast, frescoes are painted on a wall, the surface of which is wet; hence the term fresco—fresh, or newly laid. This is the fresco *buono* or *puro*. However, the practice of the Italian masters admitted of certain latitude. A large composition, for example, might, in the first place, be laid down, in its breadth and simplicity, upon the mortar while moist, and then touched up and finished when dry by the secco or tempera process. And this liberty which the artists of the Middle Ages were permitted, ought, I think, to be, and has been, extended to our modern practitioners. Accordingly, I shall feel justified in using the word fresco in its more popular and extended sense—as a mural painting begun upon the mortar while wet, but oft-times elaborated and finished after the wall has become dry. This, and possibly other minor modifications, were in the original fresco eras of Italy, as in the modern and revived epoch in Europe, matters of personal convenience and nothing more. Certain artists, of sure and rapid hand, had found themselves, even in the first sweep of the brush,

certain of the desired result, and hence their works would need no retouching. But other painters, more sensitive and timid, discovered that it was needful to revise their compositions, even as an author his proof-sheet prior to publication. By such retouching and revision, however, when kept within legitimate limits, the original thoughts and style of the painter or writer suffer no absolute reversion. In other words, the fresco, in its largeness of treatment, in its immunity from surface gloss or varnish, in its brilliancy and power to give off light, is scarcely to an appreciable extent prejudiced. But I think it is generally admitted, that the less of secco retouching the better; and I have no hesitation in saying that some of the frescoes in the Houses of Parliament have, by the inordinate laying on, probably both in fresco and secco, of opaque body colour, lost the transparency and the pure liquid quality by which the lovely works of the best Italian masters are distinguished.

Easel pictures, as I have said, are on panel or canvas; fresco-paintings upon wall; and this difference in first foundation involves a corresponding contrast in the causes which secure durability or accelerate decay. Canvas may rot; worms may eat away a panel; and not less does the mortar, in its constituents of sand and lime, become subject to chemical agencies which conspire for the picture's overthrow; and these agencies, which were not in abeyance in the Middle Ages, are, of course, active still. They have occasioned, as we shall see, the partial destruction of the frescoes at Westminster, as they had already wrought the demolition of like works in Italy. But this failure, when it overtook the painter of old, only served as a caution to greater care; never was it permitted to annul a method which in the hands of genius had been proved capable of grandest results. A like persistency in the pursuit of a noble end would well become our English artists.

I have first spoken of the material or surface upon which the fresco is painted. I would now secondly, in few words, direct your attention to a question no less vital—with what colours shall the fresco painter lay his palette? Sir Joshua Reynolds said that he was convinced the ancients were great colourists, because the colours which they used were few and simple. The same argument might be adduced in favour of the Italian fresco painters. In fact, the multitude of pigments which are permissible in oils become greatly circumscribed in fresco. The conditions, indeed, which obtain in the processes of oil and of fresco are widely different. In mural paintings the colours sink into the mortar, and ought to be durable as the wall itself. In this amalgamation, however, they have to submit to a fiery test. The lime lays hold of the weaker sort and blanches their lustre; therefore, it is necessary that unchanging earths and minerals should be chosen; that vegetable and animal dyes, however alluring—that artificial compounded pigments, which may be subject to decomposition, should be discarded. It is desirable, in short, that the fresco painter in simplicity should trust nature and not the colourman, that he should take the earth from the ground and the minerals from the mine, just as the rains of heaven may have washed them, or the fire of the volcano may have tried them in the furnace; and the probability then is that the colours which have endured the heat and the cold, the wind and the rain of ages, will not vanish when handed over to the convent, cloister, or the palace hall. Nevertheless, some of the colours adopted by the middle age painters, though wise in their generation, have gone, and some used by our modern artists have in like manner perished. This, in the nature of things, was to be expected. But such small misfortunes should, as we have said, impose greater vigilance, should nerve to effort, not enervate for defeat. A great art which has in past times been practised with signal success must not be abandoned with the timid cry of surrender. For myself I do not join in the oft-repeated lament over the "lost arts." Assuredly, with the manifold resources of science at our command, we can find more than an equivalent for all that has been lost. The fresco painter need not fear that materials will be wanting. No great art in the history of the world has become extinct from the lack of paints or brushes; but many strong and noble schools have perished from the incompetency of professors and from degeneracy in the taste of the people.

One more generic distinction of the art of fresco painting I would mention before passing to the specific experiments which have been made in this country. We have spoken of the mortar, wet or dry, which receives the picture. We have insisted on the simplicity of the pigments suited to the fresco process. And now, thirdly, we will say a word, not on the material, but on the location of these fresco paintings. Easel pictures, whether on canvas or panel, are movable and itinerant; mural pictures are attached to the freehold, and are thus fixtures, and form part and parcel of the real estate. In the commerce of art these easel pictures may be deemed of the nature of goods and chattels; as personality, which may pass from hand to hand; movable stock, that can be put in

transit from town to town, seeking house-room anywhere and everywhere. But fresco paintings, in contrast, as we have said, are inseparable from the freehold; they are heirlooms, which pertain to tenures and hereditaments; they are real property, which cannot be included in probate or touched by executor. And thus, in the commonality of art, works executed in fresco stand in perpetuity as the heritage of ancient families; as a princely or noble lineage, they have taken hold of castle precincts, and abide from generation to generation. In hall and banquetting room they maintain a stately presence; and tenants and retainers come and go, the flood of life passes by, but as long as the lordly palace lasts these memorials of ancient days depart not. And, therefore, has it always been held that, over and above the value which might inhere to easel painting, there was to fresco something superadded of paramount nobility. Fresco, as we have seen, is attached to the freehold, and consequently is inseparable from architecture, the earliest and grandest of arts; and this, its indissoluble union with the stately art of construction, imposes severe conditions and qualifies for highest functions. These requirements and prerogatives we can now stop merely to indicate in fewest words. Suffice it to say, then, that fresco paintings, like the architecture which is their framework, should be simple in treatment, symmetric in proportion, broad in distribution of distinctive members and masses; that the theme chosen should have the element of greatness; that the truths embodied should be as enduring as the tenement they adorn; that details small, that thoughts trivial, and that methods meretricious, should find no place in that high and ancient art which Giotto, Orcagna, Signorelli, Michael Angelo, and Raphael, have raised to majesty and stamped with essential truth. Such being the inherent dignity and worth of fresco, we cannot be surprised that the Royal Commissioners of the Fine Arts, with the late Prince Consort as their chief, should have deemed the adoption of the process as singularly suited to the decoration of great national buildings, a method, let me add, which could receive no more timely revival than at the period when architecture, taking to renewed development, craved from sculpture and painting consonant aid—a style which, by its largeness and the extent of its historic range seemed peculiarly fitted to impart to our English school a much needed power, mastery, and grandeur.

Accordingly, a trial of the ancient art of fresco was, as we all know, made under high auspices, in the Palace of Westminster. I have just closed a rapid survey of the process in general, and now proceed to the details of the actual experiment which has been made in this country.

In the year 1811, a select committee was appointed by the House of Commons "to take into consideration the promotion of the fine arts in this country, in connection with the rebuilding of the Houses of Parliament." In this same year the committee stated, in their printed report, that they had "obtained the opinions of some very distinguished professors and admirers of art, who were unanimous upon one point, viz., that so important and national a work as the erection of two Houses of Parliament afforded an opportunity, which ought not to be neglected, of encouraging, not only the higher, but every subordinate branch of fine art in this country." The committee, writing more than twenty years ago, say that to one of the fine arts in particular, which indeed had scarcely been known in this country, they had directed special inquiry. "Fresco painting," they tell us, had then "lately been revived on the continent, and employed in the decoration of public buildings, especially at Munich." Sir Charles Eastlake, Mr. Dyce, and others, held the opinion that fresco was to be preferred to oil, from its superior fitness to all situations, from its peculiar power of giving off light, and by virtue of its greater durability. It was further the judgment of the highest authorities that fresco paintings would greatly enhance the decorative beauty of the Houses of Parliament, and that the acquisition of the process, hitherto unknown to our artists, could scarcely fail to impart to the English school power in drawing, and grandeur in design and composition.

Accordingly, we cannot be surprised to learn from the report, presented to the House of Commons on June 18, 1841, that "your committee having carefully considered the evidence, are disposed to recommend that the style of fresco painting should be adopted." In compliance with a further recommendation of the committee, was inaugurated in the following year the commission on the fine arts, appointed expressly to superintend the decorations of the Houses of Parliament, and to assist the Government in the conduct of all incidental investigations. The subsequent line of action taken by this imperial body will be within the memory of most of us. The commissioners, in the first place, wisely determined to test the ability of our British artists by two successive competitions—one of cartoon drawings, the other of fresco paintings—the works executed being, it will be remembered, submitted to public scrutiny in West-

\* Paper read by J. B. Atkinson, Esq., on Wednesday, 10th instant, at Society of Arts.

minster Hall. The commissioners, in their third report, dated Whitehall, July 9, 1844, humbly state to her Majesty that the exhibition referred to had taken place, and that, considering the inexperience even of the best artists in the practice of fresco-painting, they were satisfied with the promise of superior skill which had been afforded; and they were of opinion that several of the specimens of fresco-painting which had been submitted to them, taken together with the cartoons before exhibited by the artists, or with other existing evidences of their talents, justified them in suggesting further measures, with a view to the execution of fresco-paintings in portions of the Palace of Westminster. Accordingly, we find, in 1845, the commission for the first fresco in the House of Lords—the Baptism of Ethelbert—was entrusted to Mr. Dyce.

The Commissioners, it is worthy of remark, proceeded with commendable caution. Referring to their next report, dated 1846, we find them still apprehensive that want of experience on the part of the British artists might involve the revived process in partial failure. "We have, however," write the Commissioners, "the satisfaction to state that the work entrusted to Mr. Dyce presents no evidence of such imperfections; that, on the contrary, it evinces great knowledge of fresco-painting, and great skill in its application; that, further, as regards the effect of fresco-painting in the locality, that we consider that it promises to agree well with the architectural and other decorations therein adopted, or to be adopted. We therefore beg leave to confirm our former recommendation, and to propose that the remaining five compartments in the House of Lords should be decorated with fresco-paintings when the several designs for the same shall have been approved." These five compartments were committed to Mr. Maclise, Mr. Cope, and Mr. Horsley; and the Commissioners, in their eighth report, dated 1848, give the following testimony in favour of the process they had sanctioned:—"We consider," write the Commissioners, "that the three works already executed, the designs for which had been before approved by us, are highly satisfactory as examples of fresco-painting; their effect confirms us in the opinion that, under circumstances of light and distance, fresco-painting is well calculated for the purpose of decoration; while from requiring the preparation of careful designs, the method recommends itself as being fitted to promote the study of form." The two remaining frescoes, completing the series in the House of Lords, were finished in the autumn of 1849, and "the execution of these frescoes," again write the Commissioners, "appears to us to be highly satisfactory, and to indicate increased skill on the part of the artists in the management of the material." In adducing these data I wish specially to note, first, that fresco-painting has been proved, to the actual experience of the Commissioners, suited to mural decorations, second, that the technical difficulties of the process had been so readily overcome, that even the first trial was to all outward appearance a success; and, third, that our English artists have shown themselves fairly competent to meet the conditions which the new method imposed.

The series of eight frescoes illustrative of the British poets, executed on the walls of the Upper Waiting Hall, must next obtain our consideration. It appears that the Commissioners, in 1845, were desirous of affording opportunities for the execution of cartoon designs, and for the further practice of fresco-painting, and that therefore they set apart this waiting-hall for the display of tentative works. The painters selected for these labours were Mr. Cope, Mr. Watts, Mr. Herbert, Mr. Horsley, Mr. Tenniel, and Mr. Armitage, artists who had already distinguished themselves in cartoon drawing or in fresco painting, at some one or more of the competitive exhibitions.

After the lapse of five years, when four of the eight illustrations of the British poets were complete, the Commissioners were able to pronounce that, "in all these works, evincing various powers in the artists, we recognise a satisfactory acquaintance with the method of fresco, and in some, abilities of the highest order." In 1854, "these experimental works" are reported as finished, and that apparently to the entire satisfaction of the Commission. We shall shortly return to these frescoes when we come to describe and to discuss the causes of their decay.

### Miscellaneous.

The *Engineer* of August 15th, in its description of Benson's Great Clock, says:—"It is the largest and unmistakably the best finished clock in the Exhibition." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting-house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and

turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on Cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

DRINKING-FOUNTAIN IN 1685.—The desirableness of providing public drinking-fountains, similar to those which originated a few years ago in Liverpool, are now becoming general in London and other large towns, seems to have occurred to some benevolent persons almost two centuries ago. Sir Samuel Morland, who was a most ingenious as well as benevolent character, purchased a house in Hammersmith in 1684, where, for many years, he chiefly resided. Observing the scarcity of good drinking-water in his neighbourhood, and knowing how seriously the poor would suffer from the want of such a necessary of life, he had a well sunk near his own house, and constructed over it an ingenious pump, a rare convenience in those days, and consigned it gratuitously for the use of the public. A tablet, fixed in the wall of his own house, bore the following record of his benefactions:—"Sir Samuel Morland's Well, the use of which he freely gives to all persons, hoping that none who shall come after him will adventure to incur God's displeasure, by denying a cup of cold water (provided at another's cost, and not their own) to either neighbour, stranger, passenger, or poor thirsty beggar. July 8, 1685." The pump has been removed, but the stone bearing the inscription was preserved in the garden of the house, afterwards known by the name of Walbrough House.

KINGSTOWN GAS COMPANY.—A prospectus of a new gas company, under the title of the "Commercial Gas Company of Ireland," has been issued. It purposes, in the first instance, to supply Kingstown, Monkstown, Dalkey, Killybeg, and Ballybrack, with gas of high illuminating power. The gentlemen named as directors are all residents in the locality, and this may be taken as a guarantee that the affairs of the company will be closely looked after. The capital is fixed at £100,000, in 50,000 shares of £2 each.

LECTURES ON LIGHT.—Dr. Wm. Barker will commence, on Wednesday evening next, a course of lectures on "Light, its sources and application in the arts," in the Museum of Irish Industry, Stephen's-green.

TO CLEAN WHITE OR ANY MARBLE.—Take two parts common soda, one part pumice stone, and one part pounded chalk; all to be finely powdered and mixed with water to a thick paste; rub this well over the marble, and leave it on for some time—say 24 hours; wash it off with soap and water. Should the marble be much discoloured, or a stain, add a little oxalic acid, but this should not be left on more than an hour or two, as the oxalic acid may take off the polish, but it will take out the stain.

SHAKESPEARE TERCENTENARY.—The Crystal Palace (London) Directors intend commemorating the 23rd of April in an appropriate manner. For some months past Mr. E. T. Parris has been engaged on an exact reproduction of the exterior of Shakespeare's house at Stratford-on-Avon, to be placed on a large stage in the centre transept of the palace, and around and about which the entertainments on the 23rd of April will take place, the great Handel Orchestra, the transept galleries, and adjoining space, affording ample and commodious accommodation for tens of thousands of visitors. This counterpart of Shakespeare's birth-place will be more than sixty feet wide, the wooden frame-work, the doors and windows, being exact copies of the original. It is also intended to make within the house an exact full-sized reproduction of the room in which the poet was born, and of the room below—which up to a recent date was occupied as the well-known butcher's shop—and to place there such interesting and authentic Shaksperian relics as have already been lent, or will undoubtedly hereafter be entrusted to the directors.

THE DROGHEDA WATERWORKS BILL.—This Bill, together with 107 other private measures, will be first considered by the House of Lords. There is little doubt that it will pass into law.

NATIONAL GALLERY OF IRELAND.—The attendance of visitors during the week ending 13th February, was 6,339. Total since the opening on 1st February, 9,640.

The Marine Hotel Company have purchased the International Hotel at Bray, Co. Wicklow, for £7,000.

APPARATUS FOR CLEARING CHIMNEYS OR FLUES.—During the past year a patent was completed by Messrs. Webster and W. Forgie, for an improved apparatus for clearing chimneys or flues when on fire or otherwise. It is thus described:—"This apparatus consists of a series of steel or other hard malleable metal strips or material, by preference, about one-eighth of an inch thick, and three-fourths of an inch broad, and divided into eight or other suitable number of equal parts about eight inches long, more or less, according to the size of the apparatus required. These parts are formed into semi or half circles upon edge, with saw teeth cut thereon, and attached to or mounted upon a steel spindle or rod of metal, by preference about half an inch in diameter, and about twelve inches long, having joints near each end to which the parts previously described are attached, part at one end and part at the other, so that the unjointed ends of the strips meet and overshoot each other, and although coupled together they are quite at liberty to expand by means of self-acting springs, which cause the apparatus, when at liberty, to expand into a globular shape, but when compressed they contract into a smaller compass, and thereby the apparatus adapts itself to the interior form of the chimney or flue, or any inequalities thereof. The apparatus is worked by means of a series of rods made of steel or other hard material screwed to the apparatus, and in succession to one another, by which it is moved up and down the chimney or flue, and if the same is on fire, a lever handle is employed to work the apparatus to and fro in the flue, by which great power can be imparted thereto, and at the same time permit the operator to stand at a safe distance from the burning material as it is discharged from the flue.

Recently, as one of the masons at the West Harrisburg Market-house, United States, was dressing one of the stones of which the building is being constructed, upon chipping off a block he found a large petrified rattle-snake inside. The snake is in a wonderful state of preservation.

INSTITUTION OF CIVIL ENGINEERS.—A general meeting of this institution was held on Wednesday evening last, in the New Buildings, Trinity College—Dr. Downey in the chair. Dr. Haughton, F.T.C.D., read a paper "On the best mode of calculating the resistance to fracture of large iron beams when suddenly struck." This was a problem of great interest to engineers, and his attention had been directed to it by the Hartley colliery accident in 1862. Dr. Haughton's communication was of a purely scientific character. Mr. A. M'Dowell read a paper giving an account of the rapid destruction of the boilers of locomotives on the Danube and Black Sea Railway.

The *Art Journal* for August, speaking of Benson's Watches in the Exhibition, says:—"We have selected for engraving three of the watch-cases, of which a large variety is exhibited by Mr. Benson, of Ludgate-hill, in the large and prominent erection that contains his Monster Clock. To this department of art-manufacture Mr. Benson has paid especial attention." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (by post for two stamps) contains a short history of watch-making, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Class 33, Honourable Mention, Class 15; 33 and 34, Ludgate-hill, London. Branch Establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock Maker, by Special Warrant of Appointment to H.R.H. the Prince of Wales.

### TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

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VOL. VI.—No. 101.

## MODERN PRINCIPLES OF RAILWAY CONSTRUCTION.

THE enormous expenditure required for the construction of railway works in districts that are anything less than tolerably even in their physical character, whether the level of the line be preserved by the excavation of masses of heavy earthwork, or carried over ponderous masonry, or the shortest distance between two points be sought to be attained by the still more costly process of tunnelling, and the diminished profits which a depression of trade so often occasions, reducing dividends down to an imaginary percentage have rendered it an important question how far a saving of first cost may be effected by the introduction into the line of sharp curves and heavy gradients, and a strong predilection in favour of both of the latter has for some time prevailed amongst engineers. Mr. Adams's locomotive to carry a train round a curve of from two to six chains radius has gained for its inventor a well-earned notoriety; and in Australia engineers are now undertaking to drive passengers and goods up an incline of one in 33 without compunction. No doubt there are strong reasons for a company's preferring a winding and circuitous route over a natural surface, to a direct line through a tunnel or a heavy cutting. It is a mile from one town to another through a hill, it is two miles round the base. The works by the former line would cost £40 a yard, by the latter only £4, with perhaps a curve of from 10 to 15 chains radius. A ton of goods on the former would pay, perhaps, 3d.; on the latter it would pay 6d. The public would have to pay double, both in time and in money, for the selected route; their loss would be in a two-fold proportion: what matter, the gain in percentage to the company would be in a compound ratio that it would be difficult to estimate, mathematicians would perhaps reckon it as the square or the cube of the distance. The introduction of heavy gradients, though not increasing the mileage, while it effects an economy of first cost to the company, involves a decrease of speed, and consequent loss of time—a most valuable commodity to the public. Thus, then, it appears in the very beginning, that the carrying the principle of curves and gradients to an extreme degree, however recommendable it may be with a view to economy in construction, must be attended with results more or less disastrous to commercial intercourse, which the railroad was first designed to develop and to foster; and it may be carried to such a point that the vaunted advantages of the latter will cease altogether, or that it will be reduced at best to a mere tramway, full of steepes and hills, up which the steam horse pants and labours just

like its living prototype. Companies should consider the question narrowly in every point of view, unbiassed by the superficial appearances of a popular movement, before deciding such an important point as that of the route for a proposed line. Such a decision must be final, as mistakes cannot afterwards be rectified. A road may be altered, its hills may be cut down, or its course diverted, but a railway once made is made for ever. A line may be constructed, over a portion of which a train cannot attain to a speed greater than that of an ordinary mail coach, a tunnel would have enabled it to annihilate time and space, but there would be no ground to hope for a new and better line, or for such a desirable amendment, and the prospect of rapid communication between perhaps two rising districts would be destroyed for ever.

What, then, first led to the construction of railways, and what advantages have they over common roads so enormous as to induce companies to vote sums varying from £10,000 up to £300,000 per mile? It was not merely from the facilities for heavy traffic offered by the smooth surface of the unyielding iron rail; a tramway would in this respect rank equally in merit, and could be made for a tithe of the expense. The revolution was effected solely by the locomotive, the fruit of the magic genius of Stephenson. Now, the benefit which it has conferred upon commerce arises from two distinct sources—first, cheapness of transport; secondly, rapid means of communication between distant localities. Take away these, and the railway is no better than a common road or tramway; diminish them, and its condition will be retrograde in proportion. In the early days of steam transport the above two objects were the only ones studied, and prizes were offered for the locomotive which would attain the highest speed with the least combustion of fuel. A speed of from 60 to 75 miles per hour was not looked upon as anything wonderful, and even 100 miles per hour was talked of. Now our speed rarely exceeds 40 miles. Engineers are now taxing their inventive powers to carry a train round a curve of two chains radius, and a locomotive has been constructed which, by means of an auxiliary rail, will carry, or rather screw a train up a gradient of 1 in 25. Were we to meet with such a gradient in driving a vehicle on a country road, the passengers would with one consent alight, and every means would be adopted to relieve the horse of a portion of his burden. How much worse would it be with the steam-engine, loaded with perhaps 100 tons or upwards, and having now to raise in addition one-twenty-fifth part of the weight of the entire train? No wonder if the smooth surfaces of metal are stripped as if by a plane in the grating contact of iron with iron, and the yearly cost of rails and tires tripled or quadrupled. No wonder if steam-pipes burst, cylinder covers are forced off, or connecting-rods snapped, amid the straining of the panting and over-burdened engine. No wonder if coupling-chains are broken, and carriages full of passengers precipitated to

certain destruction. That an engine may be made which will take a train up a gradient of 1 in 25 there can be no doubt, but the inventor must remember that its speed will be reduced to that of a traction engine, which will carry a heavy load up a gradient of 1 in 10. And at what speed, we ask, would it be safe to drive a train round a curve of even ten chains radius? Would not a spirited horse, with a light gig, in racing parlance, beat it no match? Or if the driver sought to claim his supremacy by putting on more steam, what depth of flange would prevent the train from obeying the law of nature, and flying off at a tangent? The great object of railways is then, we must maintain, rapidity of transport for passengers, and not the mere cheap conveyance of goods, for which a tramroad and a traction engine would be equally well adapted, and the greater the speed attainable the greater will be the superiority of the railway over the road. How greatly would the travellers by the old stage coaches of half a century ago be astonished at the idea of a journey from Holyhead to London in seven hours. Just as marvellous again would be the benefit conferred upon social intercourse if it could be performed in three hours and a half. If, then, the magic changes which the introduction of railways has produced all over the world are to be attributed to their lending to social intercommunication the wings of the wind, the efforts of engineers should be devoted in the order of progress to the development of the highest practicable speed consistent with safety, and not, by a false economy, to a principle which must rob the locomotive of the right arm of its power. Railways have effected mighty social changes, but mighty results are never to be arrived at without much preliminary labour and outlay, which must be boldly undertaken, or great objects will never be carried out. If they are still to retain their boasted advantages, mountains must be pierced, hills must be levelled, and valleys filled up, and a direct and level course laid out for the resistless advance of the mighty steam horse. We speak of course advisedly. There are cases where the difference of level between two towns is such as to render a heavy gradient imperative. We merely wish to decry an abuse of the principle through a popular fallacy which, in striving to effect a mistaken economy loses sight of the real question under consideration, and to advocate for the reasons we have pointed out and in conformance with the laws of nature, the adoption as far as practicable of a "straight line," as being, in its mathematical definition, the shortest distance between two points. There are cases where the existing traffic is not such as to warrant a heavy preliminary outlay. Better to wait for a little, or to be at a little loss in the beginning until the railway develops, as it always does, a new traffic for itself, than to construct a cheap and bad line, and create a lasting obstacle to the rise and progress of the district. We could cite the example of a railroad not a hundred miles from our city where the rate of travelling is so slow that a distance of nine miles can be

accomplished in the same time by an ordinary horse and car, and many prefer to adopt the latter course.

The attainment of a high speed with perfect safety to passengers, is a problem yet to be solved, and the genius of some future engineer must be exercised to devise a better safeguard than at present in existence. There is something fearful in contemplating an express train, rushing along at a pace that takes one's breath as it passes, shaking the ground beneath our feet and carrying clouds of dust in its wake, when one thinks that all there is to keep it in its course and guard its living freight from destruction is a thin pair of rails that look like slender ribands as they converge in the distance. To depend on the flanges of the wheels for safety at high velocity is indeed like leaning on a broken reed. The safeguard which they offer is dependent entirely on the force of gravity, that is to say on the weight of the train. This is all well in seeming, but those who are versed in mechanics are aware that at a high speed the force which keeps the wheel in contact with the rail acts no longer vertically, but at a very oblique angle, in fact nearly horizontal, so that the weight of the train is almost annihilated, and should it leave the rail from any cause it will show little disposition to return to it. We cannot undertake at present to suggest a remedy for this very obvious danger, but we should suggest that in going round a curve the centrifugal force should be met, not as it is at present by a resistance at the flange of the wheel, where a couple is created, but by an opposing force at the side in a line with the centre of gravity of the carriage, through which the centrifugal force acts. This might be effected by a side rail strongly supported on standards, and bearing against a wheel protruding from the side of the carriage. If some simple expedient of this kind were adopted, so as to enclose the body of the train itself between guides, and not to depend on the rails alone for safety, it is possible that a very high speed might be attainable without danger.

#### WATER SUPPLY AND SEWERAGE FOR JERUSALEM.\*

A WORK under the above title, by John Irwine Whitty, C.E., and LL.B., late of Dublin, is the subject of a review in a leading article of *The Builder*. As the above gentleman has many friends in our city who are interested in his welfare, we publish the following extract, containing the more important statistics. After a graphic description of the present moral and social condition of Jerusalem, torn as it is by the feuds of domestic creeds, "exhibiting an amount of disease and suffering arising from bad food, crowded dwellings, and scarcity of water, that is beyond description," while there exists among the poor Jews of the town "more abject poverty and squalid misery than among any other class in the whole world," the review goes on to ask:—Could not civilization, aided by modern science and engineering, purify the Holy City of the desecrating filth of ages, while charitably providing its poorer inhabitants with the means of health and cleanliness? Could not we, English, who make honest work a part of our creed, and hold cleanliness next to godliness, expend a little of our superfluous wealth in this good work? Would a very large sum be required to purify and supply the Holy City with water? We excavate Nineveh, rummage Perse-

polis, and send expeditions to Borioboola Gha—could we not also examine the ruins of the religious metropolis of the world?

The work under review—a report to the London Central Committee of the British and Continental Syrian Improvement Association—is intended to fully answer these important questions. The title is almost a misnomer; as, in substance, the author contemplates the restoration of the ancient water-supply of Jerusalem.

From various sources, Dr. Whitty estimates the total area occupied by the ancient city of Jerusalem at 2,319,850 square yards, or 479½ acres. Taking the most crowded parts of London as a standard, and thus allowing 423½ persons to each acre,—a large estimate for a hot Eastern city,—the result is 202,882 as the total population. Josephus states that about 1,200,000 Jews were shut up in the city during its siege by Titus; but that this number was quickly diminished by war and pestilence. "Fifteen gallons of water per day for each individual" is the least amount required for health in an Eastern city. But leaving out comforts, and taking absolute necessities only into account, five gallons a day would make a total amount of 1,014,410 gallons. As the siege of Titus lasted 143 days, the probable minimum of water consumed during the siege amounted to 1,014,410 × 143 = 145,960,630 gallons. The population of the present city, according to the last and most probable estimate, amounts to only 20,330 souls. The Easter pilgrims are said to swell this number for a very short time, by 60,000,—at least according to Fuad Pacha's enumeration. The average annual depth of rain-fall in Jerusalem is 65 inches; which upon one acre would yield 235,950 feet. "This, multiplied by 213—the number of acres, omitting a few square yards—will give 50,316,337 cubic feet of rain-water which fall within the walls during one year; and allowing that, without any waste or loss by evaporation, the whole of this could be caught in cisterns, it would yield throughout the year a daily supply of 137,853 cubic feet, equal to 859,113 gallons per day, or more than 42½ gallons for each individual; assuming, as before, the population at 20,330." These facts would show the common assertion, that there exists a lack of water at Jerusalem in consequence of a curse over the land, to be unfounded. But from the deficiency of cisterns, and the neglect of those in use, the poor in Jerusalem are estimated by Dr. Whitty to be in absolute want of upwards of 25,000 gallons per day during the summer drought.

Careful examinations and measurements have shown that the present summer quantity of water supplied to Jerusalem is only 66,910 gallons, or little more than 3¼ gallons per day for each individual. This is scarcely more than one-thirteenth of the quantity supplied per individual in London by pipe-water alone. The amount of misery denoted by these figures can only be properly reckoned up by reflecting that Jerusalem is a hot Eastern city, where five gallons of water per day for each individual is the absolutely least amount required for health. Dr. Whitty then gives a second chapter to an enumeration of all the sources and receptacles for water in the city and its vicinity, with their state of efficiency. The main sources of supply besides that due to rain-fall are the two wells in the valley of the Kidron, outside the city, the water of which is very unwholesome, being impregnated by infiltration from the common cesspools of the city. On account of the absence of any system of sewerage, all the water, from whatever source, is in a similar state, as "the cisterns are almost invariably vaulted chambers beneath the dwellings, and are in most cases only separated from the common cesspools by cemented walls, and neither cisterns nor cesspools are often cleansed." The water, for instance, from Ain Hamman-esk-Shefa thus yields no less than 185 grains of solid matter in 128 oz. by evaporation from ebullition.

Dr. Whitty next proceeds to specify the remedies for such a state of things in the metropolis of Christendom.

The question of water supply is, of course, in intimate connexion with the sewerage of the city—"the cleansing it from the filth of ages," the accumulated strata of deposits from Israelites, Romans, Saracens, Crusaders, and Turks. The present so-called sewers appear to be merely undisturbed receptacles for filth, and to have been never intended to convey away the sewage matter. "Placed, as Jerusalem is, on an eminence,—with a considerable depression running from north to south through its centre, and a rapid fall then, downward through the valley of the Kidron, towards the Dead Sea, I know," says Dr. Whitty, "no city which might be more easily, or at less expense, provided with an efficient system of sewers;" and, as we have seen, there are plentiful means at hand for flushing them with water. Dr. Whitty proposes a large sewer along the line of the present street leading through the Mahomedan and Jewish quarters. It might be taken out of the city, and lateral minor sewers be run out from each side, and one sub-main on the

west side. In the sinking of the main sewer, "on the route of which cities lie on cities and ruins over ruins, 50 ft. to 60 ft. in depth," what inestimable relics might not be discovered? The Doctor proposes to utilize the sewage,—the great problem of the age, whether in England or in Palestine. Dr. Whitty does not estimate the expense of his sewer at more than £899. "On account of the favourable position of the line of streets of Jerusalem" along which it would run, it is not necessary to sink it much below the surface. This would appear a sanguine estimate, especially as the navvies of the East have to be first taught their business. On the other hand, labour is generally cheap as to price, if not as regards quality. The already existing reservoir outside the Damascus Gate could be used exclusively for flushing these sewers, and its enlargement and repairs, with the formation of its tributary drains, would be the first works undertaken. It appears, according to Dr. Whitty, that an area of about 1½ square mile, or 800 acres, could be made to feed its drainage into the Damascus Gate cistern. With an average to each acre of twenty-four lineal perches of drain pipes, the total cost would be 10s. per acre, or £409 in all for supplying this cistern with water, besides the Pool of Bethesda, Birket-el-Hejjeh, and others. The sewerage would thus far be provided for.

Nearly one hundred and fifty-three millions of cubic feet of water in the year could be drained into the upper Pool of Gihon to thus feed the Pool of Hezekiah. The surface which would contribute to this equals 2½ square miles, or 1,440 acres; and the expense of preparing the surface of supply for the Pool of Hezekiah is estimated by Dr. Whitty at £720. About seven miles in a direct line from the site of the Holy Temple are the three Pools of Solomon. These three pools, with the spaces between them, "occupy the valley for a length of 597½ yards," and their total capacity, according to the measurements of Dr. Robinson and others, is equal to 50,136,320 gallons. Under a complete drainage system, the catchment basin of these pools, according to the estimated rain-fall in Palestine, is capable of yielding more water than the pools would be able to contain. Dr. Whitty estimates that this work, viz., the sewer and its tributaries, the feeding of the Pool of Hezekiah, and the three Pools of Solomon, could be done with an expenditure of less than £3,000. This outlay he considered sufficient for the more pressing wants of the city.

It would appear, however, that Dr. Whitty has made what may be termed an important discovery, the utilization of which would give Jerusalem a water supply much superior in convenience to even that under Solomon. According to Dr. Whitty's measurements, "the deepest part of the lowest Pool of Solomon is 81 feet above the bottom of the Pool of Hezekiah, in Jerusalem, which is 10 feet in depth; therefore it is 71 feet above the general level of the ground at that point, which is 6 feet higher than the street at the Jaffa gate, and about 16 feet above the base of David's Tower." The tower itself being about 60 feet in height, water might be sent with considerable force to the top, under a pressure of 27 feet, and a tank there is kept constantly filled. Dr. Whitty has "given the subject for years deep and anxious consideration," and has "ascertained, beyond all doubt," the feasibility of this crowning project, of "bringing the water by a tubular aqueduct from the Pools of Solomon, either to the top of David's Tower, or to the highest point within the walls." It seems to us not improbable that, though the ancients might have known as much, theoretically, about levels as we do; yet, being ignorant of the use of cast-iron, they could not, by means of masonry alone, build pipes to hold a great pressure of water. Dr. Whitty gives several alternative estimates, so as to meet different contingencies. The highest is £3,479 12s. 6d.; the lowest, £4,986 4s. 2d.

After a few observations to the effect that the above estimates are perhaps a little too low, but that even if they were doubled the sum would be insignificant in comparison with the greatness of the object in view; the review concludes by wishing Dr. Whitty God speed and every success in his undertaking, a wish in which we most heartily join.

#### Law.

##### COURT OF QUEEN'S BENCH.

*Hughes v. Baker.*—Action brought for the taking down of a wall separating the houses 17 and 18, Cook-street, in this city. For the plaintiff it was alleged that the wall in question was a party one, common to both houses, while it was contended by the defendant that the wall was his own exclusively, and was built on the ground let to him by his lease. The case had been tried last term, but the jury disagreed, and were discharged. A verdict was now found for the plaintiff for £60.

\* Proposed Water Supply and Sewerage for Jerusalem—With Description of its present State and former Resources—By John Irwine Whitty, Civil Engineer, D.C.L., LL.D., M.A., Oxford and Dublin. And an Introduction by the Rev. Canon Stanley, D.D., Chaplain to H.R.H. the Prince of Wales. London: W. J. Johnson, 121, Fleet-street. 1863.

ON FRESCO-PAINTING AS A SUITABLE  
MODE OF MURAL DECORATION.\*

(Continued from page 30.)

WE must now enter on the most difficult, not to say distressing, portion of our subject, the decay of works which had entered upon a life so bright in promise. It is best, in the first place, that facts should simply be stated, without any conjecture as to causes.

We have spoken of three separate series of pictures, each to be found in a distinct locality. One group is in the House of Lords; a gallery of historic works runs along the corridors; thirdly, illustrations of the poets occupy the Upper Waiting Hall. These last have suffered most severely, therefore will best serve as examples for the general description which I at once proceed to give. A close and detailed examination of these works will reveal distinct stages, and probably different processes of decay. An early and premonitory symptom of disease would seem to be a blooming or frosting of the colours, which thus become as if mildewed. This affection extends, and then the pigments undergo further change, and begin to fall from the surface of the plaster. Sometimes the process of disintegration would seem to have an external origin, possibly arising from the atmosphere. In other instances the agencies of destruction appear to be internal, dependent probably on the constitution and constituents of the mortar. Certain portions of the fresco are upheaved by some inner rebellious force, as if antipathies had sprung up between lime and sand and pigments. In this disruption, as in the other phenomena of decay, several stages may be marked. The incipient traits of the dismemberment come in mitigated form. At first the fresco may give signs of dissolution simply by the colours having lost their fixity to the wall. The reds, the yellows, and the blues, will come off when rubbed with the corner of a white pocket-handkerchief; spots or pimples may here and there be seen on the surface; these become aggravated into blotches, extending into confluent sores, so that the very tissues of the picture are eating and rotting away. Then it is that large blisters heave bloatingly on the arms, neck, and face of the figures, till at length the pictured forms peel off bodily, and fall as dust and ashes to the ground. Yet this destruction, though terrible just where it sets in, is far from universal. And this is its essentially partial character we must in the present inquiry never for one moment forget. Partial effects point to like limitations in their causes; and causes which can be staid in their operation admit of counteraction. Most worthy, indeed, is it of remark that of two adjoining pictures, one shall have suffered ravages, while its neighbour shall be saved all but harmless. Furthermore, in the same fresco some colours have stood, while others have fled. In one picture, for instance, a blue dress remains firm, while a patch of brown close by has been dissipated. In another case, the light green sleeve of a woman's dress is peeling off to the thickness of cambric, while the body of the same dress, being painted with modified materials, lies hard to the wall. It is then, I repeat, of great importance that we should mark that the decay is, after all, but partial in its extent. Yet, after making this fair concession, I am bound to say that of all the sad cases in which premature death has overtaken youth and beauty this is one of the most melancholy. In Italy I have known frescoes which have suffered cruelly from wind, rain, cold, and burning heat, or the reckless violence of man. Still they struggled on, and have survived for centuries. But these hapless offspring, cradled in an upper waiting-room, have barely entered on their teens; two decades are not complete since they saw the light. Surely we may well pause to ask by what fault this judgment has fallen on our labours.

The calamity which has overtaken the other frescoes in the Houses of Parliament is comparatively so inconsiderable that specific details are scarcely called for. In the House of Lords I noticed that some of the colours were loose on the wall, and in a few places there were indications of what may be termed mildew, with incidental eruptions and excoriations. All this, however, even in the aggregate, amounts to little. The injury to the frescoes in the corridors is still less. Indeed, the only suspicious sign I detected in these works was the lax tenure of the body colours to the stucco-pigments, which, probably having been added in distemper, are reduced to part dissolution by the moisture of the atmosphere. Still I incline to think that in this or any other inquiry which may be instituted, it is more just, that is, more consonant with the actual facts, to throw all the frescoes in the Houses of Parliament in the same category. Some may have suffered heavily, others more lightly, even as, when an epidemic rages, certain patients die while others survive. Nevertheless I believe it will be found that the same seeds of decay are lurking in all the

works, alike in their germs though greatly differing in their extent and virulence. The same lime, the same sand, and probably in great measure the same colours have been employed. The same atmosphere, charged with the products of combustion, or with the refuse of human respiration, comes in contact with all the frescoes more or less alike; therefore, I say that the decay of these works is not so much a matter of the differing practice of individual artists, as it is the result of certain paramount conditions over which each painter had little or no control; and upon this I insist, in order to free the inquiry from all personal and invidious relations, and to reduce it directly to the strict limits of scientific investigation.

As to the precise causes of decay, little, unfortunately, is known. A committee was appointed early in 1862, under the presidency of the First Commissioner of Works, to inquire into the condition of some of the frescoes. . . . This committee no longer exists; the Royal Commission itself is dissolved; the frescoes are allowed to proceed steadily in course of decay, and the only remedy taken is the abandonment of the process. . . . I will endeavour to prove that the reversal which has been sustained at Westminster should in no way militate against the further adoption of the fresco process, either in the metropolis or the country at large.

In the first place, it may be well that we should mitigate our surprise that these frescoes have decayed at all. It has been too much the fashion to hold the art as indestructible, as if indeed any art could be imperishable. Pictures of all kinds are endowed with constitutions proverbially sensitive, and the utmost that can be hoped for is that a stamina may be gained sufficiently robust to hold up in some degree against the ravages of time. But absolute immuity from decay is obviously unattainable. The mural paintings in Egypt, at Pompeii, and in the Baths of Titus, in Rome, have suffered injury; the mosaics in front of the Cathedral at Orvieto, and in the façade of St. Mark, in Venice, have fallen away and been restored; the panels and the canvas of oil pictures rot, and so in like manner it has been always known that the frescoes executed in the middle ages were amenable to specific agencies of destruction.

That English artists and English patrons need feel but little discouragement from the failing of materials, or the fault of climate, it is easy to show. We have already said that the fewer, the simpler, and the more natural the colours used, the better. The painters of the middle ages knew no royal road where pigments might be picked up ready for their use. The practice of these men was the growth of patient experience, their ultimate success was purchased at the cost of repeated failure. The materials they used are known to us, and lie within our reach; and modern science, to boot, brings to our aid far-searching eyes and wide-spreading hands. Any artist, then, who shall be heard to utter complaints against his materials, may be at once put down with the workman who quarrels with his tools.

As to faults in the English climate, or the vicious elements in our town atmospheres, there has been more talk than the facts of the case warrant. I have suffered from cold and damp in the chapel of Giotto, in Padua, to an extent that could not possibly be experienced in the halls and corridors of Westminster. I have seen in Pisa, frescoes streaming with rain and condensed moisture; and yet some of the pictures executed by Benozzo Gozzoli, about the year 1450, are as fresh as if painted yesterday. In Munich, the centre of the German revival, the snow lies for three months of the year, and the streets are traversed by sledges. Furthermore, we should bear in mind that in Northern Italy and Southern Germany it has been deemed no madness to brave the bold experiment of fresco painting in the open air. In England we have ventured on no such rash attempt. All the mural paintings hitherto executed in London or the provinces have been safely housed. Our much-abused English climate, therefore, which is usually made responsible for the sins of its imitators, offers no absolute impediment to the practice of the fresco art.

In like manner the injurious effects ascribed to the noxious elements with which our city atmospheres are loaded have been greatly overrated. At all events, it may safely be asserted that the destruction of the frescoes in the Houses of Parliament is to no appreciable extent to be ascribed to such agencies. Dr. Hofmann, in a letter on the subject, proves by experiment that a picture may be bleached by pouring a "stream of water, saturated with carbonic acid," across its surface. But most properly he appends the remark that "it can scarcely be admitted that the frescoes in the corridors of the House are exposed to anything like this severe test." And it is also most material to add that the actual injuries sustained have nothing whatever in common with the bleaching effects produced by the learned doctor in his interesting experiment. That

mural pictures, especially when painted in secco, or, to employ the graphic metaphor of the writer of the letter, when "put upon instead of under the protecting pellicle of carbonate of lime," are, to a certain limited extent, prejudiced by the obnoxious products of combustion and human respiration, cannot wholly be questioned. Yet the inquiries which have been from time to time instituted as to the injuries sustained by the pictures in the National Gallery and at South Kensington, show that the fears arising from these causes have been excessive. Sixteen colour tests, consisting of surfaces covered with white lead and fugitive vegetable or mineral colours, were hung up for the space of two years in various public institutions in the metropolis. It is satisfactory to know that these tests gave no indication of the action of gas, and the only chemical change that could be distinguished was to be ascribed chiefly to the want of ventilation. It is now generally admitted that the pictures in the National Gallery are exposed to no specific danger. Probably, indeed, these works have, in the early years of their experience, suffered more severely from the fumes of incense, the smoke of candles, and the close and affectionate approach of devotees, than from the not very salubrious breezes of the river Thames.

The best, because the most practical answer, however, which can be given to these objections touching climate and populous towns, is in the simple fact that certain frescoes painted in the metropolis are still in a good state of preservation. I have, for example, carefully examined, with a powerful opera glass, Mr. Watts's fresco in the dining-hall of Lincoln's Inn, and find, with the exception of one or two square inches, that its vast extent of surface is still intact. Mr. Watts has shown me frescoes executed by him in Little Holland House; I have also seen rooms of a mansion in Carlton-terrace decorated by the same artist; and the colours in all these examples are just as fast as when first painted. Again, Mr. Armitage some years since painted a fresco in a chapel at Islington, and that, too, lies firm on the wall, and the colours are unchanged. Such instances are sufficient evidence of the practical knowledge of our English artists, of the soundness of materials at command, and of the benign temper of our English climate.

The interest of high art demands that some recognised authority should put an end to the present state of uncertainty, so perplexing to painters and bewildering to the public at large. The manipulation of fresco is simple, and the condition for ensuring its permanence cannot surely be difficult to discover. And yet, in the absence of any constituted tribunal entitled to pass a judgment, the entire question of mural decoration is left in doubt and confusion. The Royal Academy has never in these matters taken that lead which might have been reasonably expected. The Royal Commission, as we have seen, is dissolved; and yet there never was a time when knowledge and guidance was more needed. It strikes me forcibly that in this state of interregnum the Society of Arts could, with advantage, come to the rescue. A preliminary inquiry, entrusted to a joint committee of men of proved knowledge in science and art, might be instituted; a report, decisive in its facts and definite in its conclusions, should then, after due deliberation, be issued. But, in default of any such further and final investigation, advantage might be taken of the accumulated material locked up in Parliamentary Blue Books, and lying dormant in the scattered art literature of the last twenty years. A "Handbook to Mural Decoration" could thus easily be compiled, which should give to the artist all needful information touching lime, sand, and the preparation of the mortar, together with well authenticated facts relating to pigments, vehicles, and modes of execution. Such a guide would do much to prevent the recurrence of the blunders incident to inexperience.

That the art of fresco is peculiarly noble, monumental, and architectonic, all authorities are agreed; that in its severe and stately forms it is peculiarly calculated to bring to our English school the discipline so much needed, all persons conversant with high and historic styles readily admit. The very difficulties of fresco, says Mr. Watts, are, in the present state of our English schools, advantages. The necessity of a definite plan, of a fixed and firm outline; the need of architectural treatment, with its inherent symmetry and severity, all these are not disabilities but elements of power. Again, the demand for rapid execution renders simplicity imperative, and in simplicity is grandeur. These things considered, it is not surprising that many witnesses examined before the late Royal Academy Commission—Mr. Layard, Sir Coutts Lindsay, Mr. Watts, and others—look forward in confidence to the time when the historic deeds which have conferred honour on England shall shine forth upon the walls of our national buildings and municipal institutions; when the beautiful thoughts of our

\* Paper read by J. B. Atkinson, Esq., on Wednesday, 10th ult., at Society of Arts.

poets shall adorn our literary clubs; when the classic designs of Flaxman shall ennoble our public schools; and when the English mind, which has spoken through Shakespeare and Milton, and which responds to the choruses of Handel, shall obtain, through the noble art of fresco, worthy pictorial manifestation. In fine, that art which was so living and so abiding a reality for Italy, cannot remain, as at present, in practical England, a mere illusive dream. The transient dishonour which we have suffered in the too speedy decay of the paintings at Westminster must be retrieved; and works, I trust, may shortly be executed in this country which will prove, like the grand frescoes of the middle ages, noble and enduring.

#### RESTORATION OF ST. PETER'S CHURCH.

A VESTRY meeting of the Protestant inhabitants of St. Peter's parish was held on Thursday, 18th ult., in the Vestry-room of St. Peter's Church, Aungier-street. The following clergymen were present:—The Rev. F. Tymons, Rev. W. C. Greene, and Rev. George F. Patton.

On the motion of Rev. Mr. Tymons,

Mr. H. COURTENAY took the chair.

Rev. W. C. Greene said that the business for which the vestry was convened was to inspect and approve of the plans for the restoration of St. Peter's, which had been prepared by Mr. E. H. Carson, architect, and which Mr. Carson would submit to them.

Mr. Carson submitted the plans, consisting of front and side elevations, ground plans, and sectional views, all of which were closely inspected and highly eulogized by those present.

It was moved by J. L. Wharton, Esq.; and seconded by Thomas Greene, Esq.:—

“Resolved—That the plans for the restoration of the church of St. Peter's parish, which have been prepared by E. H. Carson, Esq., and laid before this meeting, be now adopted, and submitted to the Archbishop and to the Ecclesiastical Commissioners for their sanction; and, if that be obtained, that a lithographed drawing of such portions as may be deemed necessary be prepared, and sent to the Protestant householders of St. Peter's parish.”

The Chairman, in putting the resolution, said that he approved of circulating the lithographed copies of the drawings. He understood that some of the parishioners thought that it would be useless subscribing, as nothing could be made of the present edifice; but, when they saw the splendid plans which had just been submitted to them, and the manner in which they proposed to economize by using the main building, he was sure all such thoughts would be dissipated, and every one satisfied.

The resolution was carried unanimously.

A gentleman asked what the probable cost of the alterations would be, and how much of it would be borne by the Ecclesiastical Commissioners.

Mr. Carson said that he could not precisely say what the cost might be, but he thought somewhat about £2,500.

Rev. W. C. Greene said that the Ecclesiastical Commissioners were very favourable to the restoration, and, though they would not pledge themselves to any sum, nevertheless they expected very liberal aid from them, if the plans should meet with their approval.

Rev. F. Tymons said that almost £1,000 had been collected already,—they were at least sure of £800 and upwards,—and they expected a great deal more, as the parishioners were in earnest in the matter.

Rev. G. F. Patton said that several friends to whom he had been speaking had promised to increase their subscriptions when they understood that the restoration was to be so complete and handsome, and one working man had told him that he would save all he could for a little and give it as a subscription.

After a vote of thanks to H. Courtenay, Esq., for his kindness in presiding, the meeting broke up.

Before quitting the matter, it may be interesting to many to have laid before them a brief outline of the proposed alterations involved in the restoration. The main building will not be materially interfered with; in fact, scarcely one stone of it, save those around the windows, or one slate save those over the chancel, will be removed from their present positions. The ceiling will be entirely taken away, and the roof, which has the magnificent pitch of 23 feet, allowed to remain open. At present there is only one transept, on the north side, but in the proposed alteration a corresponding one will be added on the south. These transepts will have each a gallery, springing from where they join the nave, and rising gradually to the gables. The principal feature in the restoration will be the front facing Aungier-street, which will be altogether new. The present front, or chancel gable, will be thrown down, and a grand and highly ornamented Gothic one erected in

its stead, in the centre of which will be a magnificent five-light Gothic window, 23 feet by 15, with a rich traceried head. On the north side of the chancel will be a square tower rising to the height of 90 feet. In the basement story of this tower will be the public vestry, the present one being set apart, in the new arrangement, for a robing room. On one of the angles of the tower will be a projecting octagonal staircase, by which the belfry will be reached, and which will add considerably, not only to the beauty, but to the effect of the tower itself. All the side windows of the church will be lengthened, and turned into the pointed Gothic style. The pews will be re-arranged, and those in the chancel will be removed, leaving from the communion rails to the nave a clear space, in which it is intended to have moveable seats for the accommodation of Sunday-school children. The pulpit will be at the angle formed by the southern transept and chancel, and the reading-desk directly opposite, at the northern angle, and adjoining the reading-desk the stalls for the clergy. The whole restoration will be in the Gothic style of the fifteenth and sixteenth centuries, and will decidedly make the church one of the handsomest in Dublin.

#### RAILWAY BRIDGES IN ITALY.

THE *Building News* gives drawings of a plate girder bridge 59ft. clear span between the abutments, and for a single line of railway a specimen of about 1,200 metres of bridges erected on the railway from Ancona to St. Benedetto del Tronto, the spans varying from 10 metres to 29 metres each. The requirements of the Italian Cahier des Charges for these bridges were, with a variable or accidental load of 4,000 kilogrammes per metre lineal, equal to 1·22 tons per foot lineal, plus the weight of the bridge, the strain on the metal should in no case exceed seven kilogrammes per square millimetre, equal to 4·4 tons per square inch; and with the test load the deflection should not exceed 1·1000th of span. The bridges were, therefore, calculated from these data, designs were made and sent to the Italian engineers for their approval, and were accepted without any material alteration being made. The ironwork was then made in England.

The bridge consists of two main or longitudinal girders about 16ft. apart, having roadway or cross girders at every 6ft. 2in. and at right angles to the main girders, the ends partly resting upon and near the centre of the bottom flange, and rivetted horizontally to the webs of the main girders. This arrangement provides against any accidents occurring from faults in the connecting rivets. Supposing the connecting rivets in the end of any one cross girder were even taken out, this cross girder would still do sufficient work to prevent any accident, so long as it rested on the bottom flange of the main girder. Between each cross girder are two longitudinal bearers, or small wrought-iron girders, one under the centre line of each rail. The ends rest on knee-pieces, and are rivetted to the webs of the cross girders; on these bearers are light longitudinal wooden sleepers, on which the rails are spiked. Underneath the cross girders there are horizontal diagonal ties, to prevent side or horizontal motion from the wind or passing trains.

Each main girder was made in three lengths for convenience in shipment and transport, and has two joints straight through the whole depth of the girder. Such joints were considered far better than irregular joints, where the various angle irons and plates break joint with each other, and have projecting pieces overhanging at the ends, which are sure to be bent or broken if they have to be carried a long distance. Opposite each cross girder there are vertical T-iron stiffeners well rivetted to the ends of the cross girders, and to the webs and flanges of the main girders, thus making, as it were, a good stiff frame the whole width of the bridge at each cross girder. This arrangement insures the top flange of main girders being kept straight, although they appear very narrow for their length as compared with many girder bridges in England.

Each bridge was carefully put together at the contractors' works in England, and all the parts were marked distinctly, so that there was no difficulty whatever in putting them together on the site of the bridge.

The ends of the main or longitudinal girders rest simply on cast-iron bed-plates on the abutments, the upper surfaces of these plates being planed to allow the main girders to slide freely at either or both ends. When their lengths are altered by expansion or contraction from change of temperature, this provision is found to be sufficient, even for bridges 510ft. long, in seven spans, similar cast-iron plates being on the piers. This form and construction of bridge answered well the various requirements, viz., cost of manufacture in England. As there were no complicated forgings nor bending of plates in any part, the various pieces were put together, and rivetted up, with very little labour

and trouble. The main girders being made in short lengths of small weight and with flush-joints, made the transport easy, and without much chance of injury to the various parts. The erection of the bridges was comparatively easy, as there were only two joints to rivet up in each main girder; the cross girders were to be rivetted to the main girders, the longitudinal bearers to the cross girders, and the diagonal ties were to be bolted in place. Each main girder is 64ft. long, and the span being 59ft., leaves 2ft. 6in. bearing on each abutment. The depth or height of the girder is 5ft., giving a proportion of depth to the length of bearings of a little more than 1·12th. For the kind of bridge this is a good and economical proportion. The width of the top flange is only 1ft. 3in.; this width is much smaller than is generally made in bridges of that span: but still it is sufficiently wide, because the vertical T-irons (T-iron stiffeners) connect with the flange at each cross girder, and insure the flange being kept straight when the strain is on. In fact, the bridge has at every 6ft. 2in. of its length a stiff cross frame, to keep the main girders upright and their flanges straight, formed of the cross girders and strong T-irons firmly rivetted on their ends.

The top flange of each main or longitudinal girder is composed of wrought iron plates and angle irons. The angle irons are of the same sectional area throughout the length of the flange, but the sectional area of the plate varies. In the centre of the span there is one plate 15in. by  $\frac{1}{2}$ in. extending a distance of 9ft. 3 $\frac{1}{2}$ in. on each side of the centre, as far as the main joints, right through the girder. From these joints and ends of the  $\frac{1}{2}$ in. plates the thicknesses of the flange plates are decreased to  $\frac{3}{4}$ in. for a distance of 11ft. 3 $\frac{1}{2}$ in. towards the ends of the girder, and the remaining length of the flange has plates 15in. wide by 5·16in. thick. The section is thus decreased, to avoid waste of material; for the strains towards the ends of the flanges decrease very rapidly, and do not require the amount of metal that is in the centre. Two angle irons, each 3in. by 3in. by  $\frac{1}{2}$ in., run the whole length of the top flange, and connect the above-mentioned flange plates to the web plates by means of rivets  $\frac{3}{4}$ in. diameter, and about 4 $\frac{1}{2}$ in. pitch or distance from centre to centre. On the outer and under edges of the flange plates are rivetted two angle irons, one on each edge; these angle-irons not only help to make up the required section of metal, but also give great stiffness to the top flange; it will at once be seen that they make the flange into a very good strut, or column, to withstand the compression that is put upon it when the bridge is loaded. The bottom flange is similar to the top flange, but has not the angle irons on the outer edges—in this case, they are not required to stiffen the flange, as it is always in tension and never acts as a strut. The two inner angle-irons that connect the flange plates to the web plates are 3 $\frac{1}{2}$ in. by 3 $\frac{1}{2}$ in. by 9·16th in., and are of the same section throughout the length of the flange. The plates in this flange are of the same length as in the top flange, but are thicker—in the centre, the section of plate is 15in. by 11·16th in.; towards the end, 15in. by 9·16th in.; and at the ends, 15in. by 5·16th in. The sectional area decreases towards the ends for the same reason as the top flange. Between each main joint, the angle-irons are in one length without any intermediate joint, but the plates have an intermediate joint because of the difficulty in getting such long plates without extra cost.

The web of each main girder is formed of a number of plates, 5ft. by 3ft. 1·2·10th in., by  $\frac{3}{4}$ in. thick at the ends of the girder, 5·16th in. thick towards the centre, and  $\frac{1}{2}$ in. thick in the centre. These plates are thicker towards and at the ends of the girder, in order to take up safely the greater strains that are there when the bridge is loaded. The joints of the web plates, between the T-iron stiffeners, are made with two joint strips,  $\frac{1}{2}$ in. thick, having  $\frac{3}{4}$ in. rivets about 3in. pitch. The joints opposite each cross girder are made with the T-irons, and are rivetted in the same manner as the intermediate joints. There are two main joints, which divide the main girder into three pieces; the centre piece of 18ft. 7·2·10th in., and two end or abutment pieces, each 22ft. 8·4·10th in. These pieces, having flushing joints, were convenient for carriages, and arrived safely at their destination without any damage whatever; had the joints been irregular, with the angle-irons and plates overhanging in order to break joint with each other, there is no doubt they would have been seriously injured, if not broken in transport. These flush joints are really the strongest part of the girder, for the sectional area of the joint-plates and strips is in all cases greater than the sectional area of the flanges at those points. Care was taken in arranging the rivets, that the flanges at the joints should not have their section destroyed by punching the rivet holes more than at any other part, and the shearing area of the rivets is in all cases greater than the sectional area of the flange; therefore we may safely say that the girder

would break at any part sooner than at the joint. In the top flange joints, there is sufficient metal, and a sufficient number of rivets, to transmit the compression from one piece of girder to another without the ends of the flanges of each piece touching. It is always well to provide for this, as it is but seldom that manufacturers make a good and proper butt-joint in rough wrought iron girder work.

The cross girders are 15ft. 11in. by 1ft. 7½in. deep, and are made of a web plate ½in. thick, and two angle irons 3in. by 3in. by ½in. for the top flange, and two for the bottom flange; each girder was calculated to carry with safety 16 tons (8 tons at each of the two points where the rails cross), presuming this to be the greatest weight that is ever put on one pair of driving wheels of the heaviest locomotive. The rivets that connect the angle iron to the web are ¾in. diameter, and about 4½in. from centre to centre. There are vertical pieces of angle iron rivetted on at the ends, so as to connect with horizontal rivets to the web of the main girders. When thus fixed it would be impossible for the cross girder, when loaded, to disconnect itself from the main girders without shearing the rivets. The resistance to shearing is the only strength in rivets that can positively be depended upon; it would never be safe to suspend a cross girder with vertical rivets, where the heads only hold up the weight, for the heads sometimes break off with a very slight blow. The cross girders are also rivetted to the bent T-irons, and the cross frames of the bridges are then complete.

The longitudinal bearers, or small cross girders, under the centre lines of each rail, were put in to avoid having heavy longitudinal wood sleepers, and to insure the least possible deflection of the rails. These bearers are in short lengths, and rivetted to the webs of the cross girders; they are only 10in. deep, and are made of a web ¼in. thick, with two angle irons 2½in. by 2in. by ¼in. for the top flange, and two for the bottom flange; besides being rivetted to the webs of cross girders, they rest on small angle-brackets, which are also rivetted to the cross girders. The wind ties, or horizontal ties, 4in. by ½in., are put in to resist any tendency the bridge may have for horizontal motion from the force of the wind or passing trains. The roadway is of timber, and fixed to the cross girders with hook bolts. The quantity of wrought iron in this bridge is 18 tons; and cast iron in the four bed plates on the abutments, 7 cwt.—*Engineer.*

#### ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The usual monthly meeting took place on Thursday evening, the 18th ult.

J. J. McCARTHY, Esq., R.H.A., in the chair.

The following members were present:—Messrs. J. J. Lyons, J. Bell, C.E., S. Symes, T. Kelly, W. Doolin, G. Wilkinson, R. A. Gibbons, S. Swan, T. Drew, J. Birmingham, jun., W. Stirling, T. B. Patterson, W. Longfield, J. S. Butler, E. H. Carson, N. Montgomery, W. F. Caldbeck, F. Nolan, C. Geoghegan, Jacob Owen, V.P., J. Lanyon, F. V. Clarendon, and J. H. Owen (hon. sec.)

After the transaction of the usual routine business, in the absence of Mr. W. G. Murray, R.H.A., his paper on the Irish National Gallery was read by Mr. Thomas Drew (Fellow).

Mr. Murray briefly sketched the history of the building as known to the public, and mentioned that designs for it had been made by Mr. Lanyon, the president of the Institute, but that subsequently the task of carrying out the undertaking was entrusted, in or about 1857, to Captain Fowke, R.E., who has since acquired a world-wide reputation as the author of the Exhibition Building of 1862, in London, and the building popularly known as the "Brompton boilers" at Kensington. He expressed considerable dissatisfaction with the position and accessories of the Dargan statue erected in front of the gallery:—"William Dargan standing on a monolith, rough hewn, as it were, from one of his own rock cuttings, would have satisfied the mind or the eye,—would have been according to good taste and judgment. As executed, he stands on a block that is big but not massive, without proportion in itself to the statue, and which looks as if it had been got second-hand." Mr. Murray next commented on the meanness of the entrance and vestibule of the building, and the evident attempts to produce a striking effect in the sculpture hall, the general effect of which, however, is most unsatisfactory. It leaves the same sort of impression on one's mind as one of Leech's pictures of a "Gent," the most striking peculiarity of the room being the absence of all proportion in the several parts of the order. He next alluded to the intensely ugly, awkward, and dangerous grand staircase leading to the picture galleries. The picture galleries have certainly no merit—they are very nicely painted, but in other respects they show the same want of experience in designing, the same striking into

new paths, which are bad paths as the room below. One's feeling is that all is the work of an amateur, at his wit's end to carry out some ghost of an idea which he has in his head, and perpetually inventing for himself ways of doing things which have been done before a thousand times better, and, while busy about these perplexing details, losing sight of such trifles as proportion and general effect. The building, though opened, is not finished, and the cost has been about £29,000. The cost of the building on the opposite side of Leinster Lawn, including the connecting passage, was about £11,000. What is there in the unfinished National Gallery to account for the extra £8,000? Both buildings are of the same size, and alike in every respect externally. How can this immense difference be accounted for? Mr. Lanyon's design, I am informed, while preserving the general character of the museum on the south side of the lawn, took advantage of the irregular shape of the site to lengthen the building by about 70 feet, so that at both ends it should range with the museum, and introduced, as a central feature, a very handsome hall, with a grand staircase projecting into the ground at the rere, and with this increased size and elaborate finishings of carved stone and artistic stucco work in the interior, it was contracted for to be finished for £29,000 or thereabouts, which was afterwards reduced, by several alterations, to £17,000. I have no documents to prove these facts, but I am assured of their general accuracy, and being thus assured, I ask again, How can the vast increase be accounted for? I do not say, or wish it to be supposed for one moment, that any of the parties concerned have actually pocketed any of the funds; but I do say that a committee of gentlemen, presided over by the Lord Chancellor, have "meddled and muddled" the affair so successfully as to procure for the citizens of Dublin a bad building,—a National Gallery of the Fine Arts from which architecture is excluded,—and barely half finished, at a monstrous cost, and that now they ask our thanks, as men who have deserved well of their country. Public opinion in London spoke out its estimate of Captain Fowke's performance at Kensington Gore; but there the expenditure was repaid by the receipts, and the monstrosity was removable. Here we have no public opinion on art, and specially on the architectural branch of it; and we are saddled with an unfinished monster that can never be removed, and will perpetually stand in the way of any future improvement, both by its being there existing in its ugliness, and also by its having exhausted the fountains of generosity by which it might be replaced.

A lengthened discussion took place on the subject of Mr. Murray's paper, which was referred to the council for publication.

The following gentlemen were declared duly elected:—As vice-president (in consequence of the death of Mr. Byrne, R.H.A.) G. Wilkinson, Esq. (fellow); as member of council, W. F. Caldbeck, Esq. (fellow); as student, Patrick J. Byrne, Esq.; as associates, Peter J. Moran, Thomas Early, Frederick S. Barff, and William Woods, Esqrs.

The *Builder*, April 13, 1861, speaking of Benson's Argentine, says, "Under a short trial, it has certainly improved rather than fallen off in appearance." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c. A sample spoon will be sent post free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishments, 46, 47, and 63, Cornhill. All communications should be addressed to the Principal Establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

It is reported that a valuable vein of iron, which will not be worth less than half-a-million in all, has been discovered on the Prince of Wales' estate at Sandringham.

#### ROYAL IRISH ACADEMY.

A MEETING was held at the Academy-house on the 22nd ult.

The Ven. DEAN GRAVES in the chair.

Mr. J. Huband Smith read an interesting paper on an autograph letter of Oliver Cromwell, which was exhibited before the academy. He said it was a most remarkable letter, inasmuch as it was the production of a remarkable man, and was, therefore, well worth the attention of the academy. It was written on the 1st June, 1658, to Cromwell's second son, who was then Deputy-Governor of Ireland. The letter had never been published, and was now exhibited before the academy by the kind permission of the Whaley family, who claimed to be descended from the author. Thanks of the academy were given to the exhibitor for the letter.

Mr. W. H. Hardinge read an interesting paper on the Countess of Desmond, in the reign of Charles I. It was referred to the council for publication.

The Secretary announced that the Earl of Enniskillen had forwarded to the academy through Lord Talbot de Malahide plans of St. Lasser's cell or Polledhudeen, and also the plans of an Irish giant's grave.

Thanks were given to the donor, and the meeting separated.

#### Public and Private Works.

A new building has just been added to the warehouses of Messrs. Cannock, Tait, and Co., Limerick. It extends from the rere of their present premises to Brunswick-street, with a frontage to the latter and to a side street. It consists of two warerooms on the ground and first floors respectively, each 100 feet by 24 feet, intended for carpets and furniture. There are workrooms of similar dimensions on the ground and second floors. The front and sides are finished in Portland cement, the window openings being arranged in arcades somewhat similar to the George-street front of the same establishment. The roof is hipped, with a bold projecting cornice; and the front windows are filled with plate glass, and secured with Bunnett's revolving iron shutters. The cost, including fixtures, will be about £2,000. Mr. W. Fogarty, of Harcourt-street, is the architect.

South Hill, near Limerick, the residence of Peter Tait, Esq., which was much injured by fire last summer, has been restored, with considerable additions, under the direction of the same architect. The cost of the works has been about £1,500.

A lighthouse has been erected by the Port of Dublin Corporation on the Black Rock, near the entrance to Black Sod Bay, from which a light will be exhibited on the night of the 1st of June, 1864, and continued every night thereafter, from sunset to sunrise. The tower is circular, of a dark stone colour, and its height from base to top of dome is 50 feet.

Tenders are required by the Grand Jury of the County Armagh for the erection of a bridge over Callan River, the same to have an iron top. Cost not to exceed £800. Also for road works in the townland of Richhill. Cost not to exceed £500.

The church of Raymunderdoney, Co. Donegal, is to be enlarged and improved, according to plans by the architects to Ecclesiastical Commissioners.

Messrs. A. and N. Hammond, of 28, Amiens-st., and Drogheda, have been declared contractors for the building of a chancel, side chapels and sacristy to St. Peter's Roman Catholic Church, Drogheda, in accordance with plans furnished by J. J. McCarthy, Esq., architect.

A memorial to the late Henry Pakenham, D.D., is to be placed in St. Patrick's Cathedral, of which he was for twenty-one years the Dean. The memorial proposed is of stained glass, to be placed in the vacant centre window in that portion of the Cathedral which he had, through his exertions, and principally at his own expense, restored.

DUBLIN AND ANTRIM RAILWAY.—The works of this line were commenced last week near Lissue, the Very Rev. the Dean of Ross and John Bower, Esq., cutting the first sods. The contractors are Messrs. Greene and King.—*Belfast News-Letter.*

COURTOWN HARBOUR.—A project has been moved for the improvement of this harbour; the prospectus bears the signature of H. Panmure Ribton, Esq., C.E., and Peter Joseph Moran, Esq., Acting Engineer. The object being, "with a little improvement to make it accessible to vessels of considerable tonnage," and to connect it to Gorey by a railway, which is about 3½ miles. The cost is estimated at not more than £4,000 a mile, and the total cost of the line and pier is set down at £22,000. The profits are calculated at 6½ per cent. The promoters undertake, if one-fourth of the amount be subscribed by the country, to obtain the remainder. It is thought that further steps will shortly be taken in this project.—*Weaford Independent.*

## RAILWAY INTELLIGENCE.

**THE METROPOLITAN RAILWAY BILLS.**—There have been altogether seven bills presented before Parliament for railways affecting the metropolis—viz., four metropolitan schemes, two for connecting Dublin with Rathgar and Rathfarnham, and one entitled the Great Southern and Midland Junction Railway. Of the former, two propose to intersect the city, one of them being Mr. Barry's, and a modification of the original metropolitan scheme; it is supported chiefly by English capitalists; the other is Mr. Barton's, and has received the approval of a large number of our most influential citizens. The remaining two are for circular railways without a central station, and as they have received but little support it is thought they will not be proceeded with. As some doubt has arisen as to which of the Rathfarnham bills has failed to pass Standing Orders, it may be well to observe that it is that which is promoted by Messrs. Newton and Armstrong proposing to start from Exchequer-street; the other promoted by Mr. Meldon, is in course of progress. The last mentioned railway is deserving of particular notice. It is a short line, one mile and seven furlongs in length, promoted for the purpose of forming a junction between the Great Southern and Midland lines, and for bringing the Great Southern into connection with the Liffey Branch Railway and quays at the North Wall. It will pass in the intermediate vicinity of the new Corporation Cattle Market, to which, as also to the one proposed at the North Wall, the Great Southern and Midland lines would then have access. It is intended to leave the Great Southern and Western at King's-bridge at the north-eastern angle of the goods' warehouse there, and pass over the River Liffey by a light iron bridge, and under Parkgate-street and Montpelier-hill by a short tunnel, and from thence its course is nearly in a straight line in cutting to the 7th Lock on the Royal Canal, passing at the back of the Military Hospital, under the Circular and Blanchardstown roads, and joining the Midland Great Western Railway at the point where the Liffey Branch diverges from the parent line. There are no streets or public roads interfered with, and the construction of this railway, both as regards the purchase of property and works, would be of a very inexpensive nature, the estimate being only £75,000. On the other hand an immense amount of useful business could be done by this line, as it would carry the cattle of two-thirds of Ireland to the new Corporation Market, and would be the medium of transmitting all the goods and coals that are now conveyed at a large expense by carts from the North Wall to the Great Southern and Western Railway. The first directors named on the bill are Mr. John Thomas, Mr. Richard Hanbury Miers, and Mr. W. L. Banks, and two others to be nominated.

A bill has also passed standing orders for a city railway for Belfast. Its object is to unite the Ulster Railway, the Belfast and County Down, and the Belfast and Northern Counties Railways, and to construct a central station in the vicinity of High-street and the Ulster Bank. The capital to be raised is £300,000, and the borrowing powers are limited to £100,000. The directors named in the bill are John Lytle, the ex-Mayor, and Wm. Ewart, the ex-chairman of the Chamber of Commerce; Thomas Dallin, and W. Durham. The line is 5 miles and 60 chains in length. The engineers are Sir J. Macneill, Mr. T. Macneill, and Mr. Coddington.

**PORTPATRICK RAILWAY (STEAMBOATS) BILL.**—The object of this bill is to authorise the Portpatrick Railway Company to establish lines of steamers between Portpatrick and Stranraer, in Scotland, and the Irish ports of Donaghadee, Belfast, Larne and Londonderry. The capital to be raised is £12,000, and the London and North-Western and the Belfast and County Down Railway Companies may subscribe.

**THE PROPOSED METROPOLITAN RAILWAYS FOR LONDON.**—It appears from a report presented by the Streets Committee of the Metropolitan Board of Works that there have been altogether no less than fifty-three separate railway bills deposited for the construction of 258 new lines of railway, with branches, of a total length of 417½ miles; and they propose to raise a capital of about £70,000,000 for their construction. The great struggle, however, is

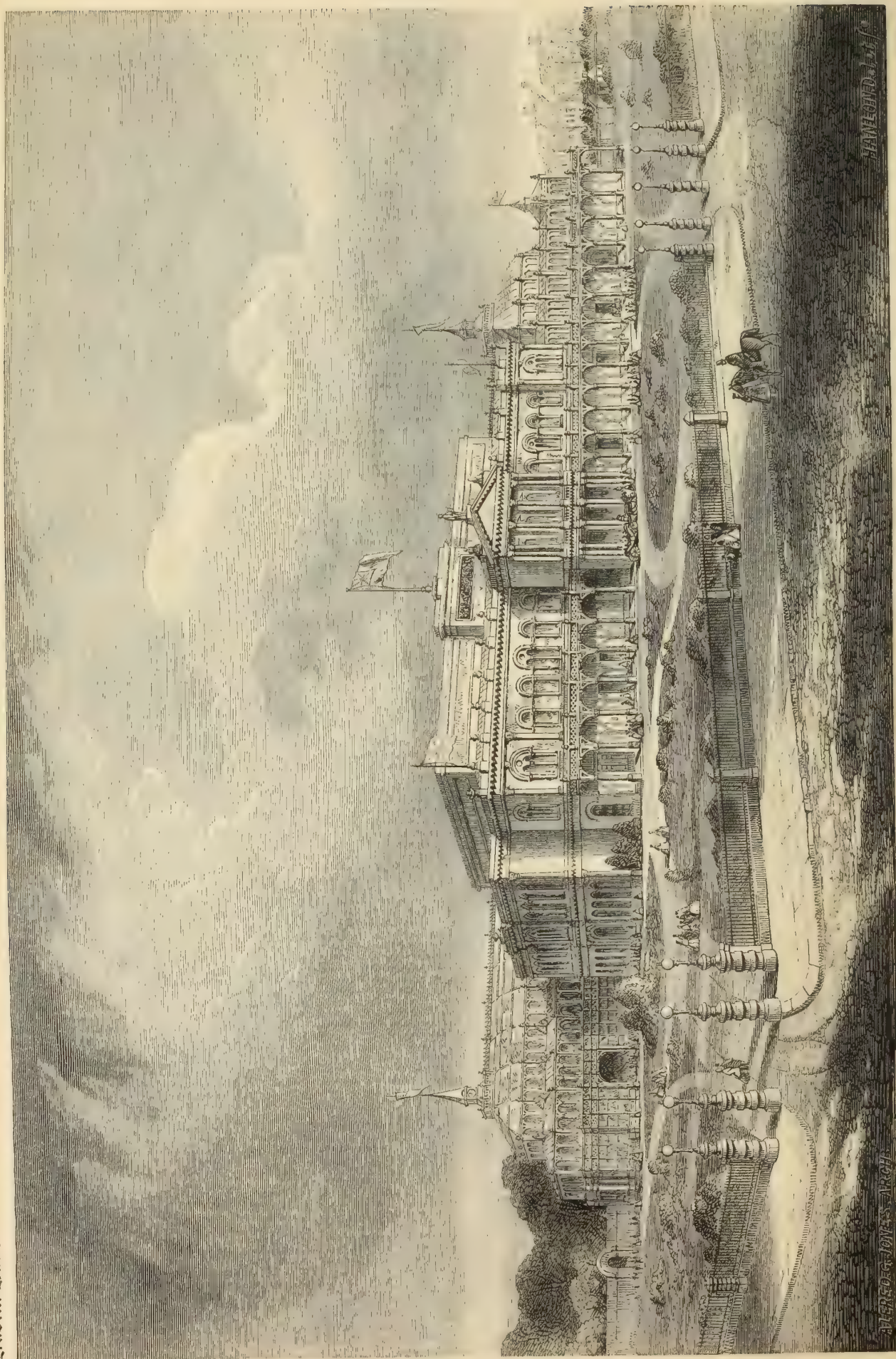
between the rival plans of Mr. Hawkshaw and Mr. Fowler. It was suggested by the Lords Committee last year that an *inner* and *outer circle* of railway should be formed by an independent company, which should intercept all the great main lines above their present metropolitan termini, and so divert their traffic rather round than through London. It was further recommended that at one part of their circumference the outer and inner circles should join at a level, so as virtually to make the two lines one, for the purposes of communication. This suggestion Mr. Fowler has adopted in his present scheme, while Mr. Hawkshaw has dissented from it altogether. Mr. Hawkshaw dissents on the ground, first, that it is not possible now to form any scheme of finality with regard to railways, and that it is safer and more just to judge of each by its own merits and by the real accommodation which it offers to the public; secondly, because all the lines intercepted by the outer circle would, by payment of tolls, have a right of way over it into the inner circle, and thus bring about the very evil the Lords wish to prevent—the introduction of what really would be their termini into the heart of the city. Mr. Hawkshaw, adhering to his principle of only meeting acknowledged wants, and not straining after unattainable finality in railway legislation, has furnished two plans, one for connecting the northern lines by tunnel with the Charing Cross station, and another from Hammersmith to the same terminus. The length of the first line is 3¼ miles. It is to be laid for four lines of rails, and to be an open cutting with brick retaining walls, very similar to the cutting leading out of the North-Western station at Euston. It is taken at such a depth that all streets can be continued over it without attention to their width or level, and the bridges themselves are to be built of such a width as to allow of the line of shops or houses along the streets being continued over them, so as to keep the traffic on the line entirely out of sight. The cutting is everywhere carried behind the houses, so as not to interfere with existing streets. The estimated cost of this line is £2,000,000. The second line which Mr. Hawkshaw proposes is six miles in length; its estimated cost is £2,600,000. It commences at the south end of the Hungerford viaduct, passes through Lambeth, then, crossing the Thames, it passes through Westminster, Pimlico, Chelsea, and on to Brompton; on the south side of the exhibition building, it effects a junction with the West London Railway, and so on by a branch to Hammersmith. It is to be for two lines of way, and will be constructed (if the bill passes) on the same principle as the branch to the northern lines, that is to say, in an open cutting below the level of the streets, which are continued in the same manner by bridges over it, with houses on each side.

Mr. Fowler has, on the other hand, strictly followed the Lords suggestions, and has come forward with two schemes, gigantic in extent and costliness. His plans are most comprehensive, but the cost is likely to be a formidable drawback to the commercial success of the scheme, especially as it is considered by many that his estimates are far under what the works will really mount up to. The "*inner circle*," which he proposes is merely an extension of the present metropolitan, or underground railway, which now commences at Paddington and ends at Blackfriars. This line he now proposes to extend from Paddington through and beneath Bayswater, under Notting-hill, and round and out some distance outside the western extremity of Kensington Gardens; thence it sweeps round Brompton, passing behind the houses facing the Exhibition in Cromwell-road, and continues along the south side of Chester-square to the Victoria Station, and across Westminster to Westminster Bridge. From Westminster it is hoped to take it along the Thames embankment to Blackfriars, and thence into Cannon-street, where it has a defiant station full in front of Mr. Hawkshaw's. It then winds under King William-street to the Fenchurch Station, then by Haydon-square, Liverpool-street, and Finsbury-square, where it at last joins the end of the Metropolitan Underground line which is now being made. This constitutes the *inner circle*, though, as its course has been as far as possible selected so as to avoid valuable property, it is very far indeed from being a circle, being, in fact, an irregular oblong

about five miles long by two broad. The total length is twelve miles and three-quarters, of which four miles are already built in the Underground Railway, leaving eight and three-quarters to be constructed; and the estimate for this remaining portion is £3,000,000, or, in round numbers, about £300,000 per mile. The "*outer circle*" is intended to tap the great lines leading to London at short distances outside their metropolitan termini. It commences at the South-Western line, near Clapham, crosses the river at Battersea, passes through Brompton, and makes its junction near the Exhibition, with the inner circle, along with which it runs side by side to Notting-hill. From this point it diverges across the Great-Western, which it taps at about a mile from Paddington, thence on to the London and North-Western Railway at Kilburn, and so on to the Hampstead and City Junction, where it has a perfect fan of branches; it continues round by South-end to Kentish Town (crossing the Hampstead and City Junction again), and so on to Holloway, where, at the Seven Sisters Station it taps the Great Northern, and, passing through Stamford-hill, makes its junction with the Great Eastern at Upper Clapton. It then turns south, through Lower Clapton, Homerton, Hackney, &c., on to Limehouse, and crosses the Thames between the West India and Commercial Docks on a *high level* bridge, the boldness of which has excited the admiration of engineers even in this age of engineering prodigies. It is to be laid for four lines of rail, is to be 140 feet above high water, is to be built in a single span of 700 feet, and to be built in its place. It will be in one girder, 130 feet deep, and 700 feet long. After crossing the Thames the outer circle passes on to Deptford, where, near New Cross, it again spreads out like a fan, to receive a mass of southern lines. The remainder of the circle is completed by the London and Brighton line, which passes through Peckham and Camberwell, and joins with the London, Chatham, and Dover, which continues on through Clapham to the South-Western. This is the outer circle. Its diameter is seven miles, its length twenty-four miles, and its junctions and branches eight miles more—thirty-two miles in all. Its estimated cost is £5,000,000, and it is carried either on arches or embankments almost entirely at a high level above the streets. Of what kind this line will be may be at once seen from the fact that in its twenty-four miles' length it has no less than eight miles of branches and junctions; it has, in fact, upwards of thirty junctions with great main lines, and it is thought that in order to have anything like a systematic arrangement of trains there will be required at least six lines of rails. It would be impossible at this stage to draw any conclusion between the relative merits of the schemes of these two eminent men, and the contest is likely to be the keenest, longest, and most memorable of all our railway struggles. If, on the one side, Mr. Hawkshaw's project appears, in maps and plans at least, to run not over half the streets and squares of London, he is nevertheless powerfully supported by some of the great companies who are well versed in the discussion of the merits of rival undertakings. There are also, in addition to Mr. Hawkshaw's arguments, several well-founded objections raised against Mr. Fowler's scheme. It is thought by many, for example, that costly as his estimate is, the works could not be executed for anything like such a sum, and the idea of erecting a girder 700 feet span and 130 feet deep, and to be built in its place, that is to say, from side to side, until it meets in the middle, for £380,000, is looked upon by many as absolutely chimerical. But one of its greatest faults is that it proposes to encroach on one of the noblest works of the Metropolitan Board, the Thames Embankment.

It appears from recent intelligence that the joint committee of the Lords and Commons, of which Lord Grenville is chairman, have decided to recommend the adoption of the inner circle portion of the above-mentioned scheme. With regard to that portion of it which proposes to join the north and south sides of the Thames by a high level bridge, they prefer a junction line that shall utilise the Thames Tunnel, and thus connect the northern and southern railways without in any way obstructing the navigation of the river.





THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN.—MR. ALFRED G. JONES, ARCHT.

*Half-yearly Railway Reports.*

**CORK AND KINSALE JUNCTION RAILWAY.**—At a meeting held on Saturday, 13th ult., at the offices, Gracechurch-street, London, Lord Kinsale in the chair, it appeared from the report for the half-year ending 31st December, 1863, that notwithstanding the unfavourable season for railway traffic in Ireland during the past six months, and the undeveloped position of the railway, the directors had been enabled to pay out of the revenue earnings for the half year, ending 31st December last, all working expenses and interest on the debenture debt to that date, leaving a surplus profit of £300, which they recommend should be carried to the credit of the next account. The board confidently looked forward to a considerable increase in the revenue of the line next summer, when the several arrangements now being carried out for the development of the traffic would be completed. The building of the Marine Hotel at Kinsale had progressed satisfactorily, and the directors were informed that the walls were now up to the level of the roof, that the building would shortly be covered in, and fitted for business as early as practicable. The capital account showed that £62,738 had been received, and £62,660 expended. The revenue account showed a balance of £900.

**ATHENRY AND ENNIS JUNCTION.**—The meeting was held at the Company's offices, Lower Dominick-street, on Thursday, the 18th ult. The secretary read the report for the half-year ending December 31st, to the following effect:—

The directors have to submit to the shareholders a statement of capital account, made up to the 31st of December last, showing an amount of £52,771 18s. received, and £51,918 17s. 2d. expended, leaving a balance of £852 18s. 10d. to the credit of the company at the date named. From the date of the last report submitted to you, in August, your directors have much pleasure in stating that considerable advances have been made by the contractor in carrying on the works. The whole of the land between Ennis and Gort has been purchased, and in the contractor's hands; and a considerable portion also between Gort and Athenry.

It is expected that the line from Ennis to Gort will be made available for public traffic before the end of the present year. The shareholders of the Athenry and Tuam railway have agreed to subscribe towards its construction. An extension of the Tuam Railway northwards to join a junction with the Great Northern and Western Company, at Claremorris, is also contemplated. A company, with that object, was partially formed a short time back, with every promise of aid and success; but the period was too late to admit of its being brought before the present session of parliament, and the undertaking was therefore postponed until the following session.

**GRAND CANAL COMPANY.**—The half-yearly meeting of the shareholders of this company was held at their new offices, at the Grand Canal Harbour, on Saturday, 20th ult.

Wm. Digges La Touche, Esq., Chairman of the company, presided.

The chairman said that it was a matter of much satisfaction to the board that they could inaugurate their first meeting there by giving the most favourable report of their affairs that had ever been offered before, every item in the income showing an increase over that of last year. The tolls derived from navigation exceeded those of last year by £236, and the gross receipts of their own carrying trade showed the large increase of £1,224 4s. 6d., leaving a net profit from the same source of £1,750 16s. 6d. From the statements made, they would see that this increase was due to the adding of steamers to the traffic on the Shannon. The three steamers in operation on that river had certainly realised the hopes of the board. The tonnage carried during the last half-year in their own boats exceeded that of the corresponding period of 1862 by £4,942, whereas the expenses of carrying that greater quantity was £400 less. The report stated that by carrying forward a balance of £4,377 from last year's they had paid all the cost of repairs and alterations there, commenced a new steamer, and invested, for the purpose of a reserve fund, £1,548 10s., which, with the farther sum of £492, now amounted to £4,664. After all these items had been deducted, the net income available for a dividend was £10,323 16s. 5d., from which, deducting the increased dividend recommended of £8,324 4s. 4d., they would be able to carry forward to the accounts at next meeting £199 11s. 10d. This was a state of things that must be exceedingly satisfactory, that, after expending out of the revenue these large sums for purposes of improvement, and of developing their trade and navigation, a dividend had not only been given, but increased. On the 1st of March next they would receive £2,450 due by the Corporation for pipe-water, and this they would invest in Government stock to further increase their reserve fund, acting on the resolution agreed to at the last half-yearly meeting. Amongst the special items of expenditure was one of £137 4s. 7d. for the repairs of

a steamer which had been placed for towage and accommodation generally on the River Liffey, and also to facilitate the transmission and shipping of Guinness' porter, the carriage of which the company had been entrusted with. They expected that the receipts from the steamer would cover all its expenses, and, at all events, the facilities it afforded were of great importance. The company had now 20 iron boats, having added three during the last year, and 12 wooden ones for traffic purposes; and by having the steamers on the Shannon they would be able to dispense with having to charter other boats, which hitherto they had to do. They intended to carry grain for the future in their own boats. Another important subject in the report was the Shannon navigation, with respect to which they had received information that the landowners near that river had been using their influence with the Government to obtain powers for altering the navigation work to prevent floodings. Considering the increase of traffic, and the expense which the company had been at to develop navigation by steamers, he thought they should resist any attempt to interfere with the navigation for the sake of the lands adjacent by every means in their power. Mr. Bateman, who was sent by Government to investigate the matter, made a report, recommending a plan which would preserve the navigation intact, and yet remedy the evils. The landowners were not satisfied with the plan, but got another engineer, who prepared a less expensive plan, the chief feature of which was to lower the river at Killaloe for the purposes of drainage—a course that would be injurious and destructive to navigation, and deprive Limerick and other places of the facilities afforded by the canals to Dublin. Every exertion is being made to avert this threatened blow, so fraught with damage to the trade between Limerick and Dublin, and so destructive of the interest of the company and the country. The company had sent a strong remonstrance to the Board of Works to resist this movement, and they had every reason to believe that they would be attended to. The Limerick Chamber of Commerce had taken the matter up, and were empowered by their representatives to give the matter their attention and opposition. He concluded by moving the adoption of the report.

**DUBLIN AND DROGHEDA RAILWAY.**—The following is extracted from the report laid before the shareholders of this company at the half-yearly meeting held on the 25th ult.:—

"The net profits of the half-year amount to £15,930 6s. 8d., to which is to be added the balance of £347 13s. 1d., from previous half-year, which makes £16,277 18s. 9d. Of this sum the directors recommend a dividend on the original stock, at the rate of four per cent. per annum, which will amount to £12,555 10s. and leave a balance of £3,722 8s. 9d. The directors propose to place £3,000 of this balance to the reproduction account, and carry the remainder, £722 8s. 9d., to the credit of the current half-year. A comparison of the receipts of the two corresponding half-years shows that in the passenger department the receipts were about equal; in the goods traffic there is a slight decrease. By the table of yearly receipts it will be seen that the falling off in the annual income of the company still continues. In the year 1862 the decrease amounted to £4,472 5s. 9d., in the past year it showed a further diminution of £1,805 3s. 7d. The directors trust they will not have occasion to note any further decrease in the traffic, but that, with ordinary seasons, the traffic will, at least, return to its former amount. The proprietors will perceive that, notwithstanding the increased mileage, the working expenses, with the exception of taxation, are less than in the corresponding half-year. The rolling stock and permanent way have been maintained in good condition, and the traffic has been conducted without any accident. The accounts for the Oldcastle Extension have been all settled, and the whole cost of the line is included in the present account, with the exception of a sum of £2,804 13s. due to Mr. Naper for land. The cost of the line, 12½ miles, with two complete and substantial stations, is £73,683 14s. 3d., equal to £5,779 2s. 4d., per mile. The directors have lately had their attention called to the subject of an arrangement for the joint working of the northern railways, including your line, the Belfast Junction, the Ulster, and the Irish North-Western; and believing that such an arrangement might be made as would prove mutually advantageous to the several companies, they offered to go into the consideration of it; but the Ulster board came to the conclusion that they could not at present recommend such a union to their shareholders, and the proposal has consequently been abandoned. The directors of the Ulster Company have, in their report, expressed a hope 'that the end sought may be effected by the friendly cultivation of the resources of traffic legitimately open to each company.' In this hope your directors cordially concur, though they do not expect that any traffic arrangements can afford all the advantages which might be derived from an amalgamation arranged on fair principles. The following directors retire by

rotation, but are eligible for re-election:—William Evans, Christopher Jordan, and L. J. McDonnell."

**IRISH NORTH WESTERN RAILWAY.**—The following report was submitted to the proprietors at the meeting held at the Northumberland Hotel, on Friday, the 26th:—The directors of the Irish North Western Railway Company beg to submit to the shareholders the several accounts for the half-year ending 31st December, 1863. The gross receipts amount to the sum of £43,177 17s. 11d., which, when compared with the receipts for the corresponding half-year of 1862, show a decrease amounting to £3,255 8s. 11d. The working expenses during the same period amount to a sum of £21,630 0s. 6d., as against £20,543 12s. 1d., for the corresponding period of 1862. The increase in expenditure is to be referred to the outlay upon repairs of the rolling stock and permanent way, and also to the necessary expense consequent upon the working of the Finn Valley line under the terms of the arrangement entered into with that company. Your directors regret they are not in a position to report more favourably as regards the traffic over your line. They trust, however, that the depression which has existed and still exists in all branches of trade is but temporary, and that an improvement in this respect may reasonably be anticipated. The causes which have chiefly operated not only upon your traffic, but that of other lines throughout the country in a greater or less degree, will be found in the diminished imports of foreign corn and meal; while, owing to the extremely depressed state of the country, there has been no increase in other sources of traffic to compensate for the loss. The accident which unfortunately occurred last October, near Kintona, has also proved a source of expense.

**DUBLIN AND BELFAST JUNCTION.**—The total income of the company for the half-year amounted to £88,253 0s. 1d., the working expenses to £13,133 5s. 3d. (less than 36 per cent. of the traffic receipts), and the total expenditure, to £21,462 12s. 6d., leaving as profit £16,790 4s. 8d., which, with £1,851 13s. 9d., brought forward from the previous account, leaves at your disposal £18,641 18s. 5d., out of which your directors recommend you to declare a dividend, at the rate of 4 per cent. per annum (less income-tax), after payment of which £1,039 3s. 7d. will remain to be carried to credit of the account for the current half-year.

**LAUNCH OF THE KNIGHT COMMANDER.**

ON Wednesday, the 24th ult. a new era was inaugurated in the annals of Irish enterprise at the yard of Messrs. Walpole, Webb, and Bewley, by the launch, under most auspicious circumstances, of the above-named iron ship, an event which, as a matter of national importance, has been for some time looked forward to with the deepest interest by all who take an interest in the welfare and progress of our country. The day was most favourable for such an undertaking, being calm, bright, and clear, and notwithstanding the coldness of the wind, which, with its accompaniments of a clear horizon, with ships looming high out of the water, betrayed by its penetrating keenness its well-known and unmistakable eastern origin, there were several thousand spectators assembled within the precincts of the yard, and countless multitudes were distributed over every available spot from which a view could be obtained. His Excellency the Lord Lieutenant arrived shortly after eleven o'clock. He was received at the entrance to the works by the three partners in the firm, also by Colonel La Touche, Mr. Francis Codd, and other members of the Ballast Board. His Excellency was accompanied by the Marquis and Marchioness of Kildare, the Earl of Meath, Mrs. and the Misses Williams, Captain Lascelles, Captain Donaldson, A.D.C., Right Honourable John Hatchell, Mr. Campbell, A.D.C., Captain Cockerell, A.D.C., the Dean of the Chapel Royal, &c.

A platform was erected close to the forepart of the vessel for His Excellency and the principal visitors, where His Excellency remained until the launch was effected.

Shortly after twelve o'clock the dog-shores were knocked away, and as the vessel began slowly to glide upon the grooves, a bottle of champagne was broken upon her prow by the Marchioness of Kildare, from whom she received the name of the "Knight Commander." A salvo of twenty-one guns was then fired, an appropriate air was struck up by the constabulary band, and without the slightest accident she glided rapidly into the water amid the most enthusiastic and deafening cheers that arose on all sides, and were caught up and reiterated far away in the distance along the Pigeon-house wall, and from the ships in the river.

**THE DEJEUNER.**

As soon as the ceremonial had terminated His Excellency and upwards of 400 visitors were entertained at a *dejeuner* by the Messrs. Walpole, Webb and Bewley. It was laid out in one of the extensive workshops, which was specially arranged and deco-

rated for the occasion. A considerable number of ladies were present. Mr. Henry Webb presided.

After the usual loyal toasts,

The Chairman next proposed "The health of his Excellency the Lord Lieutenant, and prosperity to Ireland." His Excellency's presence on this occasion, he said, was quite sufficient proof of how just a tribute to him it was to couple his name with whatever tended to the advancement of the country. Though his Excellency might not have been present at very many ship launches, yet there was a great launch at which he had been present, and not as a mere idle spectator, but as an active co-operator. It was but very lately indeed that Ireland might be said to have started on the ways. They all might, perhaps, make a guess at the causes which had held her in her place; but it was not by any means an easy task to launch the great ship when she had lain too long in her position, and when the ways in which she should have glided had not been lubricated as they should have been. That to some extent has been the case with this country. Many years ago, in towns where less wise and generous legislation was in vogue, the ways in which Ireland might have glided to prosperity were strewn, not with the kindly aid of a wise Government, but with the grit and sand of faction. It, therefore, required a great deal of unwedging and removing shores, all the machinery of practical engineering having for a long time failed to start her on her course. They, however, had the privilege of living in days when there was a wise and just legislature, which could not possibly be more fully represented than in their distinguished visitor of that day. They might have witnessed in the launch of the ship, Knight Commander, that when the wedges were let out on one side only she did not move. It was similar with a nation as with a ship. If they only removed the shores from a single part of the community they would find that all would wedge more firmly in the ways than if the shores had never been stirred at all. So with Ireland. They had now the happiness to live in days of kindly legislation as represented by his Excellency, and they might truly say of Ireland, "She moves at last." She had for long years kept the true patriots waiting on the platform to christen her on her new career, and a cold service it had been; but he thought that they might now say truly that "she moves." His Excellency had been, they might say, in this great operation the "master shipwright." It was not by unwedging one side of the community, and the other side fast and tight—it was not by allowing people to strike a blow here and a blow there without any particular purpose or object or any union whatsoever, but by removing every shore which could possibly obstruct her motion—by giving to all parties alike free course of development, which his Excellency had assisted in achieving, that Ireland could secure that success which they believed she was now on the way to attain. They were not afraid of those symptoms which seemed to discourage some. Because the people might be leaving the country naturally to do better elsewhere, they did not see in that an evil foreboding, but rather as the natural results of former years. They were satisfied that this was a mere effort of nature to remove a great evil, and most of them would join with him in saying that in spite of all this the country was rapidly improving, under the wise and just Government which she now enjoyed. How much of this they might attribute to the efforts of his Excellency they could judge better than he; suffice it to say that they could unite no name more properly with the sentiment, "Prosperity to Ireland," than that of his Excellency the Lord Lieutenant. He called on them to join him in wishing prosperity to Ireland, and in drinking the health of his Excellency.

His Excellency the Lord Lieutenant arose amidst loud cheers and said—Ladies, my lords and gentlemen, I beg to return you my very sincere thanks for the honour which has been so kindly, so aptly, and so considerably proposed, and so cordially received. I am always most desirous for the prosperity of Ireland, at the same time that I feel most diffident about my name being coupled with the sentiment; but however that may be, I feel sure that the work in which we have been engaged this morning is most properly associated with the prosperity of Ireland. You have all, ladies and gentlemen, seen the ship launched; you have been able to judge of her size, of her lines, and her proportions. I have always thought that the successful launch of a large ship, taking into account all it presents to the eye and suggests to the mind, as a sight which has few parallels. This is, I believe, the largest vessel that has ever been built in Dublin; and when we remember that the spot upon which it has been built, and upon which it has acquired all its beauty, was, not two years ago, only a bed of oozy mud, over which the advancing and receding tide sluggishly rolled, I trust we may consider the achievement of to-day to be a promise of many similar and even greater triumphs, and in the still water view a type of the onward progress of universal

Ireland from the sediments of langour and stagnation to all the busy impulses of steady industry and successful enterprise. Our good vessel of to-day, the Knight Commander, has been launched and christened under the brightest and fairest auspices, and I am sure that we, one and all, win the heartiest wishes that the favour of Him "in whose breast are the winds and the waves, and in whose gift the silver and the gold," will always give it prosperous voyages and remunerative returns. You will, I am sure, allow me to propose to you a toast which has many claims upon your cordial acceptance, inasmuch as it combines not only in his own individual capacity, the chairman who has shown us how aptly he is qualified to preside on such an occasion as this—(applause)—but also the respected firm of builders, which have accomplished so much in the complete vessel we have seen launched to-day; and, in passing, I may express my regret that, from peculiar circumstances, we could not have the pleasure of seeing amongst us the elder Mr. Bewley, who is so appreciated and respected by all the inhabitants of our city, and not the least to say the gentlemen who have provided us with this magnificent entertainment which we have also much pleasure in enjoying. I beg leave to propose the health of the Builders of the ship, and to connect that toast specially with the name of Mr. Webb.

The toast having been drunk,

Mr. Webb, on the part of his partners and himself, thanked his Excellency for the flattering manner in which he had proposed their healths, and the visitors, for the cordial manner in which they had received it. Although his name had been coupled with the toast, it was but justice for him to assure the company that if arduous efforts for the success of this undertaking gave any claim for consideration, the larger share of merit should be given to his partner, Mr. Walpole. But even they could take but a certain share of the success of the undertaking. It was a project in which they could all strike "with a rally," as they, shipwrights, would say—that was, all striking together in one direction, and with one purpose. They were not left to themselves in the work, and he was happy to see there many whose names he could mention, who had aided them in the effort, and who constantly watched over the prosperity of the port and that of Ireland. He could not forbear from mentioning the Ballast Board, from which they had received every aid that could further their great undertaking. He had also to thank those gentlemen from England who, throwing aside what was generally supposed to be an existing prejudice against anything Irish, crossed the channel to have a vessel built here. He thought this a most important consideration, and a most auspicious feature. They did not offer these gentlemen any particular advantages. They knew well that it was a new firm, in a new port; yet they unhesitatingly gave it their countenance. He believed if they, in Ireland, would only have the enterprise to embark in schemes like this, they would find that the idea that Englishmen would not have anything Irish would be falsified, and that they would learn that Englishmen would be glad to receive what came from Ireland, provided it was only as good as what could be got in England. There were many others who had aided them by their counsel and kindly assistance, and while taking their limited share of the plaudits so kindly bestowed on them, he should ask the company to reserve a large portion for those who had so ably seconded them in their undertaking.

The "Army and Navy" was proposed by the Lord Chancellor.

Captain De Courcy proposed the toast, "Success to the good ship Knight Commander," coupled with the name of Mr. James Carlyle.

Mr. James Carlyle, in responding, said if there was one thing more than another which he regretted it was that he was not born an Irishman. From their cradle to the grave they could always speak for themselves, but he was not a man of eloquence, and therefore he was not going to make a long speech. The ship they had seen launched was not the first he had got built of the same kind, and he could say that there were builders in Ireland equal to any they had got in England. Before contracting for the ship, a young man was introduced to him, who came over to Liverpool, where they had got twelve iron ship-building yards, looking for work. It was rather a bold stroke for him, but a bold stroke always gained the day. The young man, when introduced, said he had set up ship-building in Dublin, at the end of the North Wall, where there was a lighthouse. He (Mr. Carlyle) said he would take his word. The contract was signed; and he hoped the three builders were as well satisfied with their bargain as he was with his. The ship just launched was not behind any of the London built ships. She was composed of iron in the bottom and steel to the top mastsheads, whereas with a London river built ship, if steel masts were asked for, they would have to send to some other place for them. If iron ship-building in the Liffey was persevered in, it would be speaking a great deal for Dublin. The

vessel then launched was not the only iron vessel that was being built in Ireland. His brother, one of the firm of Charles Moore and Co., was engaged building one in the South, although it was always better to be at the north of a person. Iron ship-building, too, was being successfully carried out in Waterford and many other places. He did not see why the Liffey, in this respect, should not be what the Thames is. The day was not far distant, he believed, when persons would regard wooden ship-building as a great curiosity, and he hoped to see the day when Dublin would exceed Liverpool in this particular branch of industry. It was a mistake to suppose Englishmen had any prejudice against Ireland. They took everybody by the hand as citizens of the world, as all merchants should, and he again expressed a hope to see the day when the Liffey would have as many ships building in it as the Mersey.

#### TO CURE SMOKY CHIMNEYS.

PROCURE a circular tube of zinc, or other metal, not less than three inches in diameter generally, but which can be increased to any larger size that may be required; or an additional tube may be laid down. Let one end of the tube pass through the outer wall of the house, under the floor of the room, whether that of the ground-floor, or of a chamber, or otherwise, as the case may be. This open end of the tube, protruded through the outer wall of the house, should be covered with a metallic cap, to prevent anything obstructive entering the tube from the outside of the house. But holes must be bored through this cap or covered end of the tube, to let the external air pass freely through the apertures into the tube. If the floor of the room be high enough, this will do, and the end of the tube will just pass through the wall. But if the floor be lower than the ground outside the house, then the tube, upon being passed through the outer wall of the house, should be made to take an upward direction through the earth, close by the side of the wall, until it reach the surface of the ground, so as to allow the external air unobstructed access to the apertures made at the end of the tube, outside the outer wall of the house. In a cellar kitchen the tube might be carried up the inside of the wall, and not be protruded through the wall until raised above the surface of the ground outside the house, and then be passed through the wall. The tube must then cross the room under the floor, in the direction of the fire-grate. It must still pass onward under the hearth-stone, and also under the fire-grate. This may be frequently effected without taking up the hearth-stone, or the fire-grate. When the tube has reached the back of the fire-grate, it should be made to bend upward to the height of about two feet, more or less, from the floor, as circumstances may render necessary, just behind the iron back of the grate. It must then bend to one side, like the nozzle of a pump, to prevent the soot or mortar, &c., from falling down the chimney into the end of the tube, which must be left open for the outlet of the air. In this way a strong stream of external air will be procured. If in any instance the stream of air in the tube should prove too strong, and evince itself to be so, by its causing too great a draught on the fire, its strength may be diminished at pleasure, simply by fastening a metallic cap, in the place of the old one, at the end of the tube outside the outer wall, containing such a diminished number of apertures as will admit only the required amount of air.—*Progress of Art of Building.*

The *Morning Post*, Sept. 29, speaking of Benson's Watches in the Exhibition, says:—"The collection of watches shown by Mr. Benson is a large, and at the same time an interesting one, and considerable attention has been paid by the exhibitor to the decoration of the cases. Many of them are extremely elegant in the design, and were the result of prizes offered by Mr. Benson to the pupils of the South Kensington Schools of Design." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watch making, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Class 33, Honourable Mention, Class 15; 33 and 34, Ludgate-hill, London. Branch establishments, 46, 47, and 63, Cornhill. Established 1749. Watch and Clock maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

THE DUBLIN EXHIBITION PALACE AND WINTER GARDEN.

In the present number we give an engraving of the Exhibition Palace, now in course of erection from the plans of Mr. A. G. Jones, of this city. Hereafter we purpose supplying details of the progress of the building, with other illustrations of same.

IMPROVEMENT OF THE WORKING CLASSES.

A MEETING to advocate the establishment of a Working Man's Hall and Coffee Palace was held last week in the School-room of the Molyneux Asylum.

The Rev. M. NELIGAN, A.M., in the chair.

Mr. Marcus T. Moses explained the objects of the movement. In a report which he had prepared he stated that a committee had been formed for the purpose of establishing a Working Man's Hall and Coffee Palace in Dublin, and that such a movement had first been thought of when some of its members were struck by the number of houses in Dublin licensed for the sale of intoxicating liquors, and not one in which a cup of tea or coffee could be had, and where the working men could meet for the sake of good fellowship without drinking ardent spirits. The movement had also been suggested by a letter from Surgeon Scott, stationed in China, to his mother, in which he described an eating house in China, where the people were in the habit of meeting for social consideration and tea-drinking. The surgeon suggested that such a thing was much wanted in Dublin, and offered, if the movement were energetically taken up, to subscribe £5. It should not be thought that this was a Utopian scheme. It had been successful on the other side of the Channel. Working men's halls and cooking depots had been established in London, Carlisle, and Glasgow, and had been exceedingly successful. The Dublin committee had set about asking the support and sympathy of the people. Five hundred pounds would be necessary to carry out the scheme, and one-half of that sum had been already subscribed. He had leave from a lady in Bath to say that she would give unconditionally £100, and double her subscription, provided the citizens of Dublin took up the matter in earnest.

The Rev. Eustace Breunna and others addressed the meeting.

COMMERCIAL GAS COMPANY.

In our last number we announced that a new company, under the above title, had been started for the purpose of supplying Kingstown and neighbourhood with gas of "high illuminating power." We now subjoin the prospectus as issued:—

The object contemplated by this company is to supply Kingstown, Monkstown, and vicinity, Dalkey, Killiney, Ballybrack, and other places with an abundant supply of gas of high illuminating power, at the lowest remunerative price, to attain which object the company will have the advantage of all the modern improvements that science has brought to bear upon the construction of gas-works and the manufacture and distribution of gas. The Commercial Gas Company of Ireland (Limited), while by its constitution available for supplying gas-light to any district requiring it, has in the first instance turned its attention to giving the important township of Kingstown and vicinity a good supply of gas. Kingstown is as present lighted by an English gas company, having a monopoly in the district, with a board of directors resident in London. This state of things has naturally given rise to much dissatisfaction, which has resulted in the formation of this company, the directors of which reside in the locality, and are therefore always at hand to watch the management of the concern, and to receive any suggestions or representations that may be brought before them by the consumers. From the large population of Kingstown and its neighbourhood, the number of private residences, better-class shops, hotels, public institutions, places of worship, &c., and from the almost universal experience of similar undertakings in other places, there is every prospect that this project will be highly successful, and remunerative to the shareholders. It is well known that the Alliance Gas Company, which is entirely managed by a Dublin Board of Directors, pays 8 per cent. dividends to its proprietors, and that the shares of that company are sold at a large premium. The great majority of other gas companies in Ireland and Scotland having local management, pay from 8 to 10 per cent. to their shareholders. As an evidence of the success which is likely to attend the operations of this company, it may be stated that an offer has been received from a firm of high standing and great experience in the working of gas companies, to take the whole plant of this company under lease guaranteeing to the shareholders 6 per cent. on the paid up capital of the

company for a given period of time. Satisfactory, in many respects, as this arrangement might have been, the directors have considered it best to retain the manufacture of gas in their own hands, so that all the profits of the establishment may be secured to the shareholders. Promises of support have been obtained from the principal consumers of gas in the district, who are dissatisfied with the present supply, and who prefer dealing with a local rather than an English gas company. As a considerable number of shares have already been subscribed for, and as it is thought desirable that a large proportion of the entire capital should be held by shareholders resident in the district, an early application for shares is necessary. A suitable site for the works has been secured, and every preparation made for the immediate commencement of the undertaking. In a short time tenders for the works required by the company will be advertised for, and it is expected that by the commencement of next winter the inhabitants of this district may have the satisfaction of being lighted by gas of their own manufacture. As it is proposed that this company shall supply gas of vastly superior illuminating power, at a lower price than that now charged by the English company, the public are warned against any attempt to secure a continuance of the existing monopoly by a temporary and fictitious reduction in the price of gas.

RAILWAY RETURNS.

Name of Company.	Week Ending.	1864	1863
Belfast and County Down ..	Feb. 14	664	605
Belfast and Northern Counties ..	.. 12	1815	1712
Cork and Bandon ..	.. 13	280	293
Cork, Blackrock and Passage ..	.. 13	112	154
Cork and Limerick Direct ..	.. 5	196	257
Cork and Youghal, &c. ..	.. 12	387	316
Dublin and Belfast Junction ..	.. 14	1238	1259
Dublin and Drogheda ..	.. 14	1466	1521
Dublin and Kingstown ..	.. 12	751	838
Dublin and Meath ..	.. 5	190	111
Dublin, Wicklow and Wexford, and Dublin and Kingstown ..	.. 12	2116	1552
Finn Valley ..	.. —	—	—
Groat Northern and Western ..	.. 12	406	489
Great Southern and Western ..	.. 12	6963	6993
Irish South Eastern ..	.. 12	287	287
Irish North Western ..	.. 14	1586	1695
Limerick and Ennis ..	.. 12	154	175
Limerick and Foyens ..	.. 12	158	139
Midland Great Western ..	.. 12	4555	4800
Newry W. Point and Rostrevor ..	.. 7	56	64
Ulster ..	.. 14	2389	2022
Waterford and Kilkenny ..	.. 12	398	355
Waterford and Limerick ..	.. 12	1159	1086
Waterford and Tramore ..	.. 13	39	46
Grand Canal ..	.. 12	805	805

NEW GREEK CHURCH AT LIVERPOOL.

THE limited competition for the proposed Greek Church has resulted in the selection of the design submitted by the Messrs. Hay, architects, who have been appointed to prepare the necessary working drawings. The design is in the Byzantine style of architecture, and is based on the old Church of Theotocos at Constantinople, considered one of the purest examples of the style in existence. It will be built of polished ashlar, on a corner plot of ground between Upper Parliament-street, and Prince's Park-road. The plan consists of a spacious narthex to the west, flanked by apartments and stair to the gallery, and surmounted by three domes. The body of the church will be entered by three doors from the narthex, and divided into nave and aisles and transepts, on the plan of the Greek cross, with large central dome over the intersection. The eastern bays, or that portion which corresponds with our chancel and aisles, will be screened off by means of the iconostasis, and terminated by a central projecting apse with small side ones formed in the thickness of the wall. Altogether this building will be rather unique in the way of Church architecture.

TELEGRAPHIC PROGRESS.

THE first line of electric telegraph on Signor Bonelli's printing system will shortly be opened between Manchester and Liverpool. On a narrow table a small model of a tramway ran from end to end, a bridge six inches high spanning the middle. A long solid waggon moved up and down the rails, having on its upper surface two rectilinear openings, each extending half the length of the carriage, and each coming under a comb-like series of five needles. A simplified alphabet of type is placed in the opening at the end of the waggon nearest the point whence it travels. The projecting type is so divided that the points of one set of needles shall fall over the inequalities, and be lifted in the passage of the waggon. A strip of paper, in the same way, comes under the second comb, which obeys the motion of the first, and prints the message in a legible brown character, which is due, in fact, to manganese. Three hundred words in a minute are thus despatched.

GAS COMPANIES.

THE following is a list of all the principal Gas Companies in London, the dividends paid, and the present quotations for the shares:—

	Div. per ann.	Paid up.	Pres price.
The Chartered ..	£10	£50	£25
City of London ..	9	20	30
Commercial ..	10	25	45
Crystal Palace ..	10	10	18
Equitable ..	10	50	93
European ..	10	1	15
Great Central Consumers ..	8	10	18
Imperial ..	10	50	88
Imperial and Continental ..	10½	44	81
Independent ..	5	40	60
London ..	10	50	85
Phoenix ..	10	50	100
Radecliff ..	10	18	32
South Metropolitan ..	10	50	75
Surrey Consumers ..	8	10	20
Western ..	10	10	18
The Liverpool United ..	10	100	209

In Ireland there are in all 49 gas companies, which have, on an average, a paid up capital of £10 per share, and the average of present prices is £12 10s. per share, or a premium of £25 per cent.

Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

Church Furniture Manufactory,  
27, Lincoln-place, February 29, 1864.

SIR,—Permit me to correct a mis-statement in reference to Arklow Church, which appeared in your notice of public works in last impression. The new pulpit, reading desk, communion table, fauld stools, chairs, &c., together with all the other decorative work of the chancel, were designed and executed by me for the rector and churchwardens of the Parish of Arklow, and not by the respected contractor for the other portion of the building. Your correcting this error in your next impression will do an act of justice, and oblige yours,  
JOSEPH DIGGES.

KEEP TO THE RIGHT.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Allow me, through the medium of your valuable journal, to call attention to the following important matter:—

In some of the crowded thoroughfares of our metropolis may be seen, elevated on a lamp-post, the notice to pedestrians:—"When walking, KEEP TO THE RIGHT," but the letters are almost illegible at such a height. If, in this age of expansive dresses, the regulation could be rigidly carried out, it would tend much to the comfort of foot passengers, and, besides the saving of time, much annoyance and loss of temper to pedestrians in a hurry might be avoided. There is a police by-law in force as to the side of the road to be taken by horses, carriages, and wagons, and surely those who travel on foot should be required to follow a similar law.—Yours,

PEDESTRIAN.

General Items.

It is in contemplation by the residents of Blackrock Township to form an alliance company, for the purpose of building a class of houses very much required in the district, viz., neat and comfortable residences, at from £30 to £40 per annum. The intention is also for mutual benefit, whereby shareholders, at the termination of five years, can live nearly rent free, the ground rent alone remaining to be paid. The speculation has been received favourably; influential parties have taken it up; and the movement promises to be successful.

A separate lunatic asylum for the county of Wicklow is to be provided by the grand jury; towards the cost of maintaining it they will have the sum of £1,600 or £1,700 annually paid by them for the maintenance of the lunatic poor in the Richmond Asylum.

A young man, a native of Dundee, who went to China as a carpenter's apprentice about nine years ago, writes to his parents that he is now a colonel in the Chinese Imperial Army!

The Schieland Palace at Rotterdam, containing the museum and picture gallery, has been completely destroyed by fire. It was a stately building, of large extent, and was the residence of Napoleon I. in 1812, when he invaded Holland. The picture gallery formed one of the most interesting exhibitions in Rotterdam, and possessed a fine collection.

In London, last week, 59 deaths occurred from accidents; 11 persons, 7 of whom were children, died from burns or scalds; 14 children were suffocated, and 27 persons were killed by fractures or contusions.

## Miscellaneous.

**DANGEROUS CHIMNEY-POTS.**—A correspondent of the *Building News* complains of the insecurity of chimney-pots. As a remedy he suggests that all tall and heavy ones be as soon as possible removed, that short brick ones be substituted, and secured by Roman cement or by a bar of iron, in which a ring is formed to clasp firmly the can, and that this bar be built into the mason-work on which the chimney-top is placed. Such chimney-tops, he says, look better, act as well as the old-fashioned ones which at present exist, and would be infinitely less dangerous.

**STEEL BOILERS.**—Some interesting experiments have been recently made in Prussia with steel steam boilers. A steel boiler of the egg-end shape, 4 ft. in diameter and 30 ft. in length, without flues, was tried. It had a steam drum 2 ft. in diameter and 2 ft. in height, and the plates were one-fourth of an inch in thickness. Beside it there was placed another boiler, similar in every respect, excepting that the plates were of iron 0.414 of an inch in thickness. The steel boiler was tested by hydraulic pressure up to 195 lbs. on the inch, without shewing leakage, and both the iron and steel boilers were worked under a pressure of 65 lbs. on the inch for about one year and a-half. During this period, the steel boiler generated 25 per cent. more steam than the iron one, and when they were thoroughly examined after eighteen months' practical working, there was less scale in the steel than in the iron boiler. The former evaporates 11.66 cubic feet of water per hour; the iron boiler 9.37 cubic feet. The quantity of coal consumed was on an average 2,706 lbs. for the steel one in twelve hours, and 2,972 lbs. for the iron boiler.—*Building News*.

**THE METRONOME.**—Professor Wolowski, a music teacher of Boston, U.S., has invented an instrument which, it is said, will displace entirely the metronome originated by Maelzel in 1814. He is coming to Europe to secure letters patent from the various governments, and bring his invention before the musical world on this side of the Atlantic.

**SUBMARINE CABLES.**—The numerous submarine telegraph cables now at work in Europe are in the aggregate upwards of 5,600 miles long. These cables range from four miles to 1,500 miles each in length, and they are sunk in water varying from 90 to 9,400 feet in depth.

**DUNDALK AND GREENORE RAILWAY.**—The ground for this line is to be pegged off forthwith, previous to purchase. Once possession of the land has been obtained the work will be prosecuted with all possible despatch.

**IRISH GENIUS.**—A new and promising invention has been made in Brooklyn, for which the public are indebted to the craft and ability of an Irishman, Mr. John O'Shea. It is a pile-driver of novel construction and immense size, which is thus described by the *Brooklyn Times*:—"It is an immense float, almost a solid mass of wood in the hull, and armour plated. The weight for driving purposes will weigh several tons, and the power of its drop, 50 feet, will be sufficient to crush the most unyielding substance. A steam-engine will be used as an operative. On the deck of this driver will be placed a brass 12-pounder, to be used if at any time the Government iron-clads are absent, and the harbour is threatened by a foreign foe. The Roosevelt-street Ferry Company are the owners of the apparatus, and it was built for them by Mr. J. O'Shea, at a cost of 5,000 dolrs. It is named after the builder."—*Irish American*. [This ingenious Irishman, Mr. John O'Shea, has this week, after a residence of some 20 years in America, arrived in his native town, Tralee, with the intention of spending the remainder of his days in the old land.]—*Tralee Chronicle*.

**FOUNDRY FOR SALE.**—The Newry foundry, the business of which has been heretofore carried on by John Bennie & Son (specimens of whose manufacture were frequently exhibited at the Dublin Exhibition), is announced for sale next month. To an enterprising purchaser this would be an opportunity rarely met with of taking up a concern so admirably suited in every respect to the branch of manufacture which has, for a number of years, been carried on therein.

**ST. STEPHEN'S GREEN.**—The bill for opening this fine square to the public has passed Standing Orders, and will be brought in by Mr. Gregory and Sir Colman O'Loughlin.

**IRISH MARBLE.**—Wm. Malcomson, Esq., has ordered a magnificent chimney-piece for the forthcoming Dublin Exhibition. The marble of which it will be made is Irish, from a quarry on his brother-in-law's estate, and is of a superior description.—*Waterford Mail*.

**NATIONAL GALLERY OF IRELAND.**—The attendance of visitors during the week ending 27th February was 10,058. Total since the opening, 1st February, 29,030.

**CHEAP GAS.**—The price of gas in Wolverhampton is to be reduced from 3s. 4d. to 3s. per 1,000 feet.

**ACCIDENTS BY FIRE AT THEATRES.**—The Lord Chamberlain has issued the following regulations, to be posted in a conspicuous place in theatres:—1. All fixed and ordinary gas burners to be furnished with efficient guards. Moveable and occasional lights to be, when possible, protected in the same manner, or put under charge of persons responsible for lighting, watching and extinguishing them. 2. The floats to be protected by a wire guard. The first ground-line to be always without gas, and unconnected with gas, whether at the wings or elsewhere. Sufficient space to be left between each ground-line, so as to lessen risk from accident to all persons standing or moving among such lines. 3. The rows or lines of gas burners at wings to commence four feet at least from the level of the stage. 4. Wet blankets or rugs, with buckets or water-pots, to be always kept in the wings; and attention to be directed to them by placards legibly printed or painted, and fixed immediately above them. As in Rule 1, some person to be responsible for keeping the blankets, buckets, &c., ready for immediate use. 5. These regulations to be always posted in some conspicuous place, so that all persons belonging to the theatre may be acquainted with their contents; every breach or neglect of them, or any act of carelessness as regards fire, to be punished by fines or dismissals by the managers.

**PROFESSIONAL IGNORANCE OF INDIAN CONTRACTORS.**—The erection of a police guard-house at Cooley Bazar, India, at a cost of 1,400 rupees, is made by the superintending engineer to furnish an example of the very imperfect agency that executive engineers in that country have to work with. He observes: "It is a specimen of the bad work every native contractor and every native workman under European contractors are trying continually to foist upon us. It was nearly up to the wall plates, and I had to reject it to the foundations. Until we get honest men, and engineers who have a profession and a professional name to lose, the contract system will give us most indifferent and very dear work; and if the executive engineers are the least slack in constantly examining both the work and the materials, the very stability of the structure will be doubtful. Every person considers he can be an architect or engineer, and clerks and baboos readily tender to construct anything in the world."

**DETECTION OF DANGEROUS LAMP OILS.**—At the meeting of the Association of the Medical Officers of Health, held on Saturday week at the Scottish Corporation Hall, a paper was read on "Recent Petroleum Accidents, and on the Ready Detection of Dangerous Lamp Oils." It was shown that these accidents had invariably resulted from the employment of lamp oils capable of igniting at a very low temperature—in many cases even below the standard of the petroleum act—one severe accident being traced to the employment of an oil giving off inflammable vapour at a temperature below the freezing point of water. The author of the paper, Mr. Tegetmeier, exhibited a very easy and practical mode of detecting dangerous oils. Two teacups of boiling water, and one of cold water (at the ordinary temperature of a sitting-room) were mixed together in a small basin, a cupful of the mixture was dipped out, and a tea spoonful of the oil to be tested poured on its surface. In a few seconds a light was applied to the oil; the dangerous oils then capable of igniting below a temperature of 128 degs. immediately took fire, whereas it was shown to be impossible to ignite those that were of a safe and non-explosive character. In the conversation that ensued Drs. Letheby, Lankester, R. D. Thompson, and the other members took part, and the desirability of raising the standard of the petroleum act from 100 degs. Fahr. to 125 degs., was discussed—many accidents, some of a fatal character, having arisen from the employment of oils having a higher inflaming point than 100 degs.

**A NEW COPPER PAINT.**—A new pigment, says the *Mining Journal*, calculated at the same time to increase the resources of the decorative painter, and to afford a ready means of preserving iron and other metals, has recently been introduced at Paris by Mr. L. Oudry, of the Auteuil Electro-Metallurgic Works. He first obtains an absolutely pure copper by throwing down the metal by the galvanic process; he then reduces the precipitate to an impalpable powder by stamping. This powder is then combined with a particular preparation of benzine, and used in the same way as ordinary paint; beautiful bronzed effects are produced upon it by means of dressing with acidified solutions and pure copper powder. The articles painted with the new material have all the appearance of electro-bronze, whilst its cost is less than one-sixth; it will last from eight to ten years. Mr. Oudry also proposes to substitute benzine oil for linseed and other oils, over which it possesses great advantages.

**ENISKILLEN FAIR GREEN.**—The railway company have made arrangements with the Town Commissioners for the purchase of the old fair green for the sum of £1,021.

**FAILURE OF MR. RENDEL'S SLUICING SCHEME.**—The scheme of Mr. Rendel, the eminent engineer, for sluicing the docks at Birkenhead, has been pronounced a complete failure. The Mersey Dock Board have condemned it after a total loss of £150,000. Mr. Lyster, the engineer of the Board, draws the attention of the committee to the sources of danger connected with the operation. The first is that arising from the rushing power of the water from the float into the sluicing chambers, thereby causing immense friction and pressure on the masonry, and which in time will go far to dislocate the whole mass. It also involves the probability of frequent accident to the appliances and mechanical arrangements peculiar to the work, and of which the destruction of the gates may be taken as a premonitory instance. "Further," says Mr. Lyster, "flats and small craft will be constantly liable to be drawn into the current, and carried through the chambers, and for this I see no remedy except such as would impair the action of the sluices. The disturbance to the shipping within the Float by the sudden lowering and raising of the water will, no doubt, affect its convenience as a dock, and therefore injuriously interfere with its practical working. The indraught of the tidal water to supply the place of that removed for scouring will also involve a silting process within the Float which will prove inconvenient and expensive. There is yet another danger, but possibly more remote than any of those alluded to, namely, that which might take place if the water of the Float should ever find its way underneath the masonry of the sluicing dam. In consequence of the soft and yielding character of the soil which originally formed part of the bed and channel of Wallasey Pool, the whole of this work had to be built on piles, and although it is of the strongest possible character, and its foundations secured by lines of heavy sheet piling carried across within the Float, as well as through the body of the masonry, and again in front of the paved apron, still, in the event of any extensive deepening of such a hole as has already been formed, an underneath water channel might force itself from the Float to the basin, and cause the destruction of the surrounding work."—*Building News*.

**THE ATLANTIC CABLE.**—There is an idea that the Great Eastern may possibly be chartered to lay down the Atlantic cable. She seems adapted by her size to hold the monstrous coil, and it is to be hoped that two unfortunate species may date from that voyage an era of prosperity.

The *Morning Post* of September 29th, when describing Benson's Great Clock in the Exhibition says:—"The large clock in the centre transept is a fine piece of mechanism, one of the largest chiming." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawingroom, diningroom, bedroom, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting-house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch establishments, 46, 47, and 63, Cornhill. Established, 1749. Watch and Clock maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

## TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to Mr. PETER ROG, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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## HOUSE BUILDING IN THE SUBURBS.

HERE is nothing perhaps at present more wanted, while our suburbs are rapidly becoming more and more extended, and terraces and detached houses in the most modern and picturesque styles of architecture are every day making their appearance in new directions, than a cheap and well-built style of suburban residence, offering accommodation that may be within the reach of a plain moderate income. Those who spend the whole week in gloomy offices, perhaps in some of the back streets of the crowded city, would gladly select their habitation in some airy and healthful locality, apart from the din that assails their ears during business hours, where the invigorating influence of sea or mountain air might prove a source of new life to their rising families, and from whence they might themselves return each day refreshed to their daily avocations. But though there are few cities that can boast of more rapid and varied means of intercommunication with their suburbs in every direction, with omnibuses that run at every hour of the day, and with a seaport second to none in the beauty of its scenery, there is not a favourite place of summer resort, either inland or along the sea, from which the man of moderate means does not find himself excluded. The lordly master of a thousand a year can hold the beauties of Bray or Killiney at command by renting small and inadequate houses at a fabulous price; why should the man of business, who labours hard to eke out a subsistence upon two hundred, be excluded from a similar enjoyment, to which even more than the other he is most justly entitled? Yet, if a house command a view of the sea from even one window, or offer a distant prospect of the mountains and the open country, it is a pretext for demanding a rent far beyond what its size and accommodation would entitle it to, and far beyond the reach of any but a first-class income. We have noticed, some time since, the organisation of a Building Society for the remedying of the above social evil, by the construction of a plain, well-built, and cheap style of dwelling-house, and we look forward with much interest to the improvements which will be gradually effected by its operations.

The principle on which houses are at present constructed in places of fashionable resort is one which is fraught with many evils, and must inevitably, sooner or later, be attended with injurious consequences to the proprietors. Extreme economy in the outlay, a deceptive appearance of fashionable finish, and the most exorbitant profits are the only things studied, while the intrinsic comforts and the more permanent accommodation of the residents is regarded as a matter of

secondary import. The services of an architect, in all matters connected with building, should be looked on as indispensable. "He that is his own counsel," in a legal question, "has a fool for his client," and in like manner it may be said that he who is his own architect is labouring for a foolish employer. An architect will, for a small and trifling percentage, bring the whole power of practical experience, combined with scientific education, to bear upon the execution of any works that are entrusted to his charge; and even where they are of a trivial character, the influence of a masterly mind will produce effects that will be conspicuously apparent. He will tell at a glance whether a design is feasible or impracticable, and by a well-timed opinion save the loss that might be entailed by many a ruinous experiment; he will correct and reduce to a practical form the injudicious proposals or the undeveloped projects of an unskilled speculator; he will check the waste that would arise from entrusting the execution of a work to an ignorant mechanic, and out of many plans will, by his professional experience, select that which will combine judicious economy with the most permanent advantages. But it is now the system with a vast number of wealthy house proprietors not only to ignore the existence of architects altogether, but to discard even the services of a practical and intelligent master builder, and to entrust the execution of their work to the conduct of a journeyman mason and a carpenter, or to the still more inadequate supervision of some pretentious charlatan. The evils that arise from such a practice are not long in manifesting themselves. An economist forms the notion that he will build, by the help of a few journeymen, a house for £300, for which an architect would demand £500 or £600. He is ignorant of the commonest rules of building, but he leaves that to the journeyman. He cares little if common clay is used for mortar, and spread in layers more than an inch in thickness, or if his walls be carried up with a strange departure from the perpendicular. The drainage and prevention of damp in his foundations are, like all underground matters, out of sight and beneath his notice. Then when the mere carcass is finished he will lavish a little money upon exterior finish, cover all defects with gaudy papering and painting, and then obtain from 20 to 30 per cent. upon his outlay. But the stern hand of time will soon execute severe judgment upon his ill-wrought and unstable work. The damp continually rising will strip the walls of their paper and cover the ornamental work with mildew; the beating rain will wash away the ill-made mortar, and the keen blasts of winter will penetrate the thin plastering and search the house to its inmost penetralia, and the proprietor will find too late that a little professional experience in the beginning would have been more to his advantage.

But of all the evils that arise from the economical and unprofessional style of building, the most incurable, the most fatal, and, unfortunately, the most frequent, are those which arise from ignorance of the principles of under-drainage. There is nothing more

usual than to see a sewer placed immediately under a pump, immediately over the well, and the whole in close proximity to the walls of the house, with very often a cesspool only a few yards distant. Nothing more common than to see a channel not wide enough to admit a man's arm as the only passage for carrying off the drainage of the house.\* We have ourselves in several instances known the foundations and the house sewer to be laid *below* the level of the main sewer of the road, and when the connection was made the consequence was, of course, that the flow took place in the wrong direction, and the house sewer was constantly stagnant and overflowing. The practice of constructing cesspools in the immediate vicinity of wells, is in some places very extensively followed, and is gradually being attended with results that may prove little short of disastrous. By the constant soakage of liquid sewage the water becomes gradually permeated with solid matter, to such an extent as seriously to affect the sanitary condition of the district. We do not exaggerate in stating that we have known whole districts rendered objectionable to live in from this cause alone. It arises as a natural consequence that the occupants suffer ever afterwards from such a pernicious system of house building, and fail to obtain the health and enjoyment which they chiefly seek in selecting a suburban residence.

It is not by any means our intention, in making the above remarks, to cast a general stigma upon the new and handsome buildings of our fashionable outlets. We merely wish to point out the ruinous consequences that arise from the mistaken economy of a class of house proprietors, unfortunately rather extensive, but by no means universal, who run up buildings for a mere speculation, and imagine that art and science are for such works altogether unnecessary. In marked contradistinction the works of experienced architects stand out, and there are many splendid specimens of their skill in Rathmines, Rathgar, Dundrum, and some few even in Kingstown; but there the system which we have described—of a minimum of outlay and most exorbitant profits—has been extensively practised, and has been attended with most injurious results. There is strong temptation in every watering place to run up houses for mere appearance' sake, for the use of summer visitors, who care little how they are lodged during *la belle saison*, and for this reason it is almost impossible in a watering place to meet with a well-built and comfortable permanent residence. Unfortunately the well-executed work of the skilled architect is often not discernible from mere first appearances, and it is not until the agreement is signed, and the house perhaps taken for a term of years, that the occupants detect the evils that arise from errors of the original construction. Lastly, there is one drawback under which all houses in fashionable localities, whether well-built or ill-built, equally labour, and that is the enormous rent which is demanded for them. This leads us back, in conclusion, to our original proposition. Whether such be neces-

sitated by large expenditure, short leases, or heavy ground rents, it is not our object to inquire; we merely state the fact, and that it wants a remedy. If some benevolent landlord would undertake to build a class of small but neat houses, or semi-cottages, and let them at a moderate yearly rent, his profits might be a little less, but he would do much to promote the cause of social happiness, and he would be sure of never having his houses idle upon his hands. Much may yet be done in this way, and some time hence we may see the buildings of our suburbs and watering places laid out so as to place health and recreation equally within the reach of all classes.

#### INSTITUTION OF CIVIL ENGINEERS, LONDON.

AN address was delivered at a recent meeting by J. R. McClean, Esq., F.R.A.S., president, on taking the chair for the first time. The following extracts will be read with interest:—

Speaking of the deposit of coal as one of our greatest sources of wealth, the president observes:

The quantity of coal raised in Great Britain is now about 100,000,000 of tons yearly, produced by the labour of about 300,000 men.

We are indebted to Professor Liebig, the celebrated German chemist, for data by which we can estimate the value of this enormous quantity of fuel by comparing it with wood or any other produce of the soil.

Liebig informs us that every acre of fertile land will produce yearly about two tons and a-half of wood or other crop, which contains about the same quantity of carbon (80 per cent.) as one ton of coal. The 100,000,000 tons of coal now raised annually from our mines contain about 80,000,000 tons of carbon; and to produce the equivalent of this in wood would require one year's growth of, in round numbers, 100,000,000 of acres of land, an area about four times larger than the arable pasture land of England (which does not exceed 25,000,000 acres), and as nearly as possible equal in extent to the area of the kingdom of France. Yet this supply of fuel, even if it existed in the form of wood, would be practically useless as a substitute for coal; the labouring population of the kingdom would be unable to cut and convert it, the whole of our railways and canals would not suffice to transport it, while the cost of these operations, if no other obstacle intervened, would prevent them from being carried on beneficially.

The development of coal, then, is mainly the cause of the increase of wealth, but if railways had not proved reproductive investments, this mineral would have added little more to the wealth of Great Britain than it did in 1815.

The serious question as to the permanence of this fuel, on which the wealth of the nation so much depends, has been prominently raised. Since the great discovery of Murchison that coal underlies, and may be found with reasonable certainty under the lower new red sandstone and Permian formations, which extend over millions of acres of Great Britain; and if beneath them at greater depths, under all the measures which overlie the Permian, and which, together, comprise upwards of one-half the area of Great Britain, we may consider our coal mines to be practically inexhaustible, and that we have not to fear any deficiency in quantity arising from the exhaustion of the mineral, but rather the practical difficulty of obtaining it from a great depth below the surface, in consequence of the central heat of our globe, which it is alleged will ultimately, and within a defined and not distant period, reduce the production to a limited supply.

Much may be said in support of the theory of central heat, but I think undue importance has been given to it, as a difficulty in mining operations. A comparatively thin coating of clay or fire-bricks, surrounding a blast furnace filled with molten iron, affords such protection that the hand may be placed without inconvenience on the outer surface of the brickwork, and it is difficult to understand how any internal heat can penetrate through the crust of the earth—estimated to be thirty-four miles in thickness—so as to interfere with the temperature at the comparatively small depth from the surface at which mining operations are carried on. I am of opinion that the heat which undoubtedly exists in some mines arises, not from central heat, but from superincumbent pressure and defective ventilation. The gases in the coal are highly compressed, and when liberated by mining operations are at a high

temperature; but we know that with large shafts air may be conveyed to any depth that has yet been reached in mining operations, without in the slightest degree altering its temperature; and that by a proper enlargement of the air passages, air descending the shaft may be distributed through the workings, so as to lessen the liability of accident from explosion or serious inconvenience from heat at any depth to which the shafts can be sunk. The system of sending compressed air down the shaft by means of water is found to abate inconvenience in deep mines owing to an excess of temperature.

I therefore think that the time when we shall experience a want of coal, arising from exhaustion, or from difficulties occasioned by the depth of the mines, or an excess of temperature, need not at present in any way influence our conduct in the development and use of that important mineral, especially as the power (which is the substitute for labour) derived from coal is so cheap, that we are enabled to consume daily for our domestic comforts, for machinery in the conversion of minerals, and for other manufacturing processes, and for export, a power equal to twelve millions of horses, at a cost at the mine of not more than one penny per horsepower, working ten hours a day, and no saving in consumption of this enormous quantity of coal can be made, except by employing more expensive labour as a substitute.

With this power at our command the cost of sinking to and of raising minerals from the greatest depths is inappreciable; while the intrinsic value of coal, when compared with any other fuel, is so great that it may be drawn profitably from almost any depth, the only limit being the strength of the machinery and materials required to raise it.

The president was a member of an international committee, who were sent to Egypt to examine into the practicability of constructing a canal through the Isthmus of Suez, of which he gives the following account:—

In consequence of the great interest now evinced in the progress of the works of the Isthmus of Suez Canal, and as the subject has never been brought directly under the consideration of the institution, I will take this opportunity to make a short statement respecting the labours of the English members of the International Commission, who in the years 1855 and 1856, examined the question of the practicability of forming a ship canal through the Isthmus of Suez.

In the year 1855 M. Ferdinand de Lesseps, acting for H.H. the late Said Pacha, Viceroy of Egypt, invited me with the late Mr. Rendel, and your hon. secretary, Mr. Manby, to form part of an international commission for the purpose of considering and reporting on the practicability of forming a ship canal between the Mediterranean and the Red Sea, and the best mode of constructing it, and for that purpose I accompanied M. Conrad, of Holland, MM. Renaud and Lioussou, of France, and M. de Negrelli of Vienna, to Egypt in that year. The commission was an honorary one, and we were considered the guests of the Viceroy from the time of our leaving Marseilles to our return to Europe.

In Egypt we met M. de Lesseps, Moulé Bey, and Linant Bey, engineers, and other gentlemen in the service of the Viceroy, and in the months of December, 1855, and January, 1856, we made a careful examination of the harbours in the two seas, which it was proposed to unite, and of the desert lying between them, and arrived at the conclusion that a ship canal was practicable between the Gulf of Pelusium in the Mediterranean and the Red Sea, near Suez. Thus far we all agreed, but we differed as to the mode of construction. The English members were of opinion that a ship canal raised 25 feet above the sea level and communicating with the Bay of Pelusium at one end and the Red Sea at the other, by means of locks similar to the sea entrances of the Caledonian Canal might be constructed, there being no difficulty in abundantly supplying the canal at all times with water from the Nile, by a cut made from a suitable level, without depending in any way on the closing of the "barrage" of the Nile. The foreign members of the commission were, however, of opinion that a canal 27 ft. below the sea-level from sea to sea, without any lock, was the best system, with harbours at each end, one to be constructed in the Mediterranean by piers and dredging, and the other in the Red Sea by dredging to the deep water, which in both seas is at a considerable distance from the shore.

On a comparison of the two systems it is found that the ship canal above the sea level, with locks, would save many millions of cubic yards of excavation, principally dredging, a difficult and expensive operation, and would involve no more than the ordinary contingencies which might attach to any similar engineering work of equal extent, while the difficulty arising from rocks at Suez, and running sands and silt at Pelusium would be avoided, and a large sum of money saved in the cost of construction

by employing locomotive engines instead of human labour.

The English members also considered this system the best for the shareholders, and most calculated to give productive returns for the capital invested.

The whole of the members of the commission, with the exception of Mr. Rendel, met at Paris in June, 1856, when the report of the English engineers, signed by Mr. Manby on their behalf was presented, and after full discussion was rejected by the foreign members of the commission, who preferred a canal without locks; and as they formed the majority, the report of H.H. the Viceroy recommended the system now actually in course of construction.

As the English engineers were members of a purely honorary commission, their labours terminated with the report.

Five years after the discussion in Paris of the mode of construction by the international commission, your past president, Mr. Hawkshaw, was requested by H.H. the late Viceroy to "examine the site of the proposed ship canal, intended to connect the Red Sea and the Mediterranean, across the Isthmus of Suez, and to report his opinion of that work." In February, 1863, he made a very able and elaborate report, which details the actual progress of the ship canal and its accessories up to the end of the year 1862, constructed in accordance with the system adopted by the majority of the commission, from which it appears that there had been executed of the ship canal (principally dry earthwork) six million cubic metres out of ninety-six millions, or one-fifteenth part of the whole, the expenditure up to that period, including the partial execution of the fresh water canal, being £1,200,000, leaving to be excavated ninety millions of cubic metres; or twenty millions of cubic metres more than the entire quantity required to complete the canal according to the system proposed by the English members of the commission.

#### BEAUTIES OF IRELAND.

THERE is nothing in these isles more beautiful and more picturesque than the south and west of Ireland. They who know the fairest portions of Europe still find in Ireland that which they have seen nowhere else, and which has charms all of its own. One might suppose the island just risen from the sea, and newly beamed on by the skies—as if sea and land were there first parting, and the spirit of light and order beginning its work—such is the infinite confusion of surge and beach, bay, headland, river, lake, grass of land and sea, sunshine in showers, and rainbow over all. Thackeray doubted, and any one may doubt, whether there is in all the earth a grander view than that over Westport to Clew Bay. But the whole coast, west and south, indeed all round the island, has beauties that many a travelled Englishman has no conception of. The time will come when the annual stream of tourists will lead the way, and when wealthy Englishmen, one after another, in rapid succession, will seize the fairest spots and fix here their summer quarters. They will not be practically further from London than the many seats of our nobility in the north midland counties were thirty years ago. Eighteen hours will even now take the Londoner to the Atlantic shore, and twenty will soon carry him to the furthest promontory of the island. There are those who will not welcome such a change upon the spirit of that scene. But if we see in the beauty of Ireland even a surer heritage than in hidden mine or fertile soil, why may we not hope that it will again cover her land with pleasant homes and a busy, contented, and increasing people, such as we see in many other regions with nothing but their beauty and salubrity to recommend them?—*Times*.

#### NEW RAILWAY BUFFER-STOP.

A NEW railway buffer-stop has been invented by Messrs. Price and Donovan. Experiments to test its efficiency were lately tried on the Midland Great Western Railway, in presence of Professor Galbraith and several eminent engineers. The experiments consisted in running loaded wagons against such a stop, at speeds varying from seven to twenty miles an hour, the results being in every case satisfactory. The wagons were brought to rest in spaces not exceeding nine feet, without any damage being done either to the wagon or the stop. It is believed that such results have never before been obtained by any other mode of stopping trains suddenly. The appliance is devoid of springs, and can be easily and cheaply constructed. The same principle can be applied to the buffers of all carriages, which will greatly modify or entirely prevent the disastrous effects of collisions, when such, unfortunately, do occur.

## THE INFLUENCE OF LOCAL SCENERY ON LOCAL ARCHITECTURE.\*

It has been my happiness during the last fifteen or sixteen years to see as much of the out-of-the-way ecclesiology of Western Europe, from the Vistula to the Atlantic, as has fallen to the lot of most; and therefore I thought that, on an occasion such as this, when one who has no professional or technical knowledge of a science has to speak of that science, it would be in every way more seemly, more modest, and more interesting to others, to dwell on that which it requires no professional eye to appreciate; the marvellous beauty with which the architects of the Middle Ages adapted the particular cathedral or church to the particular locality, sea-shore, river-side, mountain-top, hill-slope, wooded dell, and where not else; and, as there is nothing like an example to illustrate a general law, I will tell you what first brought to my mind the wonderful power which Mediæval architects possessed in adapting the building to the spot. The town where I live—it crowns the summit of a rather steep hill—a hill, one of the links between the southern downs of the Vale of Holmsdale, and the northern backbone of Sussex. Some eighty years ago its church was a late third-pointed affair—the general outline pretty well; the details, I have not the slightest doubt—all Sussex pointed is—very miserable. But from sketches that I have seen of it—quiet, hulking thing as it was, flattish roofed, with two enormous aisles to its chancel—it must have harmonized admirably with the slope of the hill on which it stood. It fell down in 1786—and, for a wonder, a Gothic erection took its place. The tower, for the time, admirable; but the nave! not one view, north, south, east, or west, can you get of it where, so far as the eye is concerned, it does not destroy the landscape—a hideous, lean, straight-backed thing, not only ugly in itself, but spoiling the contour of a very lovely green hill. That is not the way in which the old church was built. I am not about to enter into the philosophy of the matter; only into some of its details.

Now, first let us look at some instances of ecclesiastical buildings perched on the very summit of an abrupt precipice, or, anyhow, scarped hill. Of all the cathedrals that I have ever seen, that of Bragança has, to my mind, the most glorious position. It is perched on the northern side of the infant Douro, just escaped, under that Portuguese name, from being the Duero of Spain. The cliffs, splintering, shattered here and there, are tossed about both on one side and on the other, in a sort of chaotic grandeur. The cathedral stands on a plot of ground, of which part is absolutely corbelled out from the precipice. It was built in 1540. Christian architecture in Portugal, instead of dying the long death of Elizabethan and Jacobean in England, or the half Flamboyant, half so-called Classic style of Francis I. and Henry II., in France, went at once from such buildings as the Royal Chapel at Batalha, and the Church at Beaur, whose capitals, bosses, pendants, and corbels are wonderful mixtures of contorted foliage, lizards, devils, angels, legends, crests, and all that an almost frenzied imagination would produce, cut out, or chisel, the effect of which no word painting, not even Ruskin's, could describe—fell down at once into the simplest of all so-called Classical work. No one can, in itself, admire Bragança; but, there it stands, a part, as it were, of that jagged, splintered mountain, actually leaning over the tremendous abyss, solid, stern, simple; and, by its very contrast, to a certain extent harmonizing with the gorge of the Douro.

One of the most remarkable churches, pitched, as it were, on the apex of a needle-like hill, is that of St. Michael, at Le Puy, in Auvergne. We have all, I suppose, seen drawings of photographs of that most wonderful rock. It shoots up side by side with, but at some half-mile distant from, the Cathedral—the Angeline church, as it glories in being called, of Le Puy. I used to think, when I had only seen the paintings, that they must be exaggerated, that such a sugar-loaf of a rock could never hold on its summit—and corbelled out from that summit—any church. But most assuredly the reality is far beyond the imagination. The ascent, steep, and in some places not over safe, taking advantage of a projecting bit of rock here, nestling itself into some little coign of vantage there, lands you suddenly in mid-air—so it feels to you—at the loveliest of Romanesque doors. And from that rude walk—as if it had caught the very spirit of inanimate nature—towers up, contrary to the genius of Romanesque, this gem of a chapel.

I suppose no one has not heard of the two rival mounts of St. Michael; that opposite Marezion in Cornwall, and that on the coast of Normandy. I will but recall those to your remembrance. But the most interesting example of a church pitched on the very summit of a hill is that of St. Odille, in

Alsace. The chapel itself is a very lovely specimen of Rhenish Romanesque. But it is its position, tossed up, if we may so say, on its own appropriated mountain—one of the many truncated cones of which the chain of the Vosges consists—that tends to give it its especial interest.

May I, for a moment, leave these comparatively far-off buildings and direct your attention to chapels infinitely nearer home. Within thirty miles of London, there are three, all in the same diocese, which, two of them at least, are curious examples of the way in which a gentle English hill—gentle, that is, for any country but England, may be capped with a chapel so exactly suiting, if we may judge from the remains, the contour of the hill, and the general character of the surrounding scenery. These are the chapels of St. Anne, St. Martha, and St. Katherine, all in Surrey. St. Martha, the only one which is perfect and in use, is that which crosses the hill of its own name on the right of the Reigate and Reading line. St. Katherine's, a very singular ruin of the 14th century, is on the outskirts of Guildford. St. Anne's, a name so well known from its hill having been Fox's country seat, has disappeared.

The once cathedral church of St. Bartand is a noble example of the same position. It crowns a solitary conical mountain, one of the detached vanguards of the Pyrenees. Height is its principal feature; a western tower of very noble Romanesque, a nave without aisles, begun in 1304 and finished in 1352, and a choir with the chapels partly pointed, partly Renaissance, finished on Christmas eve, 1535. The want of aisles, sadly felt in the interior, gives an imposing appearance of greater height. It has a most magnificent situation. There it stands isolated in the foreground, the whole corbel line of the Pyrenees behind it—in the furthest distance, Maladella, monarch of the arched Pyrenees, culminating in the Pic de Nethon.

The very steepest hill crowned by a church and tower, is that of Durum, in Portugal—so excessively steep that Portuguese ponies, excellent climbers as they are, can hardly scramble up here, and within the walls of the town a wheeled carriage has never been. The opportunity, however, is quite thrown away; the church is a Classical building, and nowise, even as such, remarkable. The chapel of St. Odele, in Auvergne, nobly occupies a noble position. The mountain at first swells feebly up the plain, but at the south west there is a rock which, projecting from the mass, overhangs, in the most romantic manner, the depth below, and on this, and projecting far over the abyss, is the chapel of the Angel.

Referring only to those cathedrals of Durham and Laon, I will but mention one church more which occupies the summit of a hill, and that a truly remarkable one, the Abbey Church of St. Thomas in Portugal. It is said to be the largest monastery in Europe. There were nine great quadrangles, besides outbuildings of different kinds, and several detached chapels. The longest façade was something over half a mile in length. It is a very curious and a most touching thing to see amidst fields of maize or wheat, or barley, a high tomb of some knight, or some ecclesiastic—the cold, dark, monotonous stone so curiously contrasting with the young, green, winning life of the field itself. The whole place—monastery, church, chapels—is now deserted. I may observe by the way, and only by the way, that to my mind it is marvellous that never has any plan of the whole building, never have any sketches of what still remains of that building, been published. We can all form some conception of what must have been the glory of our St. Alban's, or Glastonbury, or Sion House; but Glastonbury could not have occupied the sixth part of St. Thomas's. So far as it bears on our subject, thus it is: From the valley of Guzere, a huge, in itself ugly, half hill, half mound, something like Plinlimon in shape, lifts itself up. The summit, to the extent of which I have already spoken, nearly half a mile on every side is enclosed for, cut down to, made use of by these nine quadrangles. But the hill still rises within, until it terminates in a kind of backbone—hog's-back, as we should say in England. And on that hog's-back, which itself slopes up from end to end, the church is built. The thing itself is late Flamboyant. The choir is unique in Europe. The choir itself is sixteen-sided, and of late Flamboyant; it is united to the nave by a kind of passage, for which no ritual that I am acquainted with has a name. The altar stands in the centre. Around it is an octagonal erection, the eight arches leading into a late Flamboyant dome; in fact, here you have a gigantic tabernacle, but this dome terminates in a pier, which pier, rising to the height of some 35 feet, branches out into the 16 ribs on which the vaulting of the stone-work of the external chancel rests. This choir stands exactly and precisely on the summit contained by the nine quadrangles of the hill on which those nine quadrangles stand. We talk of this or that building

crowning a hill—could we have a better example of the literal meaning of a metaphorical phrase? Is not this the precise diadem with which a choir like this encircles the hill on which it stands?

Now, let us proceed to another situation—I mean, when a broad river or lake exercises an important influence, if it did not on the original erection, anyhow on the present beauty of the church. The Cathedral of Trenne, among French cathedrals, occupies a place in the third class. Among late Flamboyant buildings, it stands very high. A broad flight of some 30 or 40 steps leads up to the western façade from the Rhone. To my mind there is exquisite contrast between the broad silver, lazy, over-lapping waves of the idle river as it floats past, for it is floating rather than flowing, and the sharply chiselled cusps, and foliations, and pinnacles, and ogees, and delicately-carved doubled towers of the late cathedral that hangs almost over its side. On that I might dwell at much greater length, but I would rather speak of a cathedral church which may be even by name unknown to most of you, I mean that of Marihoë, in the island of Felstar, in Denmark. Of the general character of Danish churches I shall hope to say something presently; of this I wish especially to speak as regards its situation. The western façade gives (as the French would say) on a little inland lake. Speaking from memory as to the lake (though not as to the church), I should say it is a piece of water of about four acres. Of the colour of the church, more directly. But imagine such a cathedral as St. Asaph set down on a sandy plain, surrounded on all sides but the east by the pines and the beach and oaks which make Denmark so beautiful; while on the east the little ripples of the lake are continually lapping (and never more than that) against the basement moldings of the chancel. The church itself is not especially remarkable amongst Danish churches, but its situation—jutting out as it does into a quiet inland lake, stretching away infinitely to the east, but on the north and south skirted when I saw it in spring with a lovely contrast of young beech and aged firs—the whole taken together made me think it one of the most marvellous ecclesiastical landscapes that I had ever beheld. It is nearly ten years ago since I saw it; and many of the most glorious churches in Europe have I seen since then. But calling it up to my memory, I still believe that, in its way, it is almost unique among western cathedrals.

Let me now say something as to the localised influence of colour. We are all, I suppose, agreed that a thorough understanding of the power of brick is one of the chief necessities of a modern architect, and, therefore, I often wondered that our architects who have so often been and will be more and more compelled to build in brick, should not have made a study of Danish ecclesiology. In Alsen I made my first acquaintance with Danish brickwork. In the islands in Aroe, in Falster, in Moen, above all in Laaland, and in Zealand itself, we learn what local necessities can do in originating a local style. It is clear that from whatever reason stone was utterly unattainable by the Mediæval architects of Denmark, except for some such great effort as the cathedral of Roeskild, the virtually, though not nominally, metropolitan church of Denmark, and the truthfulness and honesty with which they carry out their material are admirable only in one instance, as far as I have seen, lost in any other form but that in ordinary uses. This one exception, and it is not very frequent, is the curved bricks necessary for the formation of a flat-headed ogee. Otherwise the external ornamentation—and most richly ornamented are the churches—consists of bricks, alternately projecting square, lengthwise or breadthwise, narrow side, horizontal or perpendicular, or projecting in angular fashion, which I believe (and comparing it with the dog-tooth, the coincidence is remarkable) to be a chief characteristic of Danish architecture. The east end is almost always flat; there is generally in the 12th and 13th century, a very thoroughly-marked decorated moulding under the gable. Very frequently, by the simple process of omitting four bricks, a cross is formed, the centre of that gable. In Romanesque examples—which almost always have three equal windows in the east end—the arch is formed of a brown, gritty, ugly sandstone. I failed to learn where it came from. Very fine examples of this arrangement occurred at Waabenteit, in Laaland, at Taarby, in the same island; though here rather later is that highly-decorated example of brickwork. I never saw a church which so perfectly astonished me as that at Middlefert; and throughout the whole building there is not a single effect produced which could not in its way be worked out with those wooden bricks which are children's playthings, provided only glue might be used. Having alluded in detail to several of the Danish churches, the lecturer proceeded:—I was walking one evening towards the end of May from Odense to Middlefert. As the sun was setting I reached

\* Lecture delivered at South Kensington Museum, by Rev. J. M. Neale, M.A.

the brow of, for Denmark, a very steep and high hill. I should even think it did not fall very short of Holborn-hill, and then, looking to the south-west, and catching the churches which cluster there as thickly as in Leicestershire, that rich deep tint which six or seven centuries impart to brick drawn out to its full in the red rays of the setting sun, I thought that I had never seen a more lovely ecclesiastical landscape. And a curious proof from the opposite side of the question was this. A few days after I was at Cologne. I know no view which I admire more in its way than that of the city as seen from the other side of the river. I arrived there late at night. The first thing on waking in the morning I went to the window to feast with it once again. I could not imagine what made the whole scene so tame and colourless, and insipid. But then I remembered that for a month before I had been in churches that possessed the richest and deepest of external colour. Having alluded to the castle churches of Europe, the lecturer concluded by urging upon architects to do their duty by those materials which God had been pleased to put in their power, and not look for materials which were beyond their reach. Everybody would wish to have stone to build with, money to build with, and a good situation to build in: but the true architect, the brave Christian artist, would build a real Christian temple according to the oldest architectural rule—that of King David—iron for things of iron, brass for things of brass; he would build thankfully and well with brick if he could not get stone, and he might build most beautifully with brick. He could even build with mud a Christian building worthy—so far as anything made with hands could be worthy—of the glory of him for whose service it was erected.

#### THOUGHTS AND SUGGESTIONS ON THE ARTISTIC EDUCATION OF ARCHITECTS.\*

HAVING been kindly asked to read a paper at one of your meetings, I at first selected a subject with which I felt myself to be tolerably conversant,—the transition from the Romanesque to the Pointed style in England, as compared with that in France. Finding, however, that this trench somewhat upon a subject chosen by my friend Mr. Hayter Lewis, I was obliged to look out for another, and have chosen one with which, though it has long occupied much of my thoughts, I am sorry to say that I am very far indeed from being practically conversant.

While, however, I have to apologise to the meeting for presuming to address them on a subject with which I have no very intimate acquaintance, and on which I have no claim to offer any very decided opinion, I think that I may make my very deficiencies the groundwork of my apology; for my motive in coming before you is my strong conviction that it is a subject on which we are all grievously at fault, and my object in addressing you is to urge this deficiency upon your most serious attention; while, in giving my paper the title of "Thoughts and Suggestions," I must beg to be understood to mean thoughts of *sorrow* for undoubted shortcomings, and suggestions of *inquiry* as to the means of amendment.

The questions which I wish to lay seriously before you (and I am well aware that you have earnestly considered them for yourselves, and are fully alive to their importance) are these:—Are we English architects as thoroughly trained as we ought to be as *artists*? Is our professional education sufficiently directed to architecture as viewed in its high character as a *Fine Art*? Is there any ready and recognised mode in which the student of architecture can obtain this high-art education? and,—if all these questions must be answered in the negative,—by what means can such deficiencies be most effectually remedied?

Now, there are many ways in which an architect or other artist may be educated. He may be trained in an academy, and learn his art wholly from professors and by means of a fixed routine of teaching in regular and recognised schools: that is one way. Or he may learn it on the French *atelier* system, in which an artist keeps a kind of school, unconnected with his own professional avocations; which he visits from time to time; gives advice and instruction to his pupils and corrects their works, such works being without reference to his own practical undertakings; and this system may be linked on, as in France, to the academic system. Or he may be educated by working in the office of an architect, assisting in his practical works, and learning his profession by actually seeing and personally aiding its operations.

Now, we have heard recently a great deal said (with reference to the sister art of painting) in favour of the old system of pupils working in the studios of their master, and learning their art by helping him in his works. It was often stated before the recent

Royal Academy Commission—as it had been in 1836 before the Committee on Arts and Manufactures—that the substitution of the Academy system for this older course of training has been the bane of modern art; and the best argument in defence was, that academies were founded, not to supplant the older system, but to supply its place after it had died a natural death.

I think, then, that—as in our own art this old system is still in operation in this country—we shall act wisely in accepting it as the legitimate *form* of our professional education, our true *point de départ*; and, ignoring all idea of disturbing it, to inquire whether it is doing its work fully, and whether it does not require some external aid to compensate for certain inherent deficiencies.

Now, there is a very wide distinction between architecture and the two other fine arts, particularly painting. *Painting* is purely a fine art, while architecture is also a practical art, a science, and almost a business.

If a young student were, as in old times, apprenticed to a great painter, what he would learn from him, and by assisting him, would, almost of necessity, be, in a greater or less degree, *fine art*. It is true that he would have, as in all arts and employments, a certain amount of drudgery and even of mechanical work; but the object, even of this, would be *fine art*. The profession he is learning has that for its sole and ultimate object; and if he take reasonable advantage of his opportunities, and have the right stuff in him, it must be fine art in some form that he learns.

With a student of architecture such is by no means necessarily the case. He may learn in an office the art of making working drawings, and of making, perhaps, good show drawings calculated to place a design favourably before an employer: he may learn the business of his profession, the science of building and construction, and a certain knowledge of architecture in the abstract, but may in a greater or less degree miss the fine-art element; nay, I would go further, and say that this higher element cannot be fully or more than incidentally learned in an office, even if the master be in every sense an artist, much less if he have himself, as is too often the case in our day, only an imperfect appreciation of, and much more imperfect skill in, his art when viewed in its highest sense as a pure art. It is, therefore, clear that the student ought to have some means, readily accessible to him, of supplying this want which, even if our art were in its palmiest condition, must exist, but which is more palpable and more injurious in proportion as the feelings of the day tend to render architecture more of a mere profession and less of an art.

Do not let me be supposed to be depreciating my profession, or finding fault with its individual members: I believe there has never, in modern times, been such an awakening as now. It is this awakening which makes us feel our deficiencies, and daily groan under the consciousness of them. I am only telling you of what you all feel, and of what is to myself a constant source of self-accusation and of sorrow; and that such is the case is our best consolation, as consciousness of shortcoming is the best source of hope for amendment.

Let us, then, at once face the truth, and admit the fact, that unless a student takes some special means on his own account, he does not become educated as an artist at all, but only as a professional man; nor does there exist, that I am aware of, any recognised means by which he can avoid this monstrous evil.

For my own part, I am wholly unable to point out to my pupils, or to my own sons, any means of obtaining true artistic training, but the most accidental and irregular.

Now, when such is the case,—and it is so far more palpably than I should care to proclaim,—how can we wonder if our architecture do not take a position proportioned to our general civilization and our advance in other things? A great deal is said in these days of ours about architecture having merits wholly independent of ornamental art; about proportion, outline, light and shade, composition, the nice balancing of parts, the delicate and well-considered contour of mouldings, and a hundred other elements of beauty which a building may possess even if devoid of artistic ornamentation, and the absence of which may render the most ornate structure,—clothed with the finest art,—unpleasing.

All this is quite true, and I hold its truth as of most vital importance, but I feel convinced that none of these beauties can be attained in any perfection unless the architect has impressed his mind thoroughly with high artistic sentiment, and that their perfection will be the greatest when he is personally skilled in high artistic work.

All these merits are the result of a highly cultivated sense of beauty, a delicately-trained eye, and a judgment matured to a kind of instinct for the elements of beauty, and to an instinctive power of at once rejecting what is contrary to it, and of detecting the minutest faults in that which in the main may be

beautiful. *And this is to be attained by true artistic training, and is, ceteris paribus, proportioned to the degree to which this has been carried.*

Let me not, however, be misunderstood. It does not follow that a painter or a sculptor, however talented, will design good architecture. We have every day before us the most lamentable evidence to the contrary. Artistic training must of necessity take the direction of the particular art to which it is to be applied. I do, however, assert the converse,—that if an architect would make himself so far a painter and a sculptor as to be able to conceive, and still better to design, artistic decorations of a high class, bordering on these sister arts, his mind and his eye would thereby become the better fitted for that delicate process of tentative designing and of refining of proportions, composition, and detail, which would render his works beautiful even in the absence of such artistic decoration; and I am quite sure of this—that in full proportion to our neglect in these days of the high art of our profession, is the glaring prevalence of the want of correctness of eye, and of—I will not say a nice perception—but often of any correct perception at all, of proportion, and of those other elements by which beauty may be given to the simplest design.

(To be continued.)

#### Public and Private Works.

A fine mansion has been completed at Portlaw, county Waterford, for Frederick Malcomson, Esq.; John S. Mulvany, Esq., architect. The style of architecture is Grecian; the interior decoration has been tastefully designed and well executed. An extensive and elegant conservatory, with semicircular glass roof, and finishing with a bow, forms one of the wings. The pleasure grounds will be extensive. Messrs. Cockburn, of St. Brunswick-street, Dublin, were the contractors.

Tenders for a new bank in College-green (Mr. Wm. G. Murray, R.H.A., architect) are before the directors of the Union Bank, but the successful contractor is not yet declared. The building will have also a front of minor importance in Church-lane. The College-green front is of a very bold and imposing character, and will be almost entirely executed in Irish limestone—a very beautiful and durable material, which might be more extensively used with advantage in our public buildings. The first floor has columns of polished Aberdeen granite in the two centre piers of the arcade in which this story is arranged. The office occupies the whole width of the ground, about 40 ft., and is about 46 ft. in depth, with an apsidal end or recess, semicircular on plan, divided from the square portion of the office by a semicircular arch of Caen stone, 25 ft. in span springing from columns of Cork red and Galway green marble. The cornices are of Caen stone from which springs a quadrant coved ceiling richly coffered. The other rooms on the ground floor consist of a runner's office, messengers' office, waiting rooms, &c. The basement is devoted to the caretaker's apartments, kitchens, safes, lavatories, &c. The upper floors of the building are arranged, both in Church-lane and College-green, in suites of offices, the entrance staircase being approached from Church-lane.

The Belfast Banking Company have invited three architectural firms—Messrs. Lanyon, Lynn, and Lanyon, Mr. Hamilton, of Glasgow, and Mr. Barre, of Belfast—to submit plans in a limited competition for a new bank in Belfast, of very considerable importance. The several plans are now before the directors, but their decision has not been announced.

The additions and alterations to Castleknock Church, under the architects to the Ecclesiastical Commissioners, is approaching completion. The chancel is being completed under the direction of Mr. Thomas Drew, architect; Thos. Hall and Sons, builders.

Several important fronts have been executed, and others are in contemplation in Upper Sackville-street. The Edinburgh Life Assurance Company have just completed a handsome front, Messrs. Lanyon, Lynn, and Lanyon, architects; Mr. Walter Doolin, builder. The Reliance Company have also decorated their front, and the two adjoining houses are about to be converted into extensive offices and stores for Messrs. A. and W. Gilbey, the well-known wine merchants, under Mr. Murray, as architect. The front in Sackville-street will be of an imposing character. The same firm are also about to make additions to the rear of several shops between North Earl-street and Elephant-lane, in Upper Sackville-street. The additions to Lawrence's toy-shop and fancy bazaar consist of a large ware-room, an archery gallery for butt shooting, and a photographic gallery, with waiting-rooms, &c. Mr. Murray is the architect.

\* By Mr. G. G. Scott, R.A. Read at the meeting of the Architectural Association, London.

NOVEL METHOD OF CENTRE ARCH STRIKING.

A NEW bridge is in course of erection at Bengal. It is called the Morhur Bridge, and Captain Mead is the engineer of the works. The arches of the bridge are the largest of any in Bengal; but it is more especially deserving of notice owing to a novel and most ingenious method of striking the centre of the arches, adopted by the engineer. This task is generally performed by wedges which are struck back simultaneously. It is generally very difficult to effect this with any uniformity; the wedges either get jammed up, owing to the enormous pressure, and have to be cut out, or fly out too rapidly, by which the centre, dropping suddenly, communicates its motion to the masonry, and becomes sometimes deformed in its descent. The difficulties attending on the operation are largely increased in India, where so little reliance can be placed on the intelligence of the workmen. Captain Mead overcomes this difficulty by the following ingenious device. In place of the blocks he substitutes sacks filled with sand, to which the weight of the centre and the portion of the arch resting on them is transferred after keying. The mouths of the sand bags are opened simultaneously, and the sand running out lowers the centres uniformly and safely without any violent or sudden shock.

Captain Mead thus describes, in an official report, the method he adopted in the construction of the Morhur Bridge:—The centres were designed with double longitudinal beams the lower one carried on the posts and struts forming the supports of the centre, and the upper one forming the tie to the series of triangles forming the upper portion of the centres; this upper beam rested on the lower at a distance of 12 ft. through blocks 8" x 8" x 12" of soft easily splitting wood (Dhow); when the arch had been keyed a strong sack made of double coarse country canvas (1at) made as a tube, filled with dry sand and tied with string at both ends, was introduced between these two beams close to each block, a plate of stout plank (12" x 15" x 2") being placed above and below to distribute the pressure fairly over the bag, and finely tapered wedges in pairs were driven between the upper plate and the upper longitudinal beams with heavy mallets, until the weight of the centres, in lieu of resting on the blocks, was borne by the sandbags, and the blocks were so far loosened that they could be easily driven out of their places with a few blows of the mallets; any individual blocks which could not be thus relieved or were jammed, were split out by carpenters, but this was not found necessary in more than two or three cases. The blocks were then re-introduced into their places, but laid on their sides instead of on end, thus leaving a space of four inches between their upper surfaces and the lower side of the upper longitudinal. The whole centre now rested on the bags, of which eight supported each truss, or forty the complete centre; eighty ordinary coolies were now brought up, two to each bag (one taking charge of each mouth), and two or three Europeans posted among them to see and report each order obeyed. The work was then successively given, first, to untie the up-stream mouths of each bag, but not to allow any sand to escape; second to untie the down-stream mouths; third, to allow the sand to run out of the bags, when the whole of the centre sank gradually and steadily, until it again rested on the blocks placed to receive it, leaving the arch entirely unsupported.

It was really a very pretty sight to see the large mass of complicated timber framing 74' x 24' x 16', and weighing nearly 50 tons, besides the portion of the weight of the arch masonry resting on it, gradually subside, with a motion so slow and smooth that it was perfectly unnoticeable even while standing in it, except by the separation between the lagging and the arch and the approximation between the longitudinal beams; so uniform was the motion that not even a creak was heard from any joint of the frame, and the time occupied by the movement did not exceed one minute. The amount of sinkage at the crown of the arch was accurately noted by means of two heavy leaden plummets weighing 8 to 10 lbs. each, and having a small brass scale attached, one of which was hung from either side of the crown by an iron wire and rested in a tub of water below to check any oscillation of the plumb bob; consequently the depth to which the scale was immersed before and after striking, being carefully noted, the difference showed the exact amount the crown of the arch had sunk; this measurement was further checked in some arches by observing a point on the key of the arch from a distance, through the telescope of a theodolite. —*Building News.*

CONVERSATION.—A conversation by the members of the Royal Institute of the Architects of Ireland will take place in the Antient Concert Rooms, Great Brunswick-street, on Tuesday Evening, the 29th inst. We hope in our next issue to publish a special report of the proceedings.

RAILWAY INTELLIGENCE.

WEST CORK RAILWAY.—The half-yearly meeting of proprietors of the West Cork Railway was held on the 29th ult., at four o'clock, at the offices in Gracechurch-street, London.

The chair was occupied by Sir CUSACK P. RONEY.

Mr. H. W. Wood, secretary, read the report, from which it appeared that considerable progress had been made in the construction of the line.

From the statement of accounts (which was also read by the secretary) it appeared that the amount received in share capital was £100,330 10s; ditto on interest account, £61 3s. 2d.; ditto temporary loans on bonds, £51,650, making a total of £152,641 13s. 2d. The expenditure on account of incorporation and preliminary expenses, &c., amounted to £10,843 18s. 3d.; on construction of works, purchase of land, &c., £139,790; on general expenses in carrying out the undertaking, £1,338 5s.; making a total of £151,972, and leaving a balance of cash in the National Bank of £69 9s. 11d.

The Chairman moved the adoption of the report and statement of accounts. He said that the company had made very considerable progress with the works since the meeting held in August last. They had obtained possession of 18 acres of land. The directors had further to congratulate the proprietors upon having 13 miles of the permanent way made, and the greater portion of that distance was ballasted, and ready to receive the permanent way. Laying down this portion of the permanent way would engage the active exertions of the contractors, and when it was laid an essential portion of the line would be constructed. It was a subject of especial congratulation to the directors that the importance of Crookhaven for telegraphic purposes had been completely recognised by the Magnetic Telegraph Company. At first he was told that they were not very successful in getting the inward steamers to deliver the intelligence coming from the other side of the Atlantic, but lately they had put on small steamers, and by that means obtained for this country the American intelligence, six, eight, and in some cases even 10 hours sooner than it could otherwise have been received. I have (continued Sir Cusack) received letters from Skibbereen and other parts of the western portion of the county of Cork, in which the writers state that they think the time has come when some movement should be made to bring under the notice of the public the demand for railway communication between Crookhaven and some point on the West Cork line. That is certainly a very important subject, and it is one that shall have the earliest and best attention of the board.

The retiring directors, Sir C. P. Roney and Mr. J. W. Holland, were then re-elected, as was also the auditor of the company, Mr. Joseph Barton.

GREAT SOUTHERN AND WESTERN RAILWAY.—The office of engineer of this company, vacant by the death of the late Mr. Miller, has been filled up by the appointment of Mr. Stephenson, late resident engineer of the Ulster railway. The office of locomotive superintendent, which was also held by Mr. Miller, has been conferred on Mr. McDonnell, C.E.

Petitions have been lodged in the House of Lords against the Tralee Canal Bill, by Sir Edward Denny, Bart., and Kilkenny Junction Railway Bill, by the Great Southern and Western Railway Company.

Petitions have been lodged in the House of Commons against the Dublin Grand Junction Railway, by Viscount de Vesci and Charles Henry Wyndham A'Court Repington (as guardians of the Earl of Pembroke and Montgomery); Pembroke Township Commissioners; Rathmines and Rathgar Improvement Commissioners; Midland Great Western Railway of Ireland Company.

Against the Dublin Metropolitan Railway by Midland Great Western Railway of Ireland Company; Corporation of Dublin.

Against Dublin, Rathmines, Rathgar, &c. Railway, by Rathmines and Rathgar Improvement Commissioners; Corporation of Dublin.

Against Dublin Trunk Connecting Railway by Pembroke Township Commissioners; Midland Great Western Railway of Ireland Company.

Against Dublin Railway by Viscount de Vesci and Charles Henry Wyndham A'Court Repington (as guardians of the Earl of Pembroke and Montgomery); Pembroke Town Commissioners; Rathmines and Rathgar Improvement Commissioners; Hon. Algernon Egerton (for self and co-trustees under the will of the late Duke of Bridgewater); and Mersey and Irwell Navigation Company; Midland Great Western Railway of Ireland Company.

Against Dublin, Wicklow, and Wexford Railway, by Tristram Kennedy, John Edward Redmond, Charles Henry Hill and others.

Against Belfast Water (Commissioners) by George Gray; owners, &c., of Property within the municipal borough of Belfast; Municipal Commissioners of Carrickfergus and others; Owners, &c. (John Lyth and

others); Owners, &c., of Mills and Manufactories affected by proposed Bill; Belfast Charitable Commissioners; John Rea; Marquis of Downshire; James Wilson.

Against Londonderry and Lough Swilly Railway, and Londonderry Improvement; The Irish Society.

RAILWAY RETURNS.

Name of Company.	Week Ending.	1864	1863
Belfast and County Down ..	Mar. 6	600	654
Belfast and Northern Counties ..	.. 4	1888	1764
Cork, Blackrock and Passage ..	.. 5	111	145
Cork and Limerick Direct ..	Feb. 26	214	231
Dublin and Drogheda ..	Mar. 6	1417	1341
Dublin and Kingstown ..	.. 4	1150	1097
Dublin and Meath ..	Feb. 26	170	141
Grand Canal ..	.. 4	836	864
Great Northern and Western ..	.. 4	475	525
Great Southern and Western ..	.. 4	6869	7384
Irish North Western ..	.. 6	1485	1771
Midland Great Western ..	.. 4	4719	5098
Ulster ..	.. 6	2465	2263

GREAT INUNDATION IN SHEFFIELD.

THE great reservoir at Bradfield, about six miles from Sheffield, the bursting of which was the immediate cause of the sudden inundation of the valley of the Don, has only recently been completed. The reservoir covered an area of seventy-six acres, and would hold 114,000,000 cubic feet of water. The embankment which crossed the end of the valley was an enormous erection, with an average height of eighty-five feet, and forty feet in thickness. It was three hundred yards long. All along the river from Bradfield to Sheffield the waters swept everything before them—human beings, domestic animals, houses, furniture, great stacks of timber, trees, carts, and goods of every variety—on the eventful morning of Saturday. Between Little Matlock and Hillsboro', a distance of four miles, whole rows of houses have been swept entirely away, in three of which alone there were twenty-five lives lost. In the opposite row the whole of the inhabitants were drowned, and scarcely any of their bodies have been discovered. The flood seems to have swept everything before it. Between Wardsend and Sheffield the bodies were seen lying in the mills and the mud and ruins. There were fourteen in one place, ten in another, thirteen in a third. At Neepsend many acres of gardens were devastated, and whole families swept away.

It is estimated that the loss of life will exceed 250, and that the value of the property destroyed exceeds half a million.

[At a meeting of the Dublin Corporation, held yesterday, on reference to the above melancholy catastrophe, the chairman of the Waterworks Committee stated that "every possible care that experience, engineering skill, contracting skill, and constructive skill, could dictate or accomplish, had been taken to prevent the possibility of such an accident occurring to their waterworks.]

The *British Standard*. March 15, 1861, speaking of Benson's Argentine Spoons and Forks, says, "Their appearance is certainly such that but for the absence of the customary credentials of silver, detection would be almost impossible." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz.—spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

The Corporation of Doncaster have decided to continue the boring for an artesian well to a further depth of fifty yards. The depth is already seven hundred and sixty feet.

### THE IRISH OFFICIAL AND GENERAL BUILDING SOCIETY.

A MEETING of parties interested in the formation of a building society, chiefly in connection with the Civil Service, was held on Monday evening, 7th inst., at the Northumberland Hotel:

WM. GERNON, Esq., in the chair.

Amongst those present were:—

Dr. William Carte, Richard Barney, Esq.; R. H. Jephson, Esq.; Thomas Collett, Esq.; A. Todd, Esq.; J. Carpenter, Esq.; F. Franklin, Esq.; G. W. Finlay, Esq.; Thomas Donlon, Esq.; J. J. Lyons, Esq.; J. H. Owen, Esq.; R. F. Clockey, Esq.; Arthur Stanley, Esq.; Wm. M'Dermott, Esq.; Cornelius Pelly, Esq.

Mr. Gernon, on taking the chair, said that he was not perfectly acquainted with the details of the society, but that when he knew the objects for which the meeting had been called, he at once assented to the principle of it, and expressed his desire to co-operate as far as he could. He felt that a society like this had been greatly wanted in this country, and the want was felt especially amongst the members of the Civil Service. They had hitherto been too apathetic to their own interests, and they should rouse themselves to take every possible advantage of the opportunities presented for forwarding them, and he knew none better than that offered by the association, the formation of which was now contemplated. The rules adopted for the society had had the test of 14 years' experience in England, where they worked admirably, and where almost fabulous sums of money had been invested in the funds of similar building societies, and in no instance had a failure been recorded.

The secretary, Mr. Daly, stated the society was to be established under the provisions of the Benefit Building Societies' Act, and that its object was to enable each of its members to erect or purchase other freehold estate. He then proceeded to read the rules drawn up for the government of the society.

The chairman said he wished to throw out for the consideration of the meeting, whether, instead of going over the rules *seriatim*, they should not submit them to some high legal authority, with a request that he would make them conformable in every respect to the acts of Parliament.

Mr. O'Connor thought that the rules ought to be passed at once.

Mr. Finlay thought that the opinion of eminent counsel might already have been obtained, and that if the rules were in perfect accordance with those of the London society, there was no need to have the opinion of counsel.

Mr. J. H. Owen thought, from the language of the rules, they must have been framed by counsel already, and it was expedient that no time should be lost in the formation of the society.

Mr. Arthur Stanley considered that as the rules should eventually come under the legal consideration of Mr. Tidd Pratt, they had now nothing to do but go through them *seriatim*.

Mr. M'Dermott said that the rules were very legal and very technical; they should not be adopted on the spur of the moment. He, therefore, begged to move, "That the rules be printed and put into the hands of the members of the Civil Service generally, with a view to getting such suggestions as they might wish to offer."

An amendment, "That the rules be now gone through *seriatim*," was put and carried.

After some further discussion the rules were read one by one, and adopted, with some alterations.

### PROPOSED DESIGN FOR ST. STEPHEN'S GREEN AS A PUBLIC PARK.

A BEAUTIFUL design (says the *Daily Express*) by G. W. Hemans, Esq., C.E., for the improvements intended to be effected in Stephen's-green when opened as a public park, is now on view at the Chamber of Commerce, Dublin Library, Messrs. Todd and Burns, Messrs. Cannock and White, the newspaper and other public offices. A grand entrance is proposed to be placed opposite Dawson-street, on the north side, with smaller gates at the corners fronting Grafton-street, Harcourt-street, Leeson-street, and Merion-row. In the centre a fountain and *jet d'eau* will replace the not very elegant equestrian statue of George II. Broad avenues, fringed with flower beds, will approach this fountain on the north and south sides, while serpentine walks, stretching diagonally across from Leeson-street to Grafton-street, and from Harcourt-street to Merion-row, will afford those important localities facilities of intercommunication not now enjoyed by even the privileged few—the payers of Green tax and Green rent. On the whole, the design is well worthy the consideration of the citizens, and especially of inhabitants of Stephen's-green, whose property would be greatly improved.

### SUBMARINE FIRING.

THE following is an extract from a record of Robert Fulton's experiments on the above subject:—

"With this view he instituted a number of experiments to try the practicability and effect of discharging cannon loaded with ball at different depths under water. He made a number of calculations on this subject. His desire was to ascertain what resistance a ball, of given dimensions, propelled with a certain velocity, would meet with in passing through a body of water at a certain depth. The basis he took for these calculations, and the calculation themselves, mark both his ingenuity and science. He assumed that a body passing through water would meet with a resistance equal to the force of a column of water of the same diameter as the body moving with the given velocity. He then ascertained what head or weight of water would be required to discharge a stream of water from an orifice at the foot of a perpendicular tube with the same velocity with which the body was supposed to be propelled. He then, by the well-known rule of hydraulics, found what force or power the ascertained head of water would give, and thence formed his estimates as to the resistance which a body projected in water would meet with.

"In this instance, as in others, he was not satisfied with arriving at the information necessary for his particular purpose; but he established from his calculations a rule which may, by a very brief and simple arithmetical process, afford all the information and accuracy generally necessary for practical purposes. His first experiment was with a four pounder, having the breech, and as much of the gun as is usually within the sides of a vessel, in a water-tight box, and the muzzle stopped with a tampion. The box and gun were then submerged 3ft. in the Hudson. The gun was fired by dropping a live coal through a tin tube which penetrated the box immediately above the vent of the gun, and rose above the surface of the water. The ball was found to have struck the sand at the bottom of the river, at the distance of 41ft. from the muzzle. The gun was uninjured.

"This experiment satisfied him that guns might be placed in a ship below her water-line, with their muzzles in the water, without any more danger of their bursting than there is when they are fired in the air. This gave him the idea of arming ships with guns to be fired in this way. He proposed that the muzzle of the gun made for the purpose should recoil through a stuffing-box, and be followed by a valve, which would exclude the water when the gun was not protruded. An elegant model on this construction is now in the possession of his family. He next tried the same piece with a pound and a-half of powder, and fired it by means of one of his water-tight locks, when it was entirely in water—3ft. below the surface. The ball penetrated 11½ in. into a target of pine logs which had been prepared for the purpose, and placed beneath the water at the distance of 12ft. from the piece.

"His next experiment was with a columbiad, carrying a hundred pound ball, fired at the target as in the last instance. All that we know is that the ball tore the target to pieces, and the cannon was uninjured. We have not information that will enable us to give any further details of the experiment, but we know that Mr. Fulton was entirely satisfied with the result. He proposed to use cannon in this way by suspending them, two for instance, from the bows of the vessel. A single shot, as he demonstrates from a piece of large calibre, which should break into the side of a ship at any considerable depth beneath the water line, must be fatal to her. And though the range of shot fired through water may be but a few feet, yet conflicting vessels, whenever they engage yard-arm and yard-arm (with accounts of which our naval heroes have of late made us familiar), must be so near as to give effect to a submarine discharge.

"Mr. Fulton did not propose that these guns should be always in the water, but that they should be suspended so as to be raised when the vessel was not in action. These plans for the submarine use of cannon were submitted to one of our most distinguished naval commanders, who gave them his decided approbation. He expressed a strong opinion that such an attack would be fatal to any vessel opposed to it; and that it would be extremely difficult for an enemy to evade an attempt, made with sufficient resolution, to destroy her by these means."

### INSTITUTION OF CIVIL ENGINEERS OF IRELAND.

A MEETING of the above institution was held on Wednesday evening in the Museum Buildings, Trinity College,

Professor DOWNING in the chair.

The minutes of proceedings of previous meeting having been read and confirmed, papers "On a New Method of Stopping Railway Trains Suddenly" were read by Mr. J. Price and Mr. Donovan.

### NEW WESLEYAN METHODIST CHAPELS.

BRAY, COUNTY WICKLOW.

THE foundation-stone of the Wesleyan Methodist Chapel at Bray, county Wicklow, was laid on Thursday, the 25th February, by Thomas Gresham, Esq., of Raheny Park, amidst a large assembly of clergymen, gentlemen, and ladies connected with that community.

A handsome marquee crowned with banners, was erected for the occasion, adjacent to the site of the edifice, which is conveniently and picturesquely situated near to Quinsborough-road.

The building is in the Early English style, 65 feet in length and 22 feet in width internally. The walls are 16 feet in height to springing of roof. There are six windows on either side, with stone mullions and dressings, and buttresses between same. The entrance porch is placed in the centre of the chapel in front, approached by a flight of steps, with an inner porch affording ample accommodation, and leading to the two main passages, which are situate at either side, with open timber pews in the centre.

There is immediately over the entrance porch a large circular window, 10 feet in diameter, with handsome carved stone tracery. The apex of gable is surmounted by an effective carved finial.

The two buttresses which terminate the front of the building at the angles form important features, having octagon shafts and spires.

The walls, which are of granite stone, are being built in checker-work, and the dressings and mouldings of doors, windows, quoins, buttresses, &c., are of Caen stone.

The roof is of open timber construction, the spaces between the rafters being plastered. All the woodwork in the roof, pews, &c., is to be stained in oak and varnished.

It is intended to erect a residence adjoining the chapel for the minister, and for which the ground has been taken.

The building is being erected from the designs and under the superintendence of Alfred G. Jones, Esq., architect, of Molesworth-street, Dublin, by Messrs. Beardwood and Son, of Westland-row, contractors, at a cost of about £1,200, and it is expected to be finished, ready for opening, by the month of August next, accommodating about 300 persons.

A beautiful silver trowel, handsomely engraved, was presented to Thomas Gresham, Esq., who, having set the stone (in which a bottle with coins was inserted) in a masterly manner, declared it to be well and truly laid.

### ATHLONE, COUNTY WESTMEATH.

On Thursday, the 25th of February, one of the most enlivening and interesting scenes with which the town of Athlone was favoured, took place in connection with laying the foundation stone of the above church. The band of the Royal Artillery was in attendance, enlivening the scene, and at least 1,200 persons assembled to witness the ceremony.

The stone was laid by J. C. Evans, Esq., who arrived by the 11½ train from Dublin, and was presented with a handsome silver trowel on the occasion, engraved with suitable crest and inscription.

The building, which is designed by Alfred G. Jones, Esq., architect, of Dublin, is being erected by Mr. George Glanville, of Ballinasloe. It is of Early English character, about 55 feet in length by 22 feet, terminating in an octagon form, which admits of the pews radiating round the platform enclosure at end. The church contains pew sittings for about 250, with a gallery at one end. The roof is of open timber construction, and the octagon portion is surmounted by an ornamental spire, forming a conspicuous feature, and seen from the main entrance to the town along the banks of the Shannon river.

The design, which is novel and attractive, promises to be an ornament to the town, and the entrance front, which is in Northgate-street, is of an imposing character.

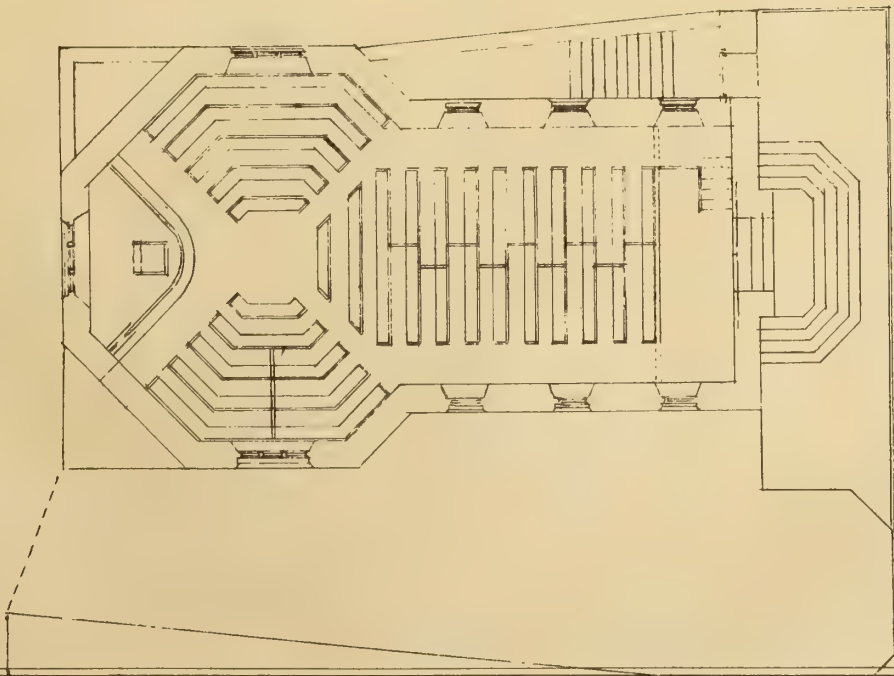
There is also a basement story under the church, intended for schools, and a suitable residence is designed and intended to be erected adjoining the building. The cost will be about £1,700 to £1,800.



Alfred C. Jones, Arch<sup>t</sup>.  
3 Molesworth St. Dublin.

Wesleyan Chapel, Dublin

Wesleyan Methodist Chapel & Residence  
ATHLONE.





### VENTILATION OF PUBLIC BUILDINGS.

A NOVEL method of ventilating public buildings has been recently adopted in America, by an architect of the name of Whittingham. The plan would not be practicable for small buildings, but it is recommended for those designed for about 400 or 500 persons. Mr. Whittingham describes his plan as follows:—The building that I had designed and purposed warming was a church of the usual cruciform style, having a nave and transept. The whole length of the nave in the clear is 82 ft., while the arms or transepts are 12 by 30 ft.; the height of roof to ridge, 32 ft.; the side walls, 12 ft. My plan was to do away with the great absorption of heat in the mass of masonry usually surrounding a furnace, and to take the whole space under the church for a hot-air chamber. The foundation was well laid and the wall closely built, making all tight up to the sills. I caused the ground to be excavated under the cross section to the depth of 8 ft., and about the same size as the transept; thus making under that part of the building a room of 11 by 24 ft. From this the ground was excavated on an inclined plane up to the extreme end of the church, where the distance from the floor to the ground was about 18 in. The entrance to this room was from the end of the building near the transept, in which, as usual, was a door under the floor. Into this space below, two chimneys (carried up through the wall) entered and carried up the smoke of two large-sized "box stoves." These stoves had pipes of some 12 ft. in length, to secure the transmission of all the heat entering the chimney. Directly over the stoves two openings in the floor formed registers, 4 by 3 ft., capable of being opened or closed at pleasure. Then in all the seats, at such distance as the feet of persons sitting or standing would come, there were bored in the floor with an inch augur, five holes, in diamond form, making a kind of small register to each person.

The system of heating is this:—The inclined plane of the ground under the floor, through the whole length of the building, acts as a descending grade for the cold air dropping through all these numerous apertures in the floor. The cold air flows down and is drawn toward the stove in the chamber, either for combustion or heating. The hottest air meantime, passing directly up through the large opening over the stove, ascends into the building and aids in pressing down the colder air falling through the other apertures. The result is that the building is heated with great rapidity, two or three hours sufficing for doing what an ordinary furnace would, by mere radiation or compression, require six or seven hours to accomplish.

When the time for divine service has arrived and the congregation have assembled, the registers over the stove are to be closed and the process thus far going on is in a degree reversed; the warm air then flows up the inclined plane pressing against the floor and rising through the numerous openings, to the feet and clothes of the individual seated or standing above, effectually warming them. By this contrivance the air above, instead of being much (as usual with one column of furnace heat) hotter than that around the feet, really becomes—during the service—cooler; while the warmest air continues to ascend, entangled with the persons and clothes of the audience. It is a known fact that, if the feet and lower limbs of a person are kept perfectly warm, a far lower temperature suffices for the body. In most buildings precisely the opposite course takes place, the air above and around the head and near the ceiling being heated to an intense degree, the feet and floor remaining cold. The plan I have adopted prevents this, as the floor itself is entirely warm, and the currents of warm air ascending keep the whole assembly in comfort. The cheapness of the method also recommends it, as there is no cost for anything but the box stoves and excavation. The earth itself, being a poor conductor of heat, is left without paving.—*Building News*

### EDINBORO' ARCHITECTURAL ASSOCIATION.

THE monthly meeting of the Architectural Association was held in the Institute's rooms, 89, George-street, on Wednesday week—Mr. William Beattie, Grove-street, in the chair—when a long paper on "Early Church Architecture in England" was read by Mr. John Tillie. After the reading of the paper, it was resolved, owing to the length of the paper and its importance, to postpone the discussion till the next ordinary meeting.

### ROYAL DUBLIN SOCIETY.

THE fifth evening scientific meeting will be held on Monday evening, 21st inst. Chair taken at half-past eight o'clock precisely. Communications—1. Mr. H. O'Hara, C.E., "On the Supply of Fuel in Ireland." 2. Mr. George Waller, "On the Shifting Sands in the vicinity of Wexford, Courtown, and Arklow Harbours." 3. Mr. R. E. Donovan, "On a new method of preventing Accidents by Railway Collisions."

### IMPROVED DWELLINGS FOR WORKING MEN

A SCHEME has been started by the Durham County Building Society, established in Sunderland, having for its object the founding of improved dwellings for working men. It is based on the principle that improvements may and ought to be their own work, which it is proposed to carry out by enabling a workman, by small additional annual payments, to purchase up his own cottage after a definite number of years. It is expected that by so doing he will be instigated by a feeling of independence, and will be induced to take an interest in the improvement of his own dwelling. Every man values most that which is his own, and takes a just and wholesome pride in it. A range of cottages has already been built in the town of Durham in accordance with these views, and arrangements are being made for its future development in other places of the neighbourhood. The scheme seems a feasible one, and should it prove successful we should be glad to see a similar one started in our own country. There is but one class amongst whom it would work well; the steady, hard-working, and respectable artisans; but notwithstanding the natural buoyancy of the Irish disposition as compared with that of the plodding and laborious Englishman, there are very many of our tradesmen who would recognize the merits of such a system and enter into it with a will. The following details are from an explanatory statement published by the Society, and which formed one of the Social Science papers. It is described as,—

"A scheme to enable a man to purchase a house with its own rent; or, in other words, by paying the rent of a cottage for twelve years either in one sum or in instalments extending over the twelve years, or whatever period within that time he chooses, the occupier may become the veritable owner of the cottage. And for the payment of the sum of £25 more, payable in the same way, he becomes the owner of the land, which is freehold. You will perceive that the advantage of this scheme is that the person wishing to purchase is put into immediate possession of the house. He is not paying rent for one and striving to save to buy another. The house is his—he lives in it, he is buying it—by instalments. The price is a mortgage, and it and the interest are paid back by weekly payments. I append a table showing this:—

Annual payment to Society .. .. .	£9 15 0
Repairs, insurance .. .. .	0 10 0
Ground rent .. .. .	1 5 0
	£11 10 0

From which deduct amount which would otherwise have to be paid as rent for a similar house .. .. .	£8 9 0
--	--------

Excess of annual payment .. .. .	£3 1 0
Which multiplied by 12 years and 9 months, will give .. .. .	£38 17 0

This £85 included all expenses for the purchase, including deeds, road making, drains, &c.

The terms upon which these cottages were offered to working men being something extraordinary, we will explain how this was accomplished. By building the entire number together a saving just less than 25 per cent. was effected, of which the purchaser got the entire benefit. The principle is that of buying wholesale and selling retail at the wholesale price. The payments required of a purchase are 7s. 6d. per fortnight, thus taking a term of twelve years and nine months to discharge the property from the purchase money and interest. But purchasers are not limited to these payments, and therefore the more they pay the shorter will be the duration of the payment. Considering these cottages were worth 8s. 3d. a week rental, the additional payment required of the purchaser was only 1½d a week, including ground rent, showing an investment equal to 15 per cent. The time may seem long before the purchasers would be clear of their payments, but how many for twice that period would be paying the same amount as rent, and yet be no nearer adding a cottage to their possessions than when they first began housekeeping.

I will now endeavour briefly to describe these superior cottages, so as to give you some idea what they are like; remarking, however, that the scheme is equally applicable to the construction of houses on a larger scale, which can be built at a less proportionate expense than even these. The plot of ground on which each cottage stands has a front of 19 ft. 6 in., by a depth of 56 ft. The construction and internal dimensions are as follows:—The foundations are run in with asphalt, and have a layer of slates between the rubble and the bricks. The outer works are hollow, so as to prevent the possibility of being damp. They are pointed and tuckered. There are stone heads and cills to the windows, and the door frontispiece is wood painted. The spouts project, and rest on neat

ornamental brackets. The roof is slated with Welsh slates. Great care has been taken with the flues, so as to prevent smoking or down draught, and the fire-places of two adjacent houses are placed back to back. The windows open both top and bottom, and are 6 feet 6 inches high, by 3 feet 6 inches wide.

Internally there are three apartments. In some of them a passage has been taken from the front room, which to that extent abridges its size, and slightly the bed-room also. Generally, however, the front door opens into the room. Where there is a lobby, the room is 15 feet 2 inches by 13 feet 6 inches, the height being 9 feet 6 inches, which is the height of all the rooms. This room is fitted with a registered stove, ornamental composition mantel, a dwarf cupboard in each recess, and is corniced. The kitchen, behind this room and communicating with it, where there is no passage, is 14 feet 6 inches by 12 feet 6 inches. It has stone jambs and mantel, with large oven, high cupboards, and other convenient fittings. Opening from the kitchen there is a smaller room, without fire-place, 10 feet 8 inches by 6 feet. This is always used as a bed-room, and generally the front room also. There is a pantry in the yard, 5 feet 9 inches by 5 feet 6 inches, with a nice porch between it and the kitchen, giving access to a garden yard, containing coal-house, ashpit, sink, water-closet, and a recess for a water-butt. This yard, with flower-plot in the centre, is properly drained, and opens upon a well-paved back street.

The floors of all the rooms are raised 1 foot 6 inches from the ground, and laid with inch and a quarter flooring, square-jointed, laid on sleepers. There are architraves to all the doors, and each room is skirting. Every care was taken that the wood was dry and well seasoned, and that the plaster was well tempered. The doors are all grained, and the front room mantel marbled. Such is a general description of our model cottages; and I may now ask,—If Sunderland can do this, why not any town in the kingdom?

### WARRENPOINT.

THE people of this town are now about to enjoy the luxury of the purest water at high pressure delivered to them. Little has been heard of the waterworks project till lately, when it was found that Mr. Smith, of Chichester-street, Belfast, Civil Engineer, was out to the north of the town making inspections, and taking levels, samples of water, &c., with a view to mature a scheme and select the best water under the most favourable conditions. The Secretary of the Gas and Water Company accompanied Mr. Smith, and we hear that, under a few observations our local men have confessed the errors so transparent which they would be disposed to favour. Mr. Smith's services have therefore done much good at least in this particular.

### DROGHEDA NOTES.

THE BOYNE BRIDGE.—Mr. Buxton has been declared the contractor for erecting the bridge over the River Boyne at West-street. He is bound to execute all the works in connection with the bridge for the sum of £7,829 18s. 2d.

THE NEW TOWN HALL.—The design approved by the committee for this building is by W. J. Barre, Esq., of Belfast; his signature being "Veritas." The second design was by W. F. Caldbeck, Esq., of this city, to whom the premium of thirty guineas has been awarded.

### THE OPENING OF ST. STEPHEN'S GREEN.

FOUR petitions have been lodged against the bill for the opening of St. Stephen's-green. Three of them are substantially but one from the Commissioners of the Green, and the fourth from the Corporation. It is a remarkable fact that only one-half of the inhabitants of the Green have petitioned against the bill—they number 69 persons, occupying houses to the value of £5,551. The occupiers of the remaining 69 houses, valued at £6,881, are either favourable or neutral, and amongst them are several of the most respectable and eminent citizens.

### GEOLOGICAL SOCIETY.

A MEETING of this society was held on Wednesday evening in the Museum Buildings, Trinity College, GILBERT SANDERS, Esq., in the chair.

The following papers were read:—"On a new locality for the occurrence of granite in limestone, near Rathfarnham," by A. Montgomery, Esq. "On a specimen illustrative of the mode of formation of granite veins at Sungumpoor, in India," by J. B. Medicott, Esq. "On a pelæchinus from the carboniferous limestone of Midleton, county of Cork," by Joseph Wright, Esq. "On some new points in the structure of pelæchinus," by W. H. Bailey, Esq., F.G.S. "On the occurrence of knorria in the lower carboniferous series of the county Kildare, by J. B. Doyle, Esq.

## THE KILLALOE SLATE COMPANY.

THE above-named Company has been formed on the Limited Liability principle for the purpose of purchasing the Slate Quarries in the Co. Tipperary, successfully worked for many years by Mr. Headech. Testimonials from architects and builders are appended to the Company's prospectus; the writer of one of them says:—"I have been acquainted with the nature of the Killaloe Slates for the last fifty years; I have constantly preferred the use of them in covering the various buildings carried on under my superintendence." There is no doubt but there will be a large demand for them in Dublin, particularly as several of our friends in the building trade will be shareholders, and they will naturally find it their interest to use and recommend them. We wish the company every success; and as the undertaking is a national one, we trust that it may receive the support and encouragement it merits. The present proposed capital is £16,000, in shares of £1 each.

## STAINED GLASS IN ST. PATRICK'S CATHEDRAL.

THE liberality of our respected fellow-citizen, Benjamin Lee Guinness, Esq., with respect to the restoration of our national cathedral, seems to be without limit. Not satisfied with the princely sums already expended by him thereon, which amount to over £100,000, he has determined on erecting two stained glass windows in the cathedral, one to be placed in the west and the other in the south transept, and we understand that the contract therefor has been entrusted to the eminent firm of Wm. Wailes and Co., of Newcastle-upon-Tyne.

The window to be placed in the west is to contain subjects illustrative of the fall, the promise, and the redemption of man, from the Old and New Testaments; and the other window will contain a series of events taken from the life of St. Patrick.

## NEW IRON BRIDGE OVER THE CLWYD AT RHYL.

MESSRS. McKENZIE, Clunes and Holland, the proprietors of the Vulcan Iron Works, in Worcester, have just completed a contract for the construction and erection of a wrought iron lattice bridge, which is intended to carry the turnpike-road and a tramway across the estuary of the river Clwyd, near Rhyll, North Wales. The ironwork consists of two spans of lattice girders, 81 ft. long; one of 76 ft. 6 in., and a drawbridge opening of 47 ft. 6 in. in the clear; the whole length of the bridge being 286 ft. The girders are 6 ft. deep, and width from centre to centre, 22 ft. 6 in. The piers are three in number, resting on 18 in. square timber piles, cased with iron, and capped. The pier columns are composed of patent wrought pile iron, which when rivetted together, forms a complete column of 18 in. external diameter. The four columns in each pier are held together by diagonal stays, stretchers, and cross girders, the height from low water level to the top of the piers being 23 ft. 1 in. The piers on each side of the shipway are protected by timber piles, 14 in. square, waling, and iron stays, which form a complete fender to that part of the structure, and extend 60 feet each way from the bridge. The ends of the bridge rest upon stone abutments. The roadway or superstructure consists of cross timbers suspended from the main girders by bolts; the cross timbers are covered by longitudinal planking and iron tram-plates for the wheels of vehicles, making a double carriage way, and leaving a pathway for foot passengers, 4 ft. 6 in. wide. By the machinery for opening and closing the drawbridge, is obtained a perfect motion from the perpendicular to the horizontal and *vice versa*, without any change in the moving power. The drawbridge opens in two halves, each half having two arms or cantilevers, each forming part of, and connected to, each girder spanning half-way across the shipway, both of which meet in the centre on both sides of the bridge. In opening the bridge these arms slide down on the inside of fixed girders, turning upon the axle of bearing wheels as centres, and elevating the ends of the girders which meet in the middle of the shipway. This arrangement raises the moveable suspended roadway above the fixed suspended roadway before the moveable bridge is drawn back, which movement commences as soon as the movable bridge is at the proper height, without any change in the moving power. The bridge can be opened and closed, by two men at each side, in five minutes. It is approached by an embankment built on the bed of the river, and more than 300 yards in length, the approach and bridge together being about a quarter of a mile in length. The embankment, by narrowing the passage for the water, greatly increased the difficulty of erecting the iron-work, as there is generally from 10 to 14 ft. of water, running at six or eight miles an hour. The total weight of wrought iron in the bridge is 160 tons, cast iron, 56 tons, and 9,748 cubic feet of creosoted timber. The bridge was tested on Saturday, the 30th January, and the engineer expressed himself much pleased with the work.—*Building News*.

## THE LORD LIEUTENANT'S VISIT TO THE EXHIBITION PALACE AND WINTER GARDEN.

HIS Excellency the Lord Lieutenant, on Thursday last at five o'clock, paid a flying visit to the Exhibition Palace and Winter Garden works, accompanied by the Marchioness of Kildare.

It would appear that no intimation had been given of his Excellency's intention until immediately before the visit, when those of the directors who were informed of it in the board-room, mustered to the gardens to receive him.

His Excellency expressed the gratification he felt at witnessing the great progress the works had made, and at the vast extent and beauty of the buildings.

[We consider it was due to the architect, Alfred G. Jones, Esq., from whose plans and under whose superintendence the works are being carried out, to have been informed of his Excellency's intended visit, notwithstanding the shortness of the notice and the suddenness and unexpected nature thereof; but we feel sure the oversight was quite unintentional.—ED. D. B.]

## IRON-CLAD SHIPS.

At the Royal United Service Institution, on Monday, a paper was read by Captain J. A. Selwyn, R.N., "On armoured or iron-clad ships; their advantages and defects." Captain Selwyn introduced the subject with some disparaging remarks on the American "monitors," which, he said, might perhaps be adapted for use on rivers, but were quite unfitted for the general purposes of war-ships at sea. He contended that a properly constructed ship of war ought to possess the following properties:—It should be fast and manageable; it should be unsinkable; it should be impenetrable by shot or shell, and it should be durable. The property of speed had, he said, been attained in a great degree by most of the ships recently constructed, but to attain that advantage great length was required, which increased the difficulty of ready management; but that difficulty he thought might be removed by the adoption of double screws. To render a ship as unsinkable as possible, Captain Selwyn proposed that the plan of partitioning by waterproof bulk-heads and waterproof compartments should be extended. He would have the bottom of the ship divided into compartments that would not hold more than twenty tons of water, so that, supposing that a shot were to penetrate, or the ship were to strike upon a rock it would not sink. The defensive armour of ships, as at present applied, would, he observed, only protect them in still water, and in a rough sea the unplated parts would be frequently exposed to shot; so that without some provision of the kind for rendering them unsinkable, apparently invulnerable ships might be soon sent to the bottom. With respect to armour plating, Captain Selwyn regretted that, notwithstanding the large sums spent in experiments, no principles had yet been established to determine the best mode of resistance to the impact of shot. He exhibited sections of all the British armour-plated ships, either completed or in course of construction, and observed that none of them, with the exception of the Bellerophon, which has six-inch iron plates and 18 inches of wood backing, is impenetrable by the guns now made. The importance of the wood backing had been greatly neglected in some of the armoured ships recently constructed, for recent experiments had shown its value in resisting the passage of shot. Captain Selwyn was of opinion that, by using steel plates in constructing the skin of the ship, great advantage would be gained, and the additional buoyancy thus attained would enable ships to carry thicker armour plating than is at present possible. Captain Selwyn thought that a much more satisfactory series of experiments might be made to ascertain the resistance to impact, and at much less expense, by means of a steam hammer than by the mode at present adopted, which led to more definite results, and established no principles by which the power of resistance to impact could be determined. With respect to the durability of iron ships and of armour plating, Captain Selwyn observed that they are very liable to corrode by voltaic action, and that in several instances the rivets are so corroded as to drop out. It is very difficult to prevent such voltaic action on a large mass of iron, for it takes place not only when iron comes in contact with copper or other metals, but different kinds of iron when in contact will excite voltaic electricity, and even different parts of the same iron bar will excite it. He exhibited this by experiment with two pieces of iron broken from the same bar, which were immersed in diluted sulphuric acid, and on being brought into contact, electricity was excited, as was shown by the deflection of a delicate galvanometer. No efficient means, he

said, had yet been devised to prevent this destructive action. He considered the most effective would be the application of a thick coating of gas tar inside the plates.

## Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Having read with much interest your late article on railway construction, I take the liberty of submitting for your consideration the following plan for obviating the chief engineering difficulty attending the adoption of curves of small radius upon lines of railway, viz., the tendency of locomotives to leave the rails owing to the centrifugal force.

Many important improvements have been made of late years in the construction of the locomotive, but this most essential point has received comparatively little notice, and for calling attention to it, as you have done, the thanks of all railway engineers at least are due to you.

The method I propose is as follows:—

First—Midway upon the leading axle I would place a wheel of sufficiently small diameter to clear the bottom of the boiler, turning perfectly free, and kept in position by two strong steel collars, firmly pinned to the axle.

For reasons that will presently appear this wheel should have a very strong boss, so as to be capable of resisting a heavy horizontal strain acting nearly at its circumference. Also, its face next the convex side of the curve should be turned true, and at right angles to the axle.

Again, nearly midway between the rails I would lay a centre rail, having a perpendicular face next the concave side of the curve, and secured in its position by strong wrought-iron brackets, bolted to it and the sleepers. The height of this rail will depend on the diameter of the centre wheel already mentioned, but the top of the rail should be about three inches above the lower edge of the wheel. The distance between the perpendicular face of the rail and face of wheel might be about half an inch.

As soon as the locomotive commences to move round the curve, the centre wheel revolves and bears against the rail, and transmits to the latter the centrifugal force which tends to throw the engine off the line; and supposing the wheel and rail sufficiently strong, it is practically impossible that an accident of this kind should happen.

I have now, sir, explained my plan, and as there is neither complexity nor expense attending its adoption, perhaps you may deem it worthy of a place in your columns.

I may mention that when the lowness of the boiler rendered impossible the use of a sufficiently large wheel, the rail might be raised to the required height by placing it upon a longitudinal sleeper bolted firmly down to the cross sleepers.

With many apologies for this trespass on your space, I remain, sir, yours, &c.,

Dublin, 8th March. A MECHANIC.

[The plan is simple and feasible, and would be practically successful for any ordinary velocity, although not obviating a couple, unless the centre rail could be carried high enough to traverse the centre of gravity of the engine. Another small wheel, however, would be required on the trailing axle, as otherwise the locomotive, if leaving the rails from any cause, would swing round upon the foremost one. But it would only ensure the safety of the engine, unless a similar provision were made for each carriage in detail.—ED.]

The *Daily Telegraph* of March 31st, in its description of Benson's Great Clock, says: "It is a triumph of ingenuity." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bedroom, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of watch and clock making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 83 and 15.—33 and 34 Ludgate Hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and Clock maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

## General Items.

A commodious and substantial house has been built by the Londonderry Harbour Commissioners for the reception of the life-boat, her stores, and carriage, presented to the National Life-boat Institution by J. D. Allcroft, Esq., of London. This institution has now 128 life-boats in connection with it; of these 22 are stationed on the Irish coast. During the past year the life-boats have been the means of saving 417 of our fellow-creatures from a watery grave, in addition to 297 lives saved by fishing-boats and other means, for which services it has granted rewards.

The tercentenary anniversary of the birth of Galileo was celebrated at Pisa with great solemnity on the 21st ult.

Mr. George Aickin, C.E., has been appointed engineer of the province of Canterbury, New Zealand, with a salary of £1,000 per annum.

The Dublin and Kingstown Steampacket Company (Limited) give notice of a call of 10s. per share. The steamer will commence running on Patrick's Day.

Picture Dealer to Artist: "Hundred guineas? Nonsense, 50 you mean; an' as to guineas, I always call 'em pounds; say the word—here's my bill at six months!"—*Punch*.

Why is the treadmill like a true convert? Because its turning is the result of conviction.

A theatre of great architectural beauty is proposed to be built in Paris, for the performance, more especially of the masterpieces of the English drama.

## Miscellaneous.

THE 'PRENTICE'S PILLAR, ROSLIN.—The beautiful collegiate church, commonly called *chapel*, of Roslin, near Edinburgh, which Britton allows to combine the solidity of the Norman with the finest tracery and ornamentation of the Tudor period, a gem of architectural beauty, and so entire that it has lately been refitted as a place of worship for an Episcopalian congregation, used to be shown, in the earlier years of this century, by a venerable crone named Annie Wilson. You obtained from Annie a sort of cottage version of the legends of the place; how the barons of Roslin were always buried in mail—how when any evil or death was about to befall one of them, "the *chapel* aye appeared on fire the night afore"—how Sir William Sinclair's dog saved his master's life by bringing down a stag "afore it crossed the March-burn," and all the puffy accounts of the former dignity of the Sinclairs of Roslin, which their relative Father Hay, has put on record. Mrs. Wilson also gave her numerous visitors an account, not quite in the manner of Pugin or Willis, of the details of the architecture—the site of the high altar—the "star in the east" hanging from a drop in the groining over it—the seven acts of mercy and the seven deadly sins, carved on two lintels in the aisle—the legend on a stone, "strong is wine, stronger is the king, stronger are women, but above all truth conquers,"—the mural tablet and epitaph of the Earl of Caithness, of the Latin of which she made sad havoc; all this in a monotonous voice, and without pauses, somewhat to the discomfiture of the hearers, who, however, never interrupted Annie with a question but they had reason to regret it, for she then recommended her sing-song recital, and gave it all over again, it being impossible for her to resume the broken thread of her discourse. Mrs. Wilson's strong point was the *Apprentice's Pillar*. "There ye see it, gentlemen, with the lace bands winding sae beautifully round about it. The maister had gane awa to Rome to get a plan for it, and while he was awa his 'prentice made a plan himself and finished it. And when the maister cam back and fand the pillar finished, he was sae enraged that he took a hammer and killed the 'prentice. There ye see the 'prentice's face—up there in a corner, wi' a red gash in the brow, and his mother greeting for him in the corner opposite. And there, in another corner, is the maister, as he lookit just before he was hanged; it's him wi' a kind o' ruff round his face," with a great deal more of the like twaddle, which Annie had told for fifty years without ever hearing a word of it doubted, and never once doubting it herself. The 'Prentice's Pillar of Roslin is really a most beautiful specimen of Gothic tracery—a thing standing out conspicuously where all is beautiful. Viewing its exquisite workmanship, we need not wonder that such a story as that of the incensed master and his murder of the apprentice should be told regarding it. We have to fear, however, that, notwithstanding the faces of the master, the apprentice, and the apprentice's mother, exhibited on the walls, there is no real foundation for the tale. What chiefly gives cause for this apprehension is, that similar stories are told regarding particular pieces of work in other Gothic churches.—*Book of Days*.

NEW MATERIAL FOR PAPER.—Mr. Deltour, of Queenstown (says the *Cork Examiner*) has discovered a process of making paper out of the coarsest and cheapest materials. He has shown specimens made from common bramble and from hay, either of which required merely to be machined in order to become a good printing paper. A ton of paper, when made by his process, would stand at little over £12, and the saving is calculated at 50 per cent.

THE FUTURE OF MILFORD HAVEN.—We are glad to know, from reliable sources, that the scheme which we have so long advocated for the development of Milford Haven is about to be carried out. A company has been formed to raise £220,000, the sum requisite to make the necessary locks, floating basin, graving docks, wharfage, jetty, piers, &c.; and its prospects look promising. If it succeeds, Milford will be one of the most important ports in the kingdom in future years. The net-works of railways from the vast colliery fields, and the chief towns of Wales, are all connected with it, as are also London and the north. Very shortly Manchester, too, will be joined by a direct through route. Besides these conveniences, and those now projected, the natural advantages of the place are extraordinary. Vessels can sail inwards or outwards whatever the state of the tide may be, and in almost any weather; nor has the haven any bar. The ordinary dangers and expenses of channel and river pilotage are unknown. The route to America from this port is 118 miles shorter than that from Liverpool, and 175 miles shorter than that from Southampton.—*Cambria Daily Leader*.

SHIPBUILDING IN CORK.—On Tuesday last Messrs. Robinson and Co., shipbuilders, Lr. Glanmire-road, launched a fine new screw steamer, called the "Bolivian," which they have built for the West Indian and Pacific Steamship Company, Liverpool. Her dimensions are:—length, 240 feet; extreme breadth, 30 feet; and depth of hold, 25 feet. She will register about 1,350 tons, and carry probably 1,800 tons burden. She looks large for her size. Her rigging will be that of a brig. She has a spare deck, which gives large saloon accommodation for as many as forty first-class passengers. She will be fitted with a pair of direct-acting engines, with surface condensers, and of 200 horse-power nominal, and is expected to possess a speed of 11 knots an hour. Her boilers have been prepared, and will be put on board in the yard immediately.—*Cork Reporter*.

THE ALPHABET.—The alphabet may be varied so many million of times that, if a man could accomplish the impossible task of reading one hundred thousand words in an hour, it would require four thousand and five millions of men to read those words, according to the above hourly proportion, in twenty thousand years.

RESISTANCE TO IMPROVEMENT.—It was the physicians of the highest standing that most opposed Harvey. It was the most experienced navigators that opposed Columbus' views. It was the most conversant with the management of the Post-office that were the last to approve of the plan of the uniform penny postage. For the greater any one's experience and skill in his own department, and the more he is entitled to the deference which is proverbially due to each man in his own province—"Peritis credendum est in arte sua"—the more likely, indeed, he will be to be a good judge of improvements in details, or even to introduce them himself; but the more unlikely to give a fair hearing to any proposed radical change. An experienced stage coachman is likely to be a good judge of all that relates to turnpike-roads and coach-horses; but you should not consult him about railroads and steam-carriages. Again, every one knows how slowly and with what difficulty farmers are prevailed on to adopt any new system of husbandry, even when the faults of an old established usage, and the advantage of a change, can be made evident to the senses.—*Whately*.

A SUBMARINE BOAT.—A letter from Rochefort states that a submarine boat lately built in that port has been taken into dock. This boat, if it can be so called, is shaped like a fish, of which the back, rather convex, serves as a deck, but without bulwarks. The stern is slightly rounded, and the bow is terminated by a spur, partly concealed under water. This boat is traversed lengthways by a large pipe laid on the deck. It is by this pipe, which is pierced with small holes, that the water enters to sink the boat. It is likewise by this pipe that the air enters to lighten the boat and bring it up to the surface. The boat is propelled by means of a screw, set in motion by compressed air. It is said that the crew of the boat may remain four hours under water.

RAILWAY TO CAPE CLEAR.—The works proposed at Cape Clear are estimated to cost £6,000, of which sum Sir Henry W. Beecher has contributed £500. By aid of the pier to be erected it is intended to land the American mails and passengers, and as the railway will run to the south harbour, a saving of near twelve hours will be effected.

BRISBANE, QUEENSLAND.—A new town-hall is about to be erected in this distant place. It will occupy a space of ground 138 feet by 95 feet, fronting on two streets, but closely built up to at the sides. In this colony they look at the profit aspect of every transaction, and the building is laid out with shops on the ground floor facing Queen-street (the principal front), and offices grouped round a central court, covered in the rear. A rental is expected of about £3,000 a year, besides getting rooms for the corporation offices, and the large hall on the upper floor, 90 feet 6 inches by 42 feet 6 inches, and 30 feet in height. The staircase and the part of the building connected with it seem well arranged. The style of the exterior is Italian; the lower story and mezzanine rusticated, the upper story showing Ionic pilasters and seven Venetian windows between them. The elevation would be better without the portion of sham attic placed in the centre of the long front; the gable of the roof showing at each end. The cost is stated at about £20,000. The amount of rental expected comes to us from one who must know, or we should suppose there might be an error. The architect is Mr. William Coote.

NATIONAL GALLERY OF IRELAND.—The attendance of visitors during the week ending 12th March was 5,311. Total since the opening on the 1st of February, 43,017.

PAY THAT DEBT.—It is a small one, to be sure, and apparently not worth a serious thought. Why not then pay it? Why be compelled to suffer the mortification of a dun? Why not take that little thorn out of your finger at once? It will fester if allowed to remain, and cause ten times the trouble. Why not relieve the conscience of that little loan? You will feel the better for it by so doing. You contracted the debt knowingly and willingly. Did you not mean to pay it? Certainly you did. Then why not do it at once? Every day's delay increases morally the amount of the obligation. Remember, too, that your little debt, and another man's little debt, and a thousand other men's little debts, make a little fortune for your creditor; or enable him to pay his larger debts, or feed his workmen, and keep his machinery a-going in times like these. Don't you see how it is? You do? Well, then, remit the amount at once, and to-night the ghost of that debt will not trouble your dreams.

NOVEL MODE OF PRODUCING OXYGEN GAS.—At a lecture delivered to the shampooers and attendants at the Hammam, Jermyn-street, on Monday night, by Dr. Leared, Physician to the Hospital for Consumption, a novel mode of producing oxygen gas in a perfectly safe, cheap, and simple manner, was introduced for the first time in public by Mr. Robins, the analytical chemist. The method consists in treating chromate of potash and peroxide of barium with diluted sulphuric acid. The operation is performed in a common glass jar or retort, and at the ordinary temperature. To those who are acquainted with the plan hitherto adopted of heating manganese in iron bottles this discovery will need little recommendation, and it is difficult to predict to what discoveries and improvements in the economy of life and light it may lead. Meantime it is interesting that this discovery should have been first introduced to the public within the walls of an institution where the body is so largely benefited by natural processes of oxygenation.

## TO CORRESPONDENTS.

A SUBSCRIBER (the work you inquire about, and which has been frequently announced in this journal as in course of preparation, has not as yet appeared; a work of its class is much needed by architects and builders).—P. M. (cannot at present answer).—INJURED ARCHITECT (it is a question for the Royal Institute of the Architects of Ireland; it would be well to state the matter at their next meeting).—C. L., Longford (you will find it illustrated in DUBLIN BUILDER for June 1st, 1860).—SUBSCRIBER, Dundalk (too late for this No.)

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to Mr. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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## At a General Meeting of the REGULAR

INCORPORATED and AMALGAMATED BODY of BRICK and STONELAYERS of the City of Dublin, held at their Institute, No. 49, Cuffe-street, April 6th, 1863;

It was unanimously resolved—That henceforth the above Body do publish in the General Advertiser a Weekly Report of the Names and Addresses of the Builders of this City and its vicinity who patronise this Body, for the information of Architects, Public Boards, Heads of Firms, and the Building Public; and, in order that they may not be duped by accepting estimates from parties assuming to employ first-class workmen, while they drag through their contracts with the waifs and strays, and impose them on the public for the regular men of the city, much to the prejudice of our long and well-earned reputation for ability and skill in our trade.

PATRICK HAND, Master.

JOHN CUMMINS, } Stewards.

JOSEPH O'TOOLE, }

DENIS BYRNE, Secretary.

REPORT FOR THE WEEK ENDING 12th MARCH, 1864.

Beardwood, James, 10, Westland-row.  
Bolton, Samuel H., 38, Richmond-street.  
Barker, J. and E., 27, Abbey-street.  
Breen, Stephen, 3, Lower Mayor-street.  
Boyce, J., Rathmines.  
Brophy, H. F., Harold's-cross.  
Cockburn, Messrs., 179, Brunswick-street.  
Conolly, John, 30, Prince's-street.  
Conolly, William, 39, Dominick-street.  
Doolin, William, 23, Westland-row.  
Donnelly, James, 89, Talbot-street.  
Doyle, Luke, 9, Temple-bar.  
Dempsey, John, 4, Peter-street.  
Dunne, Michael, 98, Amiens-street.  
Fartell, George, 12, Wentworth-place.  
Freeman, David, 15, Queen street.  
Freeman, James, Britain-street.  
Gahan, Matthew, Whitechurch.  
Grant, John, 16, Pembroke-street.  
Hogan, John, 11, Wincetown-street.  
Halston, Alexander, 20, Talbot-street.  
Hughes, John, North Strand.  
Hudson, George, 47, Capel-street.  
Hall, Thomas, and Son, 62, Harcourt-street.  
Kennedy, M., Marlborough-street.  
Lennon, P. and J., 17, Pembroke-street.  
Lawton, David, and Son, Seville-place.  
Lynch, Matthew, 34, Camden-street.  
Murphy and Son, 88, Amiens street.  
Moyers, George, 47, Richmond-street.  
Meade, Michael, 152, Brunswick-street.  
Mayers, Patrick, Conyngham road.  
Madden, Peter, 11, Whitefriar-street.  
Millard, Thomas, 58, Harcourt-street.  
McCormick, James, 90, Talbot-street.  
Murphy, Gregory, Williamstown.  
Nolan, John, 3, Meredith-place.  
Nolan, J. J., 67, Townsend-street.  
Owens, Peter, 2, Store-street.  
Parker, Robert, 78, Marlborough-street.  
Potts, Patrick, Donnybrook.  
Whiteacre, George, 73, Summer-hill.  
Wardrop and Son, Conyngham-road.  
Walsh, John, Mecklinburgh-street.

N.B.—If any omission in this report has been made, by notifying the same to the Secretary, at the Institute, it will be attended to in due form in the next report.

# The Dublin Builder.

VOL. VI.—No. 103.

## THE CONVERSAZIONE.

THE re-union of rank and fashion of Tuesday night will long be remembered as one of the most brilliant that ever graced the Antient Concert Rooms. No pains were spared to render the entertainment everything that it ought to be, both in social enjoyment and, still more, as an intellectual treat; and we can confidently state that in every way the worthy President's expectations were fully realised. There has seldom been such an opportunity afforded of studying, in one view, so many first-class specimens of the designs of the most talented members of the architectural profession, and the Institute has thereby secured for itself a high position, not only from the courtesy with which it has entertained so many members of the first circles of our city, but also from its having demonstrated the incontrovertible fact that the works of Irish architects are second to none in merit and beauty of design. It now only remains that its members should act with unity and steadiness of purpose in order to render the success which it has achieved a lasting one. Its numbers are each month increasing in strength; and if Irish architects will consider their interests as a common cause, and study to promote them, it may yet arrive at as high a standing as any similarly constituted society of the great English metropolis. On the same day the Lord Lieutenant had two opportunities of witnessing what Irish talent can effect, having graciously consented to lay the first stone of one of the works of a most rising architect of our city; and then witnessing, in the evening, such a collection of artistic design as, we may safely say, has never been surpassed, and in which, we may add, he appeared to take a great interest. It is also worthy of mention that almost on the same day, out of sixteen sets of plans that were sent in for the construction of a new church in Kingstown, the prizes for the first three in the order of merit were awarded to architects of our city.

We trust that the members of the Institute will embrace every opportunity of bringing forward in papers an account of whatever works they may have in progress. There is nothing that tends so much to aid the progress of improvement in design; and even the most experienced in the profession are always glad to have an opportunity of comparing their own works, whether original, or in imitation of their mediæval prototypes, with those of their fellow-practitioners. Even those whose time or whose tastes do not admit of their arranging their remarks in the form of a written treatise, may make many valuable contributions in the form of oral statements, or bring them forward through others in the form of contributions. We also trust that the

Institute will recognise the expediency of giving such papers the greatest possible amount of publicity. There are many practising in different parts of the country whose time does not permit them to attend our city meetings, and who, unless such papers are published, must be altogether precluded from the advantages of the information which they afford. Some very valuable ones have recently been read, and by the kind permission of the author we are enabled to publish *in extenso* Mr. E. T. Owen's remarks on the grouping of mediæval buttresses. It has been our wish to give a faithful record of the rise and progress of the Institute since the period of its revival, and should its members be willing to admit the DUBLIN BUILDER as their accredited organ, and contribute to its columns, we shall find it a most agreeable duty to advocate their cause, and forward their interests as far as editorial powers will admit of, being convinced of the benefits which its re-organization will confer upon the profession; and we may add that not only is our circulation in the provinces most extensive, but our journal is forwarded to many places in the sister country, where we would be proud to show that our Irish contributions are well worthy of comparison with those of our English contemporaries. We publish a report of the *conversazione* in another part of our columns.

## IMPENDING DESTRUCTION IN THE MOUNTAINS.

THE catastrophe by which, on the night of the 11th, upwards of two hundred persons were suddenly hurried from slumber into eternity, has been, during the last fortnight, a subject of all-engrossing interest, and, now that nearly all our large towns are either actually or about to be supplied with water on the high-pressure system, it has justly created a feeling of universal alarm. Again the inhabitants of a populous district have placed implicit confidence in the assurances of safety from those whom they believed to be experienced practical engineers, and, again, the recurrence of a catastrophe has, shewn how little dependence can be placed upon any human assurances, until we are led to ask is it safe to place reliance on the opinions of even the most experienced on such a subtle and treacherous element as water pent up within an artificial embankment, or would it not be more conducive to the equanimity of the inhabitants of the surrounding districts to abandon such constructions altogether? We will put the question in a practical form. Is there any man who would, after having within twelve years twice had his confidence in engineering infallibility shaken by the occurrence of two such calamities, undertake to build his house immediately underneath the reservoir at present being constructed at Roundwood, and locate in it his family and property with perfect tranquillity of mind? Would his slumbers be peaceful under the feeling that over his head there was continually impending a pent-up ocean, ever pressing with unwearied and overpowering force against the artificial barrier by which it is confined, and capable of searching out the smallest imperfection in its construction which may have escaped the notice of even the keenest and most experienced eyes, and gradually and imperceptibly eating away the yielding particles, infiltrating through the smallest crack and carrying on its unseen work of demolition in the interior; until at length perhaps in one year, perhaps after the lapse of half a century the hand of nature draws the bolt, and the avalanche of water carries ruin far and wide through the districts beneath it? Would he be totally devoid of fear when the rains of winter rendered the ground soft and spongy, and the howling of the storm bore

down upon his ears the roaring of the waves which they excited upon a lake over four hundred acres in extent, beating all through the long night upon the embankment? But if such perfect confidence cannot be given by incontestible proofs and beyond the possibility of doubting, then under no circumstances can perfect security be predicted to the inhabitants of the valley beneath.

The trumpet of alarm has been ably sounded by our leading contemporaries, and our citizens are fully alive to the danger, and we feel convinced that they will not trust the safety of works which have cost them half a million of money to the vague and undefined assurances which are all that they have as yet received, but that a thorough investigation will be instituted into their stability. The only question is, can any amount of investigation be sufficient to inspire absolute confidence, or can any human foresight predict perfect immunity from danger? We are inclined to think, however, that terrible as the Bradfield calamity has been, it is, on mature consideration, more calculated to allay our fears than to excite them; and in the manifestation of its palpable insecurity we may see the elements of our own safety. Had no such catastrophe happened we would have taken any engineers, however careless, at their word. Now, we are fully alive to our danger, and our apprehension will not be allayed by any superficial assurances. The matter has already been taken up by Government with a view to instituting a searching inspection into the construction of all future reservoirs, and although we have received but a few lines from Mr. Rawlinson, yet we feel sure that that gentleman would not lightly stake his reputation. Still, however, every person will like, as far as possible, to get hold of facts on which to base his assurance, there being many that are patent to common sense without the necessity of a so-called knowledge of engineering, and as we believe that more satisfaction is conveyed by publishing as far as possible the results of experience than by seeking to shroud the profession in mystery, we have no hesitation in placing the following remarks at the service of our non-professional readers:—

An embankment, whose object it is to confine a body of water must be so constructed as to fulfil two conditions. First, it must be impervious to water; and secondly, its mass must be such as will resist by its weight the thrust which the latter exercises against it. In order to effect this purpose the interior portion of the embankment is formed of what is technically termed puddle, which is a stiff impervious clay; and to obtain the requisite bulk and solidity the structure should be carried up with slopes on both sides of about three to one—that is to say, the thickness of the base should be about six times the height. An embankment sixty feet high should, therefore, be at least 360 feet thick at base, or in practice about 400, to allow breadth for a walk or roadway on top. The puddle trench in the interior should be, for such a height, at least 20 feet thick at bottom and 10 feet at top; and in order to prevent the water from undermining the embankment, it should be carried down into the ground, if possible, as far as the solid rock, or at least until it meets with an impervious stratum. Too much care cannot be taken to effect a perfect junction at this point, as it is a most essential precaution. The reservoir should also be furnished with discharge pipes of such a capacity that in case of the occurrence of any contingency it could be speedily emptied, and the mass of water let off in some direction where it could do no harm. The diameter of the discharge pipe for a large reservoir should be at least three feet. An embankment constructed in such proportions will possess sufficient weight to resist the utmost force which the water can exercise against it, and if in addition the certificate of the resident engineer can show that the work has been everywhere carefully executed, the puddle solidly united to the rock or to an impervious substratum, then carried up in layers, and properly consolidated in every part, it may be considered that every precaution has been taken that human foresight can suggest, and there can be no serious cause for apprehension.

If we examine into the causes which led to the failure of the Bradfield reservoir, not as they are

stated in the confused and contradictory accounts which have been promiscuously circulated during the first moments of distraction, but as they are described by experienced engineers, who have visited the spot, and made careful investigations, the defects which led to such a catastrophe are very apparent. It appears the puddle was not only deficient in thickness, but had also been most carelessly worked; and instead of having been carried down to the solid rock, it was merely *loosely laid upon the soil*, about three inches of the sod having been removed! The water must, in consequence, have undermined the whole structure more or less extensively. The slopes of the earthwork were only two to one. It was, therefore, deficient in mass, and it was merely thrown on loosely instead of being carried up in layers, and proper time allowed for its consolidation. It has been ascertained that the direct cause of the failure was that the puddle was not properly united to the main service pipe which passed through it, and that the water soaking through the loosely erected earthwork gradually destroyed its tenacity, until at last the upper portion of the bank was forced off, and the rush of water completed the rest.

Although we feel assured that such an eminent engineer as Mr. Rawlinson would not lightly pledge his opinion in a question that involves the expenditure of near half a million of money, yet there are few who would not like some more tangible evidence than the half dozen lines lately addressed by him to Sir John Gray, and we have, therefore, much pleasure in presenting our readers with the following facts, for the accuracy of which we can vouch. The reservoir at Roundwood has been surveyed at different times by five of the most eminent engineers of the day, Mr. Bateman, Mr. Rawlinson, and three others of high standing, and all are unanimous in asserting that it is perfect both in design and workmanship. The puddle trench has been carried down to the solid rock; but one of most satisfactory features is that the clay of which the embankment is formed is of so stiff a quality that it is almost impervious in itself, so that we are not dependent on the puddle trench alone for safety, but the whole structure may be looked upon as a gigantic mass of puddle almost as impervious as the rock itself. A description of the works in progress has already appeared in the *DUBLIN BUILDER* of July 1st of last year, and although it will be perceived that the thickness of the embankment and puddle trench are slightly under the proportion which we have given, yet the firmness of the clay of which it is composed, is sufficient to warrant such a diminution. In addition to all the reservoir will be furnished with a discharge pipe nearly *four feet* in diameter, and a caretaker will be resident on the spot, who could at any moment empty the whole of its contents in about five minutes.

As there can be no doubt, therefore, as to the excellence of its *design*, it only remains that the construction and workmanship of every portion should be perfect, and we are informed that it has hitherto been conducted in a masterly manner. We feel assured, also, that the recent failure will give an additional stimulus to the exertions of both workmen and overseers, and that their caution and watchfulness will, if possible, be redoubled. We may infer, therefore, that as far as reliance can be placed on human judgment, the valley about the Vartry will rest in perfect safety; still, however, there is just a possibility of some imperfection occurring, just as an unseen flaw in a cast-iron girder, or a single defective link in a chain, may effect the demolition of an entire bridge; and, while expressing the utmost confidence in the opinions of the high authorities which we have cited, and our hope almost amounting to conviction, that no such flood will ever be poured over our peaceful valleys, we cannot help observing, in conclusion, that we had rather live sixty feet above than sixty feet below the great Roundwood reservoir.

The fund (close on £1,000) which has been subscribed by friends and admirers of Pugin, has been placed in trust with the council of the Royal Institute of British Architects.

#### FEMALE SCHOOLS AND ORPHANAGE, &c., CAVAN.

THE plainer portion of the front of this building, shown in our engraving, is appropriated to the Orphanage, being flanked at the lower end by another range of building equal in extent to the rear flank shown, and uniform with it in height, containing the schools, the principal rooms in which are 40 feet long by 28 feet wide, and varying from 15 to 18 feet high, these portions of the building have been erected some two years since; the tower, with the adjoining flank, and a portion of the front building forming the Convent, (now just finished) has been erected within the last twelve months, and contains every accommodation for a large community. The entire block of building forms three sides of a quadrangle opening out on a spacious garden tastefully laid out. The work is executed with the stone of the locality, a hard kind of sandstone of a light colour, well suited to give effect to a building. The dressings of the windows and opens in the orphanage are of red brick, and in the convent of white fire brick with chamfered angles, except the dressings of the tower and the three-light windows which are of sandstone from Dungannon, of the colour of Portland stone; the sills, lable-mouldings, and groins being of white limestone; the porch, an open one, is entirely of Dungannon stone with Kilkenny marble shafts to the doorway, the caps of which, and the large moulding around eave is carved in natural foliage, a similar moulding bay around the interior, carved in the same manner. The shafts of the niche over the roof are also of black marble, having carved capitals surmounted by a canopy with richly carved crockets and finial; the niche is to be occupied by a statue of St. Clare. The builder is Mr. Hague, of Cavan, who has executed the work in a very creditable manner. The chapel is not erected yet, but when so will, with the tower and spire which already produce a good effect, be a fine group of building. Mr. Ryan, Architect.

#### ROYAL DUBLIN SOCIETY—THE CATTLE SHOW.

THE annual spring cattle show of the Royal Dublin Society, was opened on Tuesday, the 29th ult. It has been one of the best, perhaps, ever held under their auspices. The Society has been engaged during the last few years in organising a number of smaller agricultural bodies, and in aiding them from time to time with its resources, and to this good work is to be attributed in a great measure the success with which the exhibition has been attended. It is gratifying that the influence of the Society is being employed not only for the improvement of agriculture, but also for the development of the resources of various branches of manufacture.

The agricultural implements were exhibited partly in the yard in front of the Kildare-street face of the Society House, some at the western end, and the majority in the space around which are the sheep and swine enclosures.

The ground known as the Shelbourne Yard has been partially covered in with iron sheds, constructed by Messrs. Grendon and Co., the eminent iron founders of Drogheda. It is intended to connect these sheds with the main building by a glazed roof all round, so that the entire space will be covered in. The old established firm of Messrs. Kennan & Sons, Fishamble-street, exhibited a large assortment of soundly made mechanical tools, and an extensive collection of handsome garden seats, wire and iron fences, and entrance gates of various kinds; also a good number of lawn-mowers of their own manufacture. Booth Brothers had on view a collection of tools and other articles in connection with husbandry. Smith and Wellstood, Glasgow, and London, had for inspection an extensive collection of family cooking stoves, portable laundry boilers, hot water apparatus for public buildings. Mr. Robert Brown, North Wall, displayed a large variety of fireclay goods, the manufacture of the Ferguslie Works. Mr. D. McCulloch, Talbot-street, and Mr. G. Lavender, Grafton-street, exhibited sewerage pipes, field drain pipes, cattle troughs, vases, flower pots, &c., manufactured of fire-clay. Mr. Kelly, C.E., Roscommon, had specimens of patent peat fuel, made by machinery, invented by himself, and stated to be cheap in price and expeditious in working. Maguire and Son, Dawson-street, exhibited an assortment of field gates and palings, Eastwood's atmospheric churns, garden arches and rollers, chaff cutters, sack holders, &c. Mr. Bowles exhibited a flax scutching machine, made on the Ulster plan, intended to produce good

flax with little waste, and capable of being worked by horse, water, or steam power, or to be made portable. Messrs. Hutton and Sons, Summer-hill, exhibited some neatly fashioned car, dogcart, and van wheels, made by patent machinery, which they have recently erected in their establishment.

#### NEW CARLISLE BRIDGE.

THE following correspondence has been addressed to several of our leading contemporaries:—

Carlisle Bridge Committee, Imperial Hotel,  
16th March, 1864.

SIR,—I am directed by the Carlisle Bridge Committee to forward to you copy of letters and decision of the selection committee (Sir R. Griffith, Colonel M'Kerlie, and Professor Downing) regarding the first, second, and third best designs for the proposed new bridge. ALFRED C. REYNOLDS, Hon. Sec.

Office of Public Works, Custom House,  
Dublin, Feb. 6th, 1864.

SIR,—I request you will have the goodness to lay before the Carlisle Bridge Committee the enclosed decision which the select committee have arrived at relating to the competitive designs sent in for rebuilding Carlisle Bridge. RICHARD GRIFFITH.  
Alfred C. Reynolds, Esq.

Dublin, 20th January.

GENTLEMEN,—In fulfilment of the duty which, at your request, we have undertaken of selecting from the competitive designs for a new bridge on the site of the present Carlisle Bridge, those which, according to our judgment, are entitled to occupy the three first places in the scale of merit, we beg to say that we have carefully examined the whole of the drawings exhibited, and have accorded those three first places to the undermentioned designs, and in the order given, viz.: Number 1 in order of merit, and number 22 in printed list, Page and Turner; number 2 in order of merit, and number 23 in printed list, Lanyon, Lyon, and Lanyon; number 3 in order of merit, and number 44 in printed list, Moy and Pole.

We deem it right, at the same time, to draw attention to the design number 11 in stone, (J. Hutton; "*In Memoriam*"), and to observe that, while it occupies a high place in our estimation as a work of beauty and artistic merit, we have felt it incumbent on us to exclude it from competition, in consequence of the greater part of the conditions set forth in the instructions to competitors not having been complied with.—We are, gentlemen, your obedient servants,

RICHARD GRIFFITH.  
J. G. M'KERLIE.  
SAMUEL DOWNING.

Carlisle Bridge Committee, City Hall.

[An engraving of Messrs. Page and Turner's design has already appeared in the *DUBLIN BUILDER* of August 15th, 1862, accompanied by a general description. As many of our readers may not have the above number at hand, we reprint the following passage from a description furnished by the authors along with the drawings:—

"We have endeavoured to follow out the wishes of the Committee, viz., that the bridge shall be *level*; the whole breadth of Sackville-street; abutments of stone; iron superstructure, and provision to do honor to illustrious men. The principles of the design are—that the structure should be of the most substantial and permanent kind; the water-way improved; and least possible obstruction offered to admission and discharge of fresh and tidal waters. The design consists of a single arch of 140 ft. width, with a rise of 10 x 6; the trace rib and rib under the footpath springing at the level of high water. The ribs under carriage way are one foot lower, to obtain greater depth and rigidity. The distance from face to face of embankment is 157'6, consequently abutments would stand out 8'9 beyond line of embankment wall. The construction of the arches would be in *cast iron* from the abutments to within 25 ft. of the crown of the arch, the centre piece forming the key of the arch, 50 ft., being of *wrought iron*, so that the thinnest part of the bridge, which is in immediate contiguity with the roadway, and consequently subject to more shock from the traffic, would be of the safest material. This principle has been carried out with great success at Westminster new bridge. All the central portion of the arch where the wrought iron ribs are inserted would be of *wrought iron*. Between the main ribs cross girders and beams, 3'6 apart, would be fixed, and on them are intended to be laid *wrought iron* buckle plates, with water-tight elastic bed to receive macadamising and ballast of roadway. Footpaths are proposed to be of granite, of large sizes and hard quality, or of thick Valentinia slabs."

• Illustrated and described in the *DUBLIN BUILDER* for September 15, 1862.

## THOUGHTS AND SUGGESTIONS ON THE ARTISTIC EDUCATION OF ARCHITECTS.\*

(Continued from page 44.)

Now, let us consider for a moment in what the fine art of architecture mainly consists.

In the first place, I would say that, as with the other fine arts, it does not lie in the means, but in the results; or if in any sense in the means it is only in the sense of their necessity to or tendency towards results. The fine art of architecture lies in the artistic character and perfection of the architecture itself when carried into execution; and—though drawing and other means are necessary to this—it is clear that it must be just such drawing, &c., as is most conducive to producing the noblest architecture; and that the most exquisite drawing is wasted if it do not tend to this practical conclusion.

I do not, however, wish to be understood to depreciate other kinds of drawing or other artistic accomplishments in an architect—far from it; what I wish to urge is that the primary object in the artistic training of an architectural student is to make him a good architect, or rather to enable him to make his practical architectural works noble and artistic; that all else in the absence of this is futile; while if this be attained in a high degree, other accomplishments in art obtain a value and impart a charm of which they would otherwise be incapable.

Now, it is clear from this view that the making of good pictures of our designs or buildings is no part of the fine art of architecture.

It is, in fact, an art almost peculiar to our own day; but though highly conducive to the success of the individual architect, and when well directed, a great aid to the study of architecture, it is hardly to be viewed as a very direct means of producing good architecture. To make good pictures of bad designs is obviously injurious, as it misleads employers and often even the architect himself, and renders disappointment the more certain and the more bitter; while to make good pictures of good designs may have the beneficial effect of promoting their adoption, but still cannot be in any degree considered as of much importance to the actual result: for a well-studied design in artistic hands will be just as good when executed if no picture at all had ever been made of it, and an all-studied design no better for the finest drawing having been made to recommend it. This, then, it is clear is but a secondary art—an elegant accomplishment which becomes both useful and elevating when added to practically artistic powers—but worse than useless in their absence. Here I am happy to find Professor Cockerell's view to be as one with my own. After urging perspective drawing as essential to facility of designing, and also the necessity of cultivating the powers of the imagination, he adds:—

"Having thus put before you an outline of those advantages which are to be derived from our association with the sister arts, let us be guarded against their dangerous deductions. I look upon it that all their advantages are purely linear, and not aerial or polychromatic. . . . This great error of the English school of architecture may be said to have arisen from the juxtaposition of architectural drawings in our exhibitions, to the works of the painter. . . . Colour, chiaro-scuro, and aerial perspective are of no sort of importance (i.e., in architectural representations); and how entirely my opinion is supported by the best authorities and the best practice has often been laid before you. In one year in particular I was enabled by the kindness of friends to lay before you some architectural drawings of Raffaele, Michel Angelo, Sansovino, and Inigo Jones, in all of which proportion, composition, profile, and orthographic delineation were the sole end and object of their drawings, and no tricky effects of light and shade or colour were for a moment thought of or permitted. Philibert de l'Orme has humorously said, speaking of pretty drawings, 'They are hits to catch a customer, but are insufficient evidence of the substantial knowledge of the art. Be quite sure,' says he, 'that those who amuse themselves in making pretty drawings only, are those who least understand the real art and science of architecture. I do not deny,' continues he, 'that it is a graceful accomplishment in the architect to portray and paint, but his true business is with the model, and with lines only expressive of his design, its proportions and measurements.'"

The power of ready and skilful sketching from actual architectural objects comes much nearer to the fine art of architecture. It is not that fine art itself, but it is one of the most direct means of attaining it. I, therefore, class this very much higher. It must not be mistaken for the practical result aimed at, but as a general rule I should say that it is so necessary to it as to be its closest ally and precursor, and, therefore to be cultivated with all possible diligence; but I would urge the keeping of the ultimate object

always in view, viz., that sketching should be mainly followed up with the direct intention of self-culture; that the architect or student should aim in a less degree at storing his sketch-books with pleasing representations, and laying in a stock of precedents for future reference than at the direct training of his mind and eye and hand to the conception and designing for himself of works similar in kind to those he is studying; and the kind of drawing he should mainly aim at cultivating is that which will be the fittest means of conveying his artistic conceptions more clearly to the art-workman who will have to carry them into execution, the result being everything, the means comparatively nothing in importance.

Essential, however, as is sketching from existing works, I am of opinion that both for the attainment of skill in this and in addition to it, the architect requires artistic training of a more direct kind, and this is my main object in coming before you.

The two wants, then, which I would desire to urge upon the attention of the profession are, first, a greatly increased appreciation of the necessity of such an artistic training as bears in the most direct manner upon practical results in our actual architecture; and secondly, the want of some direct and special means of getting such training.

It may appear far-fetched, but I am convinced that one great object to be attended to is to give our students a good knowledge of the human figure, and of its introduction in architecture and in combination with architectural ornamentation.

This is important in the first place as a mere subject for training. The human figure is the most delicate and subtle, in an artistic point of view, of all natural objects; and its study is consequently the best training for the eye to a delicate appreciation of beauty. It is the highest of the works of creation, and its introduction in artistic works of whatever kind, must necessarily give them a tone which no other objects can impart. We all know, and we most of us daily feel, how utter has been for the most part the neglect of this highest class of training, the very key and keystone to all the rest; and I am quite convinced that the general training of our architectural students to figure-drawing would alone work an absolute reformation in our architecture.

Since writing the above I have found in one of Professor Cockerell's lectures the following passage:

"And to point out the advantages and disadvantages of our connection with the graphic sisters, we are first to remember that from the painter and the sculptor we are to derive that knowledge of forms and profile, of contour, and that science of proportion of which the human form divine has ever been considered to imply the model. It is quite certain that the Greeks derived from this association that exquisite sense of form and outline which so eminently distinguishes their works. . . . Their association of sculpture at all times with architecture, their system of proportions, derived, as Vitruvius expressly tells us, from the three proportions of the human creature, all display their practice and observation of all human, animal, and vegetable forms as appropriated to this art, and when we consider the coarser practice of the Romans, . . . there can be no doubt of the favourable results derived by the Greeks from the association of architecture with the historical painter and sculptor. But the discipline of the sister art is, besides, advantageous in the highest degree to that dexterity of pencil and that facility of expressing and embodying his ideas, which like elocution and language to the orator become the essential instrument of his art."

I urge, then, that means be set on foot by which our young architects may be able to get this training, and that not merely in an abstract form, but in a manner having a direct bearing upon architecture, whether in its sculpture, its decorative painting, or in any and all of the multitudinous branches in which the human figure can be introduced. I do not desire that the same person should be a sculptor and a painter as well as an architect, but I do assert that the severance of the three arts has been and is carried in these days to a degree which is destructive to the highest qualities in our works, and that the only hope for the future is in their re-union to such an extent at least as to enable the architect to assume his true position as the chief artist, the director of all the artists employed in carrying out that one great art which comprises and unites all the others.

Next to the human figure I would mention the study of animal drawing, and of the introduction of animal life into architecture and architectural ornamentation. After the human figure nothing gives such spirit and zest to decoration as the introduction of animal life, yet in all our attempts to revive architectural carving and sculpture, we have hitherto utterly failed in this. We really, for the most part, dare not let our carvers introduce such objects for fear of making our whole works ridiculous,—and even a grotesque animal, as a gargoyle, in which the Mediaeval sculptors were so wonderfully successful, be-

comes in the hands of our own simply contemptible.

The architect of the future must be himself the leader and director of the artist she employs; and if he desire to remedy such defects as this, he must take the lead by making himself master of the subject.

I urge, then, that animal drawing should be a very leading point in architectural training; and that not merely in a bare abstract form, but that the habits and positions of animals under all circumstances and conditions shall be studied, so as to enable him to introduce them with natural feeling and spirit into any part of his works and decorations.

Thirdly, I would mention designs from natural foliage and botanical productions. There is, as we all well know, great difference of opinion amongst those who are most in earnest amongst us on the question whether we should make use of foliage, &c., in its natural forms in our architectural decorations. I believe this question is gradually working out its own solution. I only allude to it for the sake of clearing my subject of it, and of saying that I view it as wholly independent of what I am urging; inasmuch as the study of nature is equally necessary whether we follow her productions directly or in a conventionalized form. In either case the productions of vegetable nature are, and ever must of necessity be, the primary sources of artistic foliated decoration. Closely as we ought to study the finest works of the best periods of our art, and all-important as are the lessons to be derived from them (and I may say indispensable as is the necessity of our linking our own art on to that of the past), I nevertheless assert that if we do this without reverting—and that in all earnestness and determination—to the works of nature as the great guides and suggestors of art, our efforts will produce mere lifeless results. I urge, then, a careful training of our architects to the study of the productions of vegetable nature, with a direct practical reference to their uses in architectural work. I would press this to a very great extent, far greater than has been the case at any previous period of art, inasmuch as our age offers greater facilities in that direction, and the knowledge of plants is carried to a far greater extent. The very habits of plants—the forms they assume under different circumstances and conditions, and in different positions—should be thoroughly studied and rendered familiar to the mind, and that quite independently of the question whether we make use of the lessons thus learned in a direct or conventionalized form; for if the conventional be not founded on or quickened by an appreciation of the natural, it will, depend upon it, be a mere dead reproduction.

After these three great branches of natural study, and in fact intermingled with them at all points, comes the study of the finest existing works of art in each of these departments. The study of the human figure must be aided by that of the finest sculpture and painting, and the same applies to the study of animal life; but I wish here more particularly to dwell upon what is more distinctly architectural sculpture and decoration. Strongly as I have insisted upon the earnest study of natural types, I wish again to assert in the strongest terms my undiminished loyalty to the study of the works of our predecessors of the noblest periods of art. I do desire that nature should be studied instead of, but in addition to, and alongside of, these glorious works. I would not even separate the one from the other; they should be always going on *pari passu* as one and the same work. The one is the body, the other the soul: by one we learn architectural decoration in the abstract, by the other we quicken it into a living art. I urge, then, that more attention than ever be given to training our students to draw from the actual productions of our art, but that it should be accompanied at every step by an equally earnest study from natural types.

It is not, however, by drawing alone that these studies should be carried on. The architect of the future must be able to model his sculptural designs, and even, perhaps, to carve them himself; but as I am anxious not to render my advice impracticable by pressing too much, I will content myself on this point with urging that the student should receive regular lessons in modelling as well as drawing.

Hitherto I have dwelt wholly on form: there lies, however, before us the entire subject of colour; and if the study of form in its higher artistic bearings has been insufficiently followed up in our artistic education, how much more does this apply to colour! The very awakening in our day to a consciousness of this fact, hopeful as it is for the future, tends to aggravate the unhappiness of the present; for it has led to a multitude of attempts frequently so offensive to the eye as to make one long to be restored to the blissful ignorance of the past, forgetful that the folly of incipient wisdom is a necessary stepping-stone to a maturer knowledge. I would, then, urge that our architectural students should have a systematic training, firstly in the true principles of colour, and secondly in its application to architectural decoration in all its forms.

\* By Mr. G. G. Scott, R.A. Read at the meeting of the Architectural Association, London.

I will not repeat what I have already said about the human figure, and the study of animal and vegetable life, and of purely architectural precedent. All this applies equally to coloured as to sculptured decoration, with the addition of their study with direct reference to colour. This is, in fact, the highest form which our artistic training can reach; it is at the same time that most entirely neglected, and is that which demands the most earnest and determined efforts for its revival.

I have not dwelt at all on the ordinary study of architecture in its more normal form. It is not the subject I have had in view in offering my thoughts for your consideration; and I must rather be understood to assume this as a preliminary datum, taken for granted in all else that I suggest. I will, however, offer a very few observations on the study of that branch of architecture on which I feel myself most competent to speak; and what I have to say will appear, perhaps, inconsistent, and is, no doubt, somewhat humiliating.

In all really strong and healthful periods of art, the course of progress has, like the erection of our buildings themselves, gone on, as it were, course by course, each resting upon and founded on the form of its immediate precursor. The architecture of one generation was the result of the study of that which immediately preceded it. The architecture of the pupil was founded directly on that of his master. I will not go so far as to say that such is not, or in some degree ought not to be, the case now. To any one who can give an unprejudiced consideration to what goes on around us, such a regular progression will be found in some degree to hold good; but, while urging as stoutly as any man that an architect should be guided by the exigencies and peculiar circumstances of his own day, I am bound to say that one of its most marked conditions has been till recently that it possessed no distinctive architecture of its own, and another that it does possess, in a greater degree than any previous age, a knowledge of the architecture of the past. I urge, then, at all risks and in all earnestness, upon those who intend to follow the revived Mediæval styles, that they must learn their architecture in its normal and abstract form by the study of ancient examples; and though our own architecture, like our structure, may be built up course by course, that of the best periods of the style must be viewed as the rock whence those succeeding courses are hewn. I urge, then, the most ardent loyalty of the time-honoured custom of diligently and earnestly visiting, sketching, measuring, and measuring ancient works of art (whether of architecture proper or the allied arts), as the one great means of getting a real knowledge of architecture.

I press this the more strongly as I am quite convinced by the productions of a large number of our "Gothic" architects that they too much neglect this. Their works often evince a great want of actual knowledge of the style they are working in, while the constant confessions of young men seeking office employment afford but too convincing proof that the study of old examples is rather the exception than the rule, and that young men are allowed to suppose that architecture is learned in the office, or from modern works, instead of from the study of ancient examples.

I lay the greater stress upon this as I fear it is an increasing evil. At one time no one was supposed by anyone capable of thinking of the subject, to know anything of Gothic architecture who was not known to be one of the small band of ardent students of ancient work: now, however, the greatness of the demand has created a supply of men who have not been impelled by real love of the art, but by its necessity as a matter of business, and these men naturally fail to impress upon their pupils feelings and modes of study of which they are themselves innocent. I often meet with young men who have gone through their period of pupillage, and profess a strong predilection for Gothic architecture, who have rarely, if ever, sketched from an ancient building; and they usually say that their masters never would give them any time to do so!

I wish to say, once for all, that such neglect is simply destructive, and that no one has a right to attempt the practice of Gothic architecture till he has prepared himself by a long course of diligent study of the old examples. I am not advocating copyism, but knowledge as the foundation of practice. Let an architect be as original and as inventive as he pleases, but let his originality and invention be founded on a basis of knowledge, and not, as much so-called originality most obviously is, on a foundation of ignorance.

(To be continued.)

#### THE ROYAL IRISH ACADEMY.

A STATED general meeting of the members of the Academy was held on the evening of the 16th ult., at their house, 19, Dawson-street, when the annual election for President, Council, and officers took place.

The Very Rev. DEAN GRAVES presided.

Sir W. R. Wilde read a paper, "On an ancient Wooden Shield found in Ireland." In his opening remarks he said that during the last 80 years or more, during which the Academy had existed, it had done good service by the original communications it had presented to the library and museum which it had established, and were of so valuable a nature. They had many things in the shape of weapons, and objects of mediæval art far superior to anything of the same kind in Europe. There was scarcely anything connected with the chase, utensils &c., of all kinds, of which they had not samples in the museum, except that, in the case of weapons of war, they had not a wooden shield. During the past summer there had been found a remarkably fine and perfect specimen of a wooden shield in a bog which was the property of William Slack, Esq., of Annandale, county Leitrim. The shield was of an oval shape, and 26 inches long by 21 broad, by an inch thick. It was plain, and on the inverse side was an indentation, traversed by a long cross for a handle. On the other side was a large central boss, three inches high, surrounded by seven concentric ridges. When the shield was found it was so soft that the finger would press through it, but, by a certain process, he was enabled to have it hardened, and prevented from splitting at the edges. He had since had a mould constructed, and, after submitting the shield in the first instance for the inspection of the Academy, he would be enabled to dispose of a number of models to museums and other institutions sufficient to defray the expense of the experiments. He and other gentlemen whom he had consulted were of opinion that the shield must have been oak, willow, or alder. He thought that it had not been covered with leather, but had probably been painted. It had been tough enough to resist a sword cut. No conjecture could be given as to the date of the shield, but it must have been of great antiquity, and the finest specimen found in Great Britain.

At the conclusion of the paper Sir Wm. Wilde was loudly applauded.

After a few remarks from other members, Rev. Dr. Haughton observed that, when he first heard of the shield, and its peculiar formation, he considered it resembled some fossils he was acquainted with, which were deeply imbedded in turf when discovered. The shield being also deeply imbedded in a bog there was naturally an uneven pressure above it, and it was resting on an uneven substance. He felt satisfied that the shield was distorted by pressure, and he felt sure that no savage would fight with it in its present shape, and he was of opinion also that it had been circular.

The paper was referred to the Council for publication.

Sir Wm. R. Wilde also read a paper "On the Shrine of St. Mauchan." He exhibited the ancient shrine, which had been at the Dublin Exhibition, and also at those of London and Kensington, where it had excited much interest, on account of its artistic excellence, which he would on another occasion describe minutely. He produced a model of the shrine, having summoned a jury for the purpose of considering how they could complete one. The jury consisted of Dr. Peirie, Dr. Todd, the President, Mr. West, and Mr. McCarthy; and to the best of his ability, with their assistance, he now exhibited a restoration, which he uncovered amid loud applause.

The *Mechanics' Magazine*, Sept. 5, speaking of Benson's Watches, says:—"The number of watches produced at Ladgate-hill is something enormous, touching 15,000 yearly, manufactured on the most approved principle of division of labour, under the personal superintendence of the principal. The firm, as we understand, does not profess to make watches at the lowest price, but the best watches at the price; and from the magnitude of their business, and the necessity for more extensive premises, we may fairly judge that they have received the impress of public approval." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15.—33, and 34, Ladgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

#### ROYAL DUBLIN SOCIETY.

At a scientific meeting of the members of the Royal Dublin Society, on Monday evening, 21st ult.

JOHN LOCKE, Esq., in the chair,

Mr. H. O'Hara, C.E., read a paper "On the Supply of Fuel in Ireland." He stated that the fuels consumed in Ireland were native peat chiefly, coal, and culm, together with imported coals in large quantities. Fuel was a necessary of social life, and was essential for manufacturing purposes. The price of fuel was so high in this country that it was considered as one of the obstacles standing in the way of successfully establishing manufactures. A manufacturer in Dublin would have to pay £2,100 a-year for a quantity of coal which in Glasgow could be obtained for £900. A bonus was, therefore, held out to the manufacturers of Glasgow. It was a question often asked, why the coal mines of Ireland were not more extensively worked than they had been hitherto, or are at present? But the answer was, that the collieries of the country were worked as extensively as the circumstances of the place permitted, and in the neighbourhood of these places coal might be obtained as cheaply and in as large quantities as in the most favoured localities of Scotland and England, but the cost of carriage was the cause of the increase in the price of Irish coal. If all the collieries of Ireland sent their produce to Dublin, from 25s. to 30s. would be the range of the prices of coal. The best quality of Irish coal was dearer at the mouth of the mine than coal of a corresponding quality in the English collieries. The reason of that was that the Irish seams of coal were much thinner than those in the sister country, and consequently the cost of working them was much greater. About 2,000 tons of coals were sent to the metropolis from the various collieries of Ireland annually. The Irish Parliament, before the Union, made strenuous efforts to stimulate the working of the collieries of the country, and for the encouragement of that object they gave a bounty of 2s. a ton upon Irish coal carried coastwise, and imposed a duty of 10d. a ton on British fuel, but there was now no coasting trade in this commodity. In 1821 a duty was imposed of 1s. 7d. per ton on Irish coal brought per coast to Dublin, and that trade was soon put an end to. In 1825 the duties on the cross-Channel trade were abolished, and since that time no means existed of ascertaining the relative proportions of exported and imported coals, and there was now a large cross-Channel trade in coal imported from England. The area of the coal in the British Islands amounted to 12,000 square miles, 2,900 of which were in Ireland. The English collieries produced last year 72,331,114 tons; the Scotch, 11,081,000 tons; and those of Ireland amounted to 137,570 tons. The value of the coal raised and consumed in the United Kingdom amounted to £21,000,000 annually; and during last year 57,487 tons of imported coals were conveyed from the metropolis of Ireland to the interior of the country by the Grand Canal Company's boats, being an increase over the previous year, in which the quantity was 54,523 tons. The cost of conveying turf was 1½d. per ton per mile, being a higher rate than that charged for coal. He thought there could be an improvement in the process of making turf, but there was always a local prejudice of some sort to be overcome. Mr. Mallet, in a paper of some value, published in 1845, recommended a cheap and simple form of kiln, which several land proprietors had tried with success. But there was a still better process practised in a few districts by the poor, and which was the same as that used by the Dutch in making land turf. Having described the process referred to, he (Mr. O'Hara) said he had come to the following conclusions. First, that there is a great scarcity of timber in Ireland, which should be overcome by increasing the number of plantations. Secondly, that the quantity of peat in Ireland is enormous, but that the mode of preparing it for fuel, as practised by the peasantry, is extremely expensive and rude. Thirdly, that the coal mines of Ireland are far from being exhausted, that they are worked to a very large extent, and that from their present condition there is every prospect that increased supplies will be obtained from them; fourthly, that the proximity of the eastern coast of Ireland to the ports of England, from whence immense quantities of coal are shipped, and the low freights between these ports offer facilities of the most favourable character for the supply of Ireland with coals from the sister countries, and of competing successfully with the produce of the Irish mines. Fifthly, that the trade in coals between Great Britain and Ireland is now free from legislative restrictions, and that the competition between the produce of the two countries is purely of a commercial character, and that, owing to these circumstances, the inhabitants are abundantly supplied with the best kind of fuel at moderate charges. Sixthly, that in the immediate neighbourhood of many of the Irish collieries coal and culm are extremely cheap and abundant. In the neighbourhood of the bog turf is likewise most abundant, and at the principal seaports of Ireland every description of coal

**AERIAL LOCOMOTION.**—Mr. Weldon, formerly of *Weldon's Register*, has taken out a patent for flying, and is expected to be in a position very shortly to exhibit his invention at the Crystal Palace.

is regularly delivered by fleets of trading vessels. He would also make the following recommendations:—That, as the supply of fuel which may be obtained from the peat marshes is almost inexhaustible, and capable, when skilfully treated, of being rendered a most valuable addition to the national wealth, attention should be directed—first to the partial drainage of the bogs in localities where bog lands are numerous and of great extent; second, to the necessity and humanity of landed proprietors erecting the cheap and useful form of kiln for drying turf which was designed by the late Mr. Tredgold, and its introduction advocated by Mr. Mallett; thirdly, the encouragement and assistance of every person interested in the prosperity of the country to carry into effect such feasible and inexpensive plans for the compression of peat by machinery as are likely to prove successful; fourthly, the general introduction into populous localities of the Dutch method of making turf, by which an immense amount of employment may be afforded to women and children at nearly all seasons of the year, and the labour of men, which under the existing system of turf cutting is much wasted, economized. By this process, also, a better fuel may be produced, at less cost than at present.

Mr. Anderson, C.E., in the absence of Mr. Hodson, brought under the notice of the meeting a new method for the compression of peat. He was of opinion that any attempt to manufacture peat on an extensive scale was likely to prove abortive. Inventors had systematically neglected the difficulty of getting rid of the moisture, and artificial means of doing so would prove too expensive. It would take a ton of coal to remove nine tons of water, and before one ton of turf could be produced. Mr. Hodson had, however, hit on the happy idea that if the bog were cut up in deep drains, and the surface harrowed, it would dry very quickly, and that by pressing the peat into a tube by a ram for some time, the moisture would be got rid of, and the peat be formed in hard blocks. The result of several experiments was that ten tons of peat prepared in that manner would do as much work as six tons of peat prepared in that manner would do as much work as six tons of coal, and be as cheap as when coals realized 16s. 8d. per ton. If Mr. Hodson's plan were generally brought into use, the turf would outdo in time the coal. During the past seven years Mr. Hodson had contended with great difficulties in carrying on his experiments, and he now reaped his reward.

Mr. James Haughton, J.P., thought that if the facts brought before the meeting were generally known a great impetus would be given to the manufacture of peat in this country.

The Chairman testified to the value of peat as fuel, having used it as such in all parts of his house.

Dr. Steele, secretary, said that some years ago Professor Davy made a series of experiments with reference to the forming of iron into steel, and succeeded so well that in two hours he performed the operation, and some samples of the result were now in the Agricultural Hall of the Society.

After some observations from other members, a short discussion ensued.

#### THE WORKS AT BLACKFRIARS.

THE works in connection with the new branch of the Chatham and Dover Railway are being pushed forward with wonderful alacrity. It was only last May when Lord Sondes laid the foundation stone of the railway bridge; and it is proposed to open it for traffic in June or July next, a temporary station being fixed in Earl-street. The large offices of the Eagle and Norwich Insurance Companies are now demolished, and the work of demolition from Earl-street to the station of the Metropolitan Railway is proceeding rapidly. The railway bridge which will connect the goods station on the south side of the river with the station in Farringdon-street and Victoria-street will be a remarkable one, at least for solidity of workmanship. It is, as our readers are doubtless aware, designed by Mr. Cubitt and Mr. Turner, Sir S. Morton Peto, Mr. Betts and Mr. Crampson, being the contractors. Its length between the abutments is 99 ft., and its width 55 ft.—four lines of rails being laid down. The bridge will be carried at a uniform level of 32½ ft. above high water. The two shore abutments were built in wrought-iron caissons, and contain 223,000 cubic feet of solid masonry, the foundations being taken 30 ft. below the surface, and down into the London clay. From these abutments four piers carry the main girders across the river, the two spans at the shore ends being 169 ft. wide, the two next to these 194 ft. and the centre span of all 205 ft. This is the longest span, with one exception—the famous Britannia-bridge—that has been attempted in Great Britain.

The permanent way of the bridge being carried entirely on three immense lattice girders, each so-called pier, in reality, consists of three distinct structures or piers, one for each girder, which are built quite separate and independent of each other.

These single piers consist of columns of masonry built in circular caissons on wrought-iron tubes 18 ft. in diameter, and which are forced down never less than 30 ft., and sometimes as much as 40 ft. below the actual bed of the stream. On each of these columns of masonry, at 6 ft. above high water mark and springing from ornamental pediments, rise a group of four massive cast-iron columns, which united have a total diameter of 14 ft. These are joined together at their summits by a capital about 4 ft. high, making the total height of the columns from the masonry about 26 ft. The cast-iron columns are then built in solid with the hardest description of bricks laid in cement, and over all are built the wrought-iron main girders.

Each pier, therefore, consists of three distinct columns of stone surmounted by four distinct columns of iron. The caps of these four columns, by uniting them together, virtually make one column of them, and the transverse fastenings between the three piers in like manner unite their strength; and over all come the main longitudinal girders which carry the railway, stiffening the whole into one rigid piece, the ends only of each span being left free on rollers, to meet the contraction and expansion caused by variation of temperature.

The method adopted of sinking the great circular caissons was as follows:—Over the site of the intended column for the pier the traveller brings the first circular wrought-iron joint of the tube, which is 1 in. thick, 18 ft. diameter, 15 ft. long, and weighs 27 tons. It has a sharpe edge at the bottom, but a flat flange or rim at the top, for the next joint to be laid on it. This is lowered between four guiding piles to the bottom of the river, and the next joint, of the same weight and size, put over it, when the divers go down, and placing bands of vulcanised india-rubber between the rims or flanges, screw them both so firmly together as to be perfectly watertight. As the joints above are added one by one, the weight of the whole tube sinks it equally through the mud and gravel till it will go no further, when a new process commences. A steam pump, of Mr. Woodford's patent, pumps the water out of the tube in a single hour, when men go down and begin excavating the earth out of the tube, which goes lower and lower as they work, joint upon joint being added on above, as it sinks at the rate of 4 ft. a-day. When the increasing density of the London clay resists the weight of the tube, it is loaded equally all round its interior on wrought-iron ledges left for the purpose with masses of iron balast, which again take it lower and lower, till at last, when some 30 ft. into the London clay, no pressure above nor excavation below will move it more. One that had thus reached its bearings was weighted with 900 tons of rails at the top without getting it down half an inch. When so fixed, the iron tube is about 65 ft. long, reaching from high water to 30 ft. into the London clay. The last labour is then to excavate a circular chamber at the base of the tube some 2½ ft. in diameter, and 3 ft. deep, which is filled up with concrete, when the hardened bricks are laid in cement up to four feet below low-water mark, when the blocks of masonry begin. These blocks were originally obtained from the old bridge at Westminster. After being laid they are fastened together with brass cramps and dovetailed in, like the keystones of an arch, so as in strength to be equal to a single block of 18 ft. diameter and 4 ft. thick. All of the iron caisson that can be seen above low water is then removed, and the groups of iron columns built and fastened together. The girders are of wrought iron and on the lattice principle. They will be 16 ft. deep; but the centre one, as having to bear the transverse iron beams which unite it to the two outer girders, will be made of extra strength. The two outer ones will at each span be tested with a strain of 400 tons—the inner one up to 800 tons, and the weight of wrought iron used in the three will be no less than 3,500 tons. When the spans of the main girders join above the groups of columns their junctions will be concealed by massive ornamental castings, which will be relieved with gilt and colour. In the same style the termination of the girders at each end will be ornamented with massive castings.

The workmen on Friday last commenced erecting the enormous roof which will span the goods station. This station will be a great central depot for all the traffic that will be brought from the Great Northern by the connection of the Metropolitan Railway, and that coming from the south.

The old bridge at Blackfriars will be stopped, and the new temporary one opened, in a few more days. The Bridge House Estates' Committee have advertised for tenders for the removal of the old bridge and the erection of the new and elegant one, which is also designed by Mr. Cubitt, and these tenders will be opened on the 22nd of next month. The temporary bridge, which is both simple and strong, consists of two storeys. The lower one is 26 ft. wide, which is just the width of the roadway of the present Blackfriars-bridge. The upper storey, for

pedestrians only, is raised 16 ft. above the carriage roadway, and consists of two footways, each 9 ft. wide, being two feet more than the footways at the old bridge; this will allow more space for those who, during the day, will watch the progress of the works beneath.

The new bridge will be a vast improvement upon the old one. The width of the roadway of the new bridge will be 45 ft., and two pathways of 15 ft. each. The gradient will be about the same as at Westminster bridge—viz., 1 in 40 ft. It is to be built in five spans or arches, the two next the shore being of 155 ft. span each, the two next those, again, 175 ft. span, the centre arch having a stretch of 185 ft. These arches will be all of wrought iron; the piers on which they rest of Aberdeen and red polished granite, with ornamental cornices and capitals of Portland stone. From end to end the total length of the new bridge will be 1,170 ft.; its width extreme from point to point of piers, 130 ft.; its height from high water, 36½ ft. and from foundation to parapet, 81 ft. The waterway under the arches will be 845 ft., as compared with the present waterway of 769 ft.; its headway under the arches will be 25 ft., and though four feet lower in height than the present structure, it will double the accommodation to the river traffic under it, owing to the elliptical shape and somewhat flat crowns of its arches. The style of the whole is to be what is called Venetian Gothic. The two outside ribs of the ironwork that will be seen from the river will have open lattice spandrels of wrought iron, ornamented at their junctions with bold gilt flowers. The ribs beneath this will be in five joints, and similarly ornamented, but on a larger scale. In the centre of each arch will be hanging shields, gilt and emblazoned. Over the latticework will be a moulding, carried on concave brackets, enriched with broad graceful leaves of foliage, while above all will come the balustrade of the footways. It will be formed of an open arched of cast iron, each of the small columns which support it having foliated capitals of the most varied designs. Above these columns the cornice of the balustrade will be pierced in trefoils with a kind of moulded string course to resemble a sort of hand-rail above all. This balustrade will be 3½ ft. high. The spaces between the many separate ribs which go to form each arch will be built over with buckle-plates, and the usual bed of asphalt and stone-pitching pavement laid above all. With the stone work higher efforts are made at ornamental details. There are to be four stone piers, each 130 ft. long by 20½ ft. wide, and and 35 ft. high from Trinity level. The masonry used will be the blue gray granite of Aberdeen, red polished granite columns, with bases and capitals of carved white Portland stone. The piers will, like all bridge foundations of the present day, be built in wrought-iron caissons. Seven caissons will be required for each pier. These will be forced down to 20 ft. below the bed of river—into the London clay, in fact. When they can be got no lower they will be laid at the bottom with concrete, and built up inside till they are solid. It is not yet decided whether they are to be thus filled in with bricks or masonry. Four feet below low water the blocks of granite (all of great size) will be laid, and be continued up in the centre to where the iron arches rest; but on the external face of the pier, they will rise apparently to the level of the balustrade. On the end of each pier, and rising from a bold rich pediment of carved white stone, will be a column of polished red granite, 7 ft. in diameter and 12 ft. in height. This will be surmounted by a large capital of carved white stone; above these will be the ornamental parapet of white stone. The sectional area of all the girders has been designed to be about seven times stronger than any strain that can ever come upon it.

The Corporation of London have decided upon forming at both sides, and at both ends of the new bridge, a wide and noble flight of steps leading to the balustrades. These balustrades at either end will stop short and terminate in four bold massive pediments about 25 ft. high, somewhat similar to those which terminate the balustrades at London-bridge, but far more lofty in size and noble in proportion. They will be surmounted, as our readers know, with bronze statues, for four groups of which the Corporation granted £16,000. The cost of the whole work, including the temporary bridge, is only £265,000, which is, at the rate of £3 per foot super., only about 1s. a foot dearer than Westminster-bridge.—*Building News*.

INTERESTING TO INVENTORS.—The French Society for the Protection of Animals, taking into consideration the cruelty to which horses are exposed when drawing heavy loads of clay from ground excavated for building in various quarters of Paris, have offered a premium of 500fr. to the inventor of a machine, to be set in motion by steam or any other motive power, of which the application shall have been successfully made in any of the building yards of Paris.

## ON THE GROUPING OF MEDÆVAL BUTTRESSES AND PINNACLES.\*

DURING a sketching tour in England from 1852 till 1854 for the work on "Towers and Spires," I frequently noticed, amongst other beauties of the various buildings visited, the variety of suggestions afforded to the architect in the combination and grouping of the buttress and pinnacle, especially in their relation to the tower and spire, and the evident preconceived effect intended to be produced when viewed from below and at various distances; for in every example of note there appears to have been displayed the most accurate judgment and taste in the disposition of parts, with a view to the effect intended to be conveyed by the general composition.

Whether horizontal or vertical masses had to be considered, there certainly was no mere guessing as to what the ultimate result would be, whether it were the sturdy buttress, rising and creeping up, stage above stage, the extended stringcourse, cornice, parapet, battlement, the canopy and pinnacle, or any of their individual members or embellishments, in each and all of which a principle of unity of design, is almost as distinctly to be seen as in any of the more ancient systems of architecture; and the question very naturally arises as to what means the mediæval artists employed to insure such pleasing and perfect results. For it is evident from the comprehensiveness of design displayed in most of the larger examples that definite and well-understood rules were followed, and attended with greater success than could possibly have been the case by that of merely experimenting, piecemeal, during the progress of the work, and apparently more certain than those now practised; for how often do we find our day-dreams vanish with regard to the desired effect of a given portion of a design, when the work is executed and the pet object assumes its destined position, although the most careful study *on paper* had been bestowed upon it.

Whether the ancient builders confined themselves to delineating their designs beforehand to the extent now in vogue, or whether they resorted to modelling in relief? and if so, to what relative scale are still open questions, and it appears to me very doubtful whether anything less than the actual size, as well as the actual point or position from which an object was intended to be seen, could have produced with any degree of certainty the desired effect. We all know of many carefully studied designs, delineated geometrically, turning out in execution quite different to what was anticipated, especially if much broken up; and the only method now practised to arrive at anything like the truth is, I believe, that of studying a design in perspective, of which art the mediæval architects may possibly have availed themselves also. However this may be, the examples existing are sufficient evidence of the ability of their authors, and we now praise the modern architect who can cleverly copy or restore them.

To remind you of the great rapidity with which our national style was developed, you may remember that the Venerable Bede remarks, that "after the Romans left Britain, the natives built a wall of mud to protect themselves from the Picts and Scots, there being no workmen left sufficiently skilled to use stone;" yet in a few centuries afterwards, including the Saxon and Norman period, we find an entirely new and original style of architecture, and it is worthy of remembering that England produced the *first and last complete* building in the Pointed style.

In the Norman style there are fewer suggestions on the subject chosen than in any of those which followed it, but its singularity and grandeur render it well worth the most careful study, as it contains elements of the greatest importance, as well as from the interest which it claims from the fact of its being traceable in each of the succeeding styles; and although it does not exhibit that beauty and harmony of parts afterwards developed, it must be regarded to a great extent as the foundation stone, as it were, of our national architecture. The transept of Peterboro' and the nave of Durham Cathedrals, both works of the 11th century, are noteworthy examples.

In the Early English of the beginning of the 13th century appeared that beautiful member in ecclesiastical buildings—the spire, which naturally takes a very prominent place in the matter of grouping. As an example, the south-west spire of Peterboro' Cathedral comes pretty close upon that date. The spire, however, is of the decorated period of about the first quarter of the 14th century, upon an early English tower. Whether the low pyramidal roof of the Norman tower first suggested that elegant and important feature, or not, it seems to have led, along with other things, to the most rapid advance in the development of the style; and the great change, when compared with that which preceded it, is very marked. The greatest possible amount of lightness and grace showing itself in place of cumbrous heaviness, the vertical and

lofty in strong contrast with the low and horizontal in its high gables and roofs, its towering spire, lofty and far projecting buttresses, in place of the flat pilaster of the Norman, as well as the subordinate members, the slender shaft and the elongated window; and when the junction of the spire with the tower came to be considered, its great importance appears to have been seen at once, for I do not remember ever having observed in even the worst of the ancient examples that absurd and unsightly effect which is produced by thrusting, as it were, the spire through the horizontal lines of the tower, as though its base were on the ground, so frequently seen in modern examples. We, therefore, find, to a very remarkable extent, a variety of expedients resorted to with a view to obtain a pleasing outline at this particular point. In one case the angles of the tower may be simply splayed off to meet the sides of the spire. In another, as at St. Mary's, Stamford, or Ketton, the beautifully proportioned broach or spur, in others the broach and pinnacle, or the lower spire opening and broach, so proportioned as to produce the desired effect; and in some all these worked up into one composition.

This style became general in England, and continued until the end of Henry III.'s reign, and is doubly interesting from its marked character and great originality, when compared with any system of architecture which preceded it, as well as from the fact of its having attained perfect maturity in so short a time. Perhaps the best examples of it are to be seen at Ely, part of Salisbury, York, and Westminster, dating from about 1220 to 1245, when it gradually merged into the Decorated, which from the 13th to the 14th century appears to have taken the lead generally. In it some curious features are to be noticed bearing upon the matter in hand. Flying buttresses are more frequently used, and the vertical ones much more freely treated, both in plan and elevation, than in the last style, being often placed diagonally with the building instead of at right angles, much more elaborate in their details, and the various stages adorned with canopied niches. They were also carried up past the parapets and finished with profusely sculptured pinnacles, either elaborately grouped or used merely as terminations to the buttress. We may now observe also that the leading lines of the composition partake more of the triangular and pyramidal form, producing a wonderfully rich effect in the general appearance of the design. We may also notice that the sculptured foliage is less stiff and more natural, and the general enrichments, though much more profuse, can hardly be said to be overdone; and, as at St. Mary's, Oxford, or the south-west tower of Peterboro', we find the beautifully enriched niche filled with its appropriate figure, the traceried canopy, elaborately pierced parapet, and crocketed pinnacle, crowning the rising buttress, along with "many a gargoyles and many a hideous head"—all appear so harmonious and natural that the impression produced upon the mind is that seldom felt when gazing upon a modern work.

This lovely style appears to have prevailed chiefly in Lincolnshire, Northamptonshire, and Oxfordshire, and though less strikingly marked than its predecessor in its main features, is eminently beautiful in the perfection of its sculptural enrichments, and in that quality so essential in a design to which I have referred. It may also be said to have reached the highest point to which Pointed architecture is capable of attaining, being without the comparatively severe plainness of that of the 13th century, or the redundancy of ornament that gradually came in with the Perpendicular.

In two examples belonging to this period there are some points worthy of note. First, in that of the south-west tower of Peterborough cathedral, the clustered shafts at its angles are remarkable, occupying the position of rectangular buttresses, their boldness of effect and the beautiful proportions of the crowning canopies, rich in remarkably well-cut tracery and crochets; these canopies are square on plan, and set diagonally with the tower. The extraordinary height of the intermediate spire-like pinnacles, which are triangular on plan, having one face parallel to that of the spire, and rising over boldly-pierced openings seen well above the parapet line, together with the apparent littleness of the spire in reference to the tower, which is of very considerable height, are all points worthy of note.

The other example—the church of St. Mary the Virgin, Oxford—is nearly of the same date, but much more profuse in its enrichments. The tower buttresses are rectangular on plan, and of very massive proportions, rising boldly up to the top of an elaborately pierced parapet, and finished with very richly canopied niches filled with figures; the intermediate pinnacles, which rise more than half way up the spire, are also rectangular on plan, but placed diagonally in reference to the tower; the whole is exceedingly rich in carved work, and the characteristic Ball flower has been very freely used. The excessive plainness of the tower below and the spire above this clustering of

beauty at the junction of each is rather remarkable; it must be borne in mind, however, that the tower is not seen at even a moderate distance, being cut off by the building to which it belongs on the side next the street, and surrounded on all others by those of the College. The whole skill of its designers appears to have been confined to the junction of the tower with the spire, and it is, perhaps, the best example of grouping to be found of the Decorated period, and it may fairly be classed before either Lichfield or Salisbury, the spires of which are of the same date.

From the last quarter of the fourteenth to the beginning of the fifteenth century the Perpendicular style may be said to have prevailed. It is prominently marked by the great profusion of traceried panelling in surface decoration, extreme minuteness of detail, and a more general breaking up of the compositions; its peculiarities are also very visible in the window tracery, the mullions being continued above the springing, and subdivided both vertically and horizontally, and to such a degree does this tendency to divide and subdivide appear to have been carried that we commonly see a minute kind of battlemented enrichment used along the transoms of windows, and in other parts equally out of place; we also see it in a peculiar manner in the very elaborately pierced pinnacles in the Somersetshire churches, of which St. Mary's, Taunton, amongst many others, may be taken as an example, giving in some cases, the idea that the design should have been executed in iron instead of stone. We find in this style, however, much greater variety in the treatment and grouping of the buttress and pinnacle than in either of its predecessors, and the numerous examples existing afford an ample field, and an infinite variety for the study of the architect.

The builders of this period appear to have availed themselves of each and every mode adopted by those before them, not as mere copyists, but in order to blend and combine with their own manner whatever they deemed suitable; and although the square tower *alone* may now be said to have become general, the spire still remained a favourite, and in conjunction therewith we find some very interesting and apparently very original methods resorted to, to blend harmoniously the two together, and the clustering and grouping of the buttress and pinnacle with all that had gone before, whether it be the broach, parapet, battlement, or simple splay, have each a representative to claim our notice and admiration, along with the flying buttress, which now frequently appears to have been used as an ornamental feature only. We also very commonly find in the examples of this period the octagonal form surmounting the square tower, and introducing in perhaps the most agreeable way possible, the crowning member, the rising tapering spire. An example may be seen at Wilby, and a very peculiar and more elegant one in the church at Loughton-en-le-Morthen, in Yorkshire.

In the latter example the extraordinary way in which the octagonal portion is managed along with the arrangement of the buttresses, which rise and diminish so quaintly and cunningly till almost lost in slender pinnacles half way up the spire, cannot be too much admired, as it is, I think, a most suggestive example for a simple but graceful village spire, perhaps more so than others more generally known.

In closing this sketch I cannot, perhaps, do better than call your attention to what a very great master (though of a different school) must have thought of the mediæval artists, when he actually condescended to copy more than one of their works, I refer to St. Michaels, Cornhill, evidently copied from St. Mary Magdalen, Oxford, and St. Dunstan's, confessedly taken from St. Michael's, Newcastle-upon-Tyne, both very inferior, however, to the original; but more especially to the fact that several of Sir C. Wren's steeples of the classic school bear a very strong resemblance in the outlines of the towers and spires to some of those of the mediæval periods, so much so that if we imagine a line commencing at the top of the spire, and taking in its downward course every point of detail as seen against the sky, until lost in the upright lines of the tower, the figure produced would be almost identical with some of the best of the Gothic examples. This may be tested by drawings of St. Mary-le-Bow, St. Bride's, or St. Vedast's, and several others.

## AFTERNOON LECTURES, 1864.

"Our Public and Domestic Architecture" will form the subject for the fourth lecture of the course for this year, and will be delivered by Samuel Ferguson, Esq., Q.C., a gentleman well known in the literary world. We are sure the subject will be treated in a masterly style. The lectures are to be delivered on Wednesday afternoons in April and May, commencing on the 6th inst. in the Theatre of the Museum of Irish Industry, St. Stephen's Green.

\* By E. Trevor Owen, Esq. Read at meeting of Royal Institute of the Architects of Ireland.



J. Hyatt Archt., Dublin.

ST JOSEPH'S SCHOOLS & CONVENT, — CAVAN

Marlow lith

# The Dublin Builder



*J. Ryan Arch<sup>t</sup>, Dublin.*

## ON THE GLACIAL EPOCH.\*

AMONGST the circumstances that have profoundly influenced the present physical condition of our earth, the action of ancient glaciers upon a scale of almost inconceivable magnitude has been gradually but irresistibly forcing itself upon the notice of the philosophers since their attention was first called to it by Venetz and Esmark. There are few elevated regions in any quarter of the globe which do not exhibit indubitable evidence of the characteristic grinding and polishing action of ice masses, although at present, perhaps, they are scarcely streaked by the snows of winter. In our own country the researches of Buckland, and especially of Ramsay, have clearly shown that the Highlands of Scotland, the mountains of Wales and Cumberland, and the limestone crags of Yorkshire abound in these *roches moutonnées*, which leave no doubt that the valleys of those mountain ranges were once filled with glaciers of dimensions unsurpassed, if even equalled, by those which at the present day stream down the sides of their gigantic Swiss rivals. Nor was this perpetual ice of a former age confined to localities where no such phenomenon is now seen, but numerous observations have established that the glaciers of the present age existing in Switzerland, Norway, and elsewhere, are but the nearly dried up streamlets of ancient ice rivers of enormous size. These glaciers have eroded the Alpine valleys, of which they once held possession, have carved out the lochs and kyles of Scotland, as well as the grander fjords of Norway, and have contributed in a most essential manner to the present aspect of our mountain scenery. Ramsay and Tyndall have recently called attention to this action of ancient glaciers, and have contended, with considerable plausibility, the former that the lake basins, the latter, that the valleys of the Alps have been thus, in a great part, scooped out. In no part of the world, perhaps, can the phenomenon of the glacial epoch be more advantageously studied than in Norway, where the ice-scarred coasts and fjords are still fully exposed to the eye of the observer, side by side with the ocean which furnished the crystalline material that formerly covered them. Two thousand miles of coast, from Christiana to the North Cape, afford almost uninterrupted evidence of the vast ice operations which during the epoch in question moulded nearly every feature of this remarkable country. Starting from Christiana the traveller cannot fail to remark the peculiar appearance of the gneiss and granite rocks composing the coast, as well as the innumerable islands which, forming a great natural breakwater, protect the shore from the heavy seas rolling in from the Atlantic. These rocks, here rarely rising to the height of 800 ft. or 900 ft., present nothing of that sharp and rugged outline which generally characterises such formations. On the contrary, they are smoothed even to their summits, all their angles worn off, and every trace of boldness and asperity effaced. To the casual and unconstructed observer the action of the sea suggests itself as a sufficient cause of these appearances; but it does not require much scrutiny to be convinced that the ocean waves have had little to do with this smoothing and polishing of the coast, since it is the surfaces sloping towards the land that are most acted upon, while in some places, where the rock descends precipitously towards the sea, and is subject to the dash of the waves, it has been protected from the abrading action, and presents merely a weathered surface.

Rounding the promontory of the Naze, and proceeding northward, the coast presents, with slight exceptions, the same general features until the Arctic circle is approached, when the character of the scenery rather suddenly changes. The rocky hills acquire the dignity of mountains, and tower up in rugged, sharp, and fantastic peaks, contrasting strongly with the rounded summits of the lower latitudes. But these arctic peaks owe their immunity from the abrading action of ice solely to their height; around their bases, and even high up their sides, the slow surges of the moving glacial sea have made their unmistakable marks—grinding and even undercutting them into most extraordinary forms, as fine instances of which may be mentioned the Seven Sisters, and Torgatten, with its singular tunnel, just south of the Arctic circle; the Horseman, standing on the circle; and the mountains of the Foiden and Vestfjords, north of it; the latter having been justly described by the Rev. R. Everest as resembling the jaws of an immense shark.†

To account for the advent and subsequent disappearance of such vast masses of ice various hypotheses have been propounded. It has been suggested that the temperature of space is not uniform,

and that our solar system, in performing its proper motion among the stars, sometimes passes through regions of comparatively low temperature; according to this hypothesis, the glacial epoch occurred during the passage of our system through such a cold portion of space. Some have imagined that the heat emitted by the sun is subject to variation, and that the glacial epoch happened during what may be termed a cold solar period. Others, again, believe that a different distribution of land and water would render the climate of certain localities colder than it is at present, and would thus sufficiently account for the phenomena of the glacial epoch. Finally, Professor Kamtz considers that at the time of the glacial period the mountains were much higher than at present—Mount Blanc 20,000 ft. for instance—the secondary and tertiary formations having been since eroded by their summits.

The two last assumptions are attended with formidable geological difficulties, especially when it is considered that the phenomena of the epoch in question extended over the entire surface of the globe; they have therefore never acquired more than a very partial acceptance. With regard to the two first-named hypotheses, my colleague, Professor Tyndall, has recently shown that they are founded upon an entirely erroneous conception of the conditions necessary to the phenomena sought to be explained. The formation of glaciers is a true process of distillation, requiring heat as much as cold for its due performance. The produce of a still would be diminished, not increased, by an absolute reduction of temperature. A greater differentiation of temperature is what is required to stimulate the operation into greater activity. Professor Tyndall does not suggest any cause for such exalted differentiation during the glacial epoch; but he proves conclusively that both hypotheses, besides being totally unsupported by cosmical facts, are not only incompetent to constitute such a cause, but also assume a condition of things which would cut off the glaciers at their source, by diminishing the evaporation upon which their existence essentially depends.

The speaker divided the great natural glacial apparatus into three parts, viz., the evaporator, the condenser, and the receiver. The part performed by the ocean as the evaporator is too obvious to need description. The two remaining portions of the apparatus, however, are generally confounded with each other. The mountains are in reality the receivers or icebearers, and are only in a subordinate sense condensers. The true condenser is the dry air of the upper region of the atmosphere, which permits of the free radiation into space of the heat from aqueous vapour.\*

All the hypotheses hitherto propounded having therefore failed, in the light of recent research, to account for the conditions which brought about the glacial epoch, the speaker felt less reluctance in advancing a new theory, which had gradually elaborated itself out of the impressions he had received during a recent visit to Norway. Any such theory must take cognizance of the following points in the history of the glacial epoch. 1st. That its effects were felt over the entire globe. 2nd. That it occurred at a geologically recent period. 3rd. That it was preceded by a period of indefinite duration, in which glacial action was either altogether wanting, or was at least comparatively insignificant. 4th. That during its continuance atmospheric precipitation was much greater, and the height of the snow-line considerably less than at present. 5th. That it was followed by a period extending to the present time, when glacial action became again insignificant.

All these conditions he believed to be the natural sequences of the gradual secular cooling of the surface of our globe. The sole cause of the phenomena of the glacial epoch was a higher temperature of the ocean than that which obtains at present.

He then examined the grounds upon which this hypothesis is based. Numerous observations of the augmentation of temperature, at increasing depths from the surface of the earth, no longer leave room for doubt that the vast mass of materials constituting the interior of our globe is at the present moment at a temperature far higher than that of the surface. If this be so, the conclusion is almost inevitable, that at earlier periods of the earth's history this high temperature must, at all events at depths comparatively little removed from the surface, have been still higher, and that consequently the temperature of the surface itself must in former ages have been much more influenced by the internal heat than is the case at the present day.

\* This radiation from aqueous vapour was experimentally shown by causing a jet of dry steam to pass in front of, and at a distance of two feet from a thermo-electric pile; the galvanometer connected with the latter promptly showed a large deflection for heat, proving that the pile was receiving radiant heat from the aqueous vapour. A jet of air heated in the same manner and projected in front of the pile produced no such effect.

Tracing thus back the thermal history of our earth, it is conceivable that the waters of the ocean once existed as aqueous vapour in our atmosphere—a condition which it is imagined obtains at the present day in Jupiter, Venus, and other planets, whose superior size or closer proximity to the sun may be supposed to have retarded the refrigeration of their surfaces. From the period, therefore, when the cooling of the earth's crust permitted the ocean to assume the liquid condition, its waters have gradually cooled from the boiling point down to the present temperature, while the land has also undergone a similar process of refrigeration. It was during the latter stages of this cooling operation that the glacial epoch occurred. For this assumption, however it is necessary to establish that the rate of cooling of the land and of the ocean surfaces was unequal, otherwise the more rapid evaporation of the ocean due to increased temperature would be more or less neutralized by the impaired efficiency of the proportionately warm icebearers. The speaker then proceeded to describe the results of his numerous experiments, which conclusively proved that, under the conditions contemplated, the land would cool more rapidly than the sea. This effect is brought about principally by two causes, viz., the great specific heat of water compared with granite and other rocks, and the comparative facility with which radiant heat escapes from granite through moist air. The amounts of heat associated with equal weights of water and granite are as 5 to 1 in favour of the former, or if equal volumes be taken, the water requires to lose twice as much heat as the granite, in order to cool through the same number of degrees; but it is in regard to the escape of radiant heat from their surfaces that the superior retention of warmth by the oceanic waters is most strongly marked. The readiness with which radiant heat escapes from equal surfaces of water and granite at the same temperature, through perfectly dry air, is nearly equal; but so soon as aqueous vapour is interposed in the path of these rays, the conditions become wonderfully altered; the escape of heat from both is interrupted, but its radiation from the water is retarded in by far the greatest degree. This extraordinary intrascendency of aqueous vapour to rays issuing from water has just been conclusively proved in the physical laboratory of this institution, by researches made by Professor Tyndall and not yet published. The difference between granite and water arising from this cause becomes vastly augmented when it is considered that the ice-bearing surfaces occupy an elevated position above the level of the sea, consequently the mantle of aqueous vapour which their radiant heat had to penetrate must have been much more attenuated than the comparatively dense shell lying between them and the surface of the ocean. Thus the obscure rays of heat streamed into space from the ice-bearing surfaces with comparatively little interruption, while the radiation for the sea was as effectually retarded as if the latter had been protected with a thick envelope of non-conducting material.

Whether we take into consideration, therefore, the conductivity of water and granite, their specific heats, or, finally, the respective facilities with which they can, under the cosmical conditions contemplated, throw off their heat into space, we find everywhere a state of things tending much more to the conservation of the heat of the water than to the retention of that of the land; and this, of course, applies also, *mutatis mutandis*, to the retention of that heat which is received from solar radiation. The luminous heat-rays of the sun pass freely through aqueous vapour, and are absorbed by both granitic and oceanic surfaces, but, once absorbed, these rays issue forth again as obscure heat of two different qualities or rates of vibration. To use Tyndall's beautiful explanation of the phenomenon, the vibration of the liquid water molecules are of such rapidity as can be best taken up and absorbed by the same molecules in the vaporous condition. But granite is a very complex substance, and fewer of the heat oscillations of its atoms are in unison with those of aqueous vapour; hence the heat vibrations of granite disturb the molecules of aqueous vapour in their passage through the atmosphere in a less degree, and consequently the granitic rays are less absorbed.

Thus, while the ocean retained a temperature considerably higher than at present, the icebearers had undergone a considerably greater refrigeration. The evaporation from the ocean would, therefore, at the period contemplated, be greater than it is at present, while the capabilities of the icebearers, as such, would not be perceptibly less. Moreover, it is evident that, during the whole of the cooling period, the ocean must have been receiving heat from its floor, and thus have acted as a carrier of warmth from the comparatively profound portions of the earth's crust to the oceanic surface. It thus resembled a mass of water contained in an evaporating basin, placed over a very slow and gradually declining

\* Paper read by E. Frankland, Esq., F.R.S., at meeting of Royal Institution of Great Britain.

† The speaker was greatly indebted to his friend, B. F. Duppu, Esq., for beautiful coloured drawings of these remarkable objects, taken from the sketches of Prof. James D. Forbes and Mr. Mattou Williams.

fire. Under such conditions its cooling was protracted through a vast period, allowing sufficient time, between a temperature inimical to animal life and the commencement of the glacial epoch, to permit of the development and decay of these forms of animal life which existed in the pre-glacial seas.

(To be continued.)

### WROUGHT IRON GIRDERS UNDER A MOVING LOAD.

THERE are probably few of the structural applications of a wrought-iron girder in which it is not subject to a moving load. In the form of a bridge girder, or perhaps built into one of the new massive warehouses, or as a cross beam of a heavy travelling crane, a wrought iron girder has to undergo stresses varying in amount, but necessarily accompanied with the vibrations due to moving loads, and generally with the absolute application of intensity always caused by a suddenly-applied chain. Confining ourselves, at any rate for the present, to an experimental and practical consideration of the behaviour of a wrought-iron girder under a moving load, we find that the best engineering practice appears to generally make the proof strength of wrought iron from twice to three times its usual working strain; while the ultimate strength is often made as much as from four to six times the working strain.

In an interesting paper read last month before the Royal Society, Mr. Fairbairn objects to the Board of Trade limit, for wrought iron railway bridges, of five tons per square inch sectional area. It is well known that a compressive strain of 4 tons to 4½ tons is generally held to correspond to a tensile strain for wrought iron of 5 tons. The Board of Trade applies this limit to both the top and bottom chords of a wrought iron girder; and, as Mr. Fairbairn says, "It is even possible so to disproporportion the top and bottom areas of a wrought iron girder calculated to support six times the working load, as to cause it to yield with little more than half the ultimate strain, or 10 tons on the square inch. For example, in wrought iron girders with solid tops, it requires the sectional area in the top to be nearly double that of the bottom, to equalise the two forces of tension and compression; and unless these proportions are strictly adhered to in the construction, the five-ton strain per square inch is a fallacy which may lead to dangerous errors." It will be remembered that many years ago Mr. Fairbairn showed that actually more than 20 per cent. of the strength of the iron is destroyed by the mere process of punching the rivet-holes—an injury to the tenacity of the iron, quite independent of and additional to the loss in the metal punched out. This is the reason that Mr. Hawkshaw had all the rivet-holes of the plates for the new Claring-cross Bridge drilled out by a multiple utilising machine, first brought forward some years ago by Mr. Cochrane, lately deceased, a partner in the eminent firm who contracted for the bridge. The very varying quality of merchant wrought iron is another element of uncertainty, as many plates are made and sold which have not more than 1½ tons per square inch ultimate strength. "Again," says Mr. Fairbairn, "it was ascertained from direct experiment that double the quantity of material in the top of a wrought iron girder was not the most effective form for resisting compression. On the contrary, it was found that little more than half the sectional area of the top, when converted into rectangular cells, was equivalent in its powers of resistance to double the area when formed of a solid top plate." The weight of the structure itself—increasing with the cubes, while the strength increases only as the squares—is also disregarded by the Board of Trade rule; and, continues Mr. Fairbairn, "we are not informed whether the breaking weight is to be so many times the applied weight *plus* the multiple of the load; or in other words, whether it includes or is exclusive of the weight of the bridge itself." It is, besides, the case that this requirement of 5 tons per square inch also applies to the chains of a suspension bridge, which as their strength is not diminished by being bent into an elliptical link, often have the full average strength of good wrought iron of some 25 tons per square inch. It may be remarked with regard to chain cables, or chains formed with a cross stay in the centre to prevent collapse, that the Admiralty proof for these is 11.46 tons per square inch, although a large per-centage of the ultimate strength—sometimes estimated at about one-fourth—is lost in forming the cable bar into links.

Taking into consideration much of what we do know of iron at present, and also of what we do not know, we feel inclined to disagree with Mr. Fairbairn, in his unqualified condemnation of the Board of Trade rule. Of course it is an arbitrary rule. But such rules must always be arbitrary. Besides so much of our knowledge of irons is yet in a provi-

sional state, that the present rule is probably the best for the present time. Quality of iron and quality of workmanship are evidently such varying quantities, that it would scarcely be safe to take them into general consideration. So many things, indeed, are yet undetermined about wrought iron, besides its varying quality—no two bars or two parts of a bar being ever alike—that the Board of Trade rule may be considered as being, on the whole very just. Take, for instance, the effect of vibration on iron. Mr. John A. Roebding, the engineer of the Niagara Suspension-bridge, is stated by Mr. Zerah Colburn to have made some experiments, that very markedly showed the influence of vibration in determining a permanent set. Bars reduced by the hammer to ¾-inch square at the centre showed a breaking weight of 33 tons to the square inch. They "bore a strain of 20½ tons per square inch without visibly stretching; and when no jar was given to the bars, they would support this strain for a week. Upon any vibration, however the bars immediately took a permanent set." At the same time, it must be remembered that these bars were reduced by the hammer only at the centre of their length, and that the elongation would take place at merely a portion of the whole length. The exact effect of a low temperature on the elastic limit and the breaking strength of iron, is another point upon which we are unprovided with sufficient data. There exists a vague but very general impression amongst practical men that iron becomes more brittle in cold weather, and the general observation that the elasticity of most substances decreases with the temperature would seem to strengthen this view. We do not know of any systematic published experiments on this interesting question as to the influence of frost on the ultimate strength of iron, beyond one made upon a ¾-inch bar by Mr. Kirkaldy in the month of December, 1860. The bar, "Glasgow B Best," was cut up into ten bolts, "six of which were exposed all night to intense frost, and tested in the morning with the thermometer at 23 deg. Fahr. The other four were kept in a warm place, and carefully protected during testing. Three were tested with gradual, and seven with sudden strains." It is interesting to observe from the figures given by Mr. Kirkaldy, that "when the strain was gradually applied there was very little difference between the specimen tested in the ordinary condition and the two that were frozen: the former bore 55,717 lb., and the latter 54,385 lb.; difference, 1,332 lb., or 2.3 per cent. less." The difference under sudden strains was somewhat greater, being 3.6 per cent. less than when frozen. It is a pity that Mr. Kirkaldy was prevented following this particular train of investigations; the more so, as all the ten pieces were taken from the same bar, while at the same time, the bar itself was of a superior quality, and it is natural to expect that a coarser kind would have shown a still greater difference. It is not improbable to suppose, as a deduction from Mr. Kirkaldy's experiments and from general experience, that the ultimate breaking strength of iron may not be affected by frost but rather its elasticity—the iron becomes more brittle. The usual periodical increase of railway accidents, whenever there is a frost of long continuance, is at any rate noticeable. Experiment has shown that the ultimate tenacity of wrought iron is greater at 32 deg. Fahr. than 212 deg.; while at 390 deg., according to Mr. Fairbairn, its tenacity is greater than at 32 deg. Fahr.

The experiments described in the paper read last month before the Royal Society, and upon which Mr. Fairbairn appears to have founded his objections to the Board of Trade rule, are continuations of a similar investigation conducted some years ago. In 1861 Mr. Fairbairn read an important paper to the British Association, in which he gave some of the results of a series of experiments made to ascertain the effect of a moving load on a plate-iron girder. The large model he employed withstood one million applications of a load equal to one-fourth of its breaking weight, but the same model broke down after 5,175 applications of a load equal to one-half of the breaking weight. After repairing it the model withstood 25,000 applications of two-fifths of its breaking weight, and afterwards three million applications of one-third of its breaking weight without again breaking down. The tables shown by Mr. Fairbairn did not, however, give any account of the deflection or of the permanent set. These omissions are supplied in the paper read before the Royal Society. The author stated that "he has endeavoured to ascertain the extent to which a bridge or girder of wrought iron may be strained without injury to its ultimate powers of resistance, or the exact amount of load to which a bridge may be subjected without endangering its safety." The apparatus intended to carry out the experiments was made so as to first lower the load quickly down upon the beam, and then to produce a large amount of vibration.

This plate-girder had a (calculated) breaking weight of 12 tons, and weighed 7 cwt. 3 qrs. Its area at the top was 4.30 square inches, at bottom 2.40 inches; the area of the vertical web was 1.90 inches, its depth 16 inches, its total sectional area being 8.60 inches. The beam was first loaded with 6,643 lbs.—one-fourth of its calculated ultimate breaking weight, under a steady load—but this load was worked up and down on the beam about half a million of times, extending over a period of two months, night and day, and at the rate of about eight changes per minute. The deflection produced was at first 0.17 inch, and this afterwards seems to have diminished to 0.16 inch, but no permanent set was produced. The load was then increased from one-fourth to two-sevenths of the statical breaking weight, nearly 3½ tons, and the number of changes also increased to a million. The deflection was 0.22 inch, after nearly 91,000 changes of load, an amount that afterwards fell to 0.21 inch, and then rose to 0.23 inch, after the beam had undergone 1,000,000 changes of load. The load was then increased "to 10,486 lb., or two-fifths of the breaking weight, and the machinery was again set in motion. With this additional weight the deflections were increased, with a permanent set of 0.5 inch, from 0.23 inch to 0.35 inch, and after sustaining 5,175 changes, the beam broke by tension at a short distance from the middle." It is interesting to notice that none of the rivets were either loosened or broken. The beam was repaired by replacing the angle-irons on each side, and by riveting a patch over the broken plate equal in area to the plate itself. The experiments were then continued with a weight of three tons (or one-fourth of the statical breaking weight), and were carried on as before. After the repairs the beam sustained no less than upwards of 3,000,000 changes of load, with a deflection varying from 0.22 to 0.17 inch, and with an ultimate permanent set of only 0.01 inch. Assuming that the beam could bear to an indefinite time alternate changes of this kind with the three tons as above, the load was increased to four tons—one-third of the breaking weight. The deflection was thereby increased to 0.20 inch; no permanent set was produced, but after about 300,000 alternate changes of one-third the breaking weight (4 tons), the beam "broke by tension across the bottom," a short distance from the centre of the beam, and close to the plate riveted over the previous fracture.

From these experiments Mr. Fairbairn deduces that "wrought iron girders of ordinary construction are not safe when submitted to violent disturbances equivalent to one-third the weight that would break them—with a steady load. It will, however, have been seen that, according to Mr. Fairbairn's experiments, a plate girder shows a wonderful tenacity when undergoing the same treatment with one-fourth of this load; and assuming, therefore, that an iron girder bridge will bear with this load 12,000,000 changes without injury, it is clear that it would require 328 years, at the rate of 100 changes per day, before its security was effected." To risk a load of one-third of the breaking weight upon plate bridges would, Mr. Fairbairn considers, be dangerous, as according to the last experiment, the beam broke with 313,000 changes, equivalent to a period of eight years, at the rate of 100 changes per day. He appears to ascribe the rapid breaking down of the girder in the last experiment to a previous gradual deterioration of the beam through the three millions of changes to which it was subjected under the moving load of one-fourth of the breaking weight. It will thus be seen that Mr. Fairbairn considers one-fourth of the statical breaking weight as a safe moving load for a wrought iron plate girder, or that the factor of safety giving the ratio in which the ultimate strength should exceed the working strain should be four—a ratio which in practice he would probably be inclined to increase by one-half.—*Builder*.

**SUBSTITUTE FOR GUTTA PERCHA.**—At a late meeting of the French Academy of Sciences, M. Serres gave an account of the *balata*, a shrub which abounds in Guiana, and affords a juice, which he asserts is superior, for many purposes, to gutta percha, but especially as an insulating material for enveloping telegraphic wires. The milk or juice is drinkable, and used by the natives with coffee. It coagulates quickly when exposed to the air, and almost immediately when precipitated by alcohol, which also dissolves the resin of the *balata* juice. All the articles made with gutta percha can be made with the sap of the *balata*, and it has no disagreeable smell. When worked up it becomes as supple as cloth, and more flexible than gutta percha. M. Serres exhibited a number of articles manufactured of *balata* milk. Up to the present time it seems, from M. Serres's account, not to have become an article of commercial export.

# ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A CONVERSAZIONE was held on Tuesday evening in the Antient Concert Rooms, Great Brunswick-street, by the president and members of the Royal Institute of the Architects of Ireland. The entire suite of rooms was devoted to that purpose, each room being brilliantly lighted and profusely decorated. The band of the 10th Royal Hussars was stationed in the Concert Room, in which apartment splendid specimens of tapestry were suspended from the galleries, and a choice collection of architectural photographs was also exhibited. The long room adjoining was laid out throughout its length in tables, at which tea, coffee, cakes, &c., were liberally supplied. There were here exhibited some splendid specimens of porcelain, wall decorations, and ornamental furniture. The large room upstairs was converted into a complete picture-gallery, in which were to be seen some of the best designs of Messrs. Lanyon and Lynn, Mr. M'Curdy, Mr. Jones, and many other eminent architects. Amongst those chiefly worthy of notice were the design for Carlisle Bridge, by Messrs. Page and Turner, to which the first place of merit was lately awarded; that of Messrs. Lanyon and Lynn, which obtained second place—a handsome and highly-ornamental iron arch; also the very elaborate and beautiful design of Mr. Lynn, which was unfortunately excluded from the competition owing to non-compliance with the rules prescribed by the committee. It was a magnificent stone bridge, profusely ornamented, and exhibiting in the centre a statue of the Prince Consort. Amongst others there were particularly to be noticed the Marine Hotel for Kingstown, St. Andrew's Church, Dublin, the New Union Bank, College-green, and two splendid designs for the Dublin Winter Palace. Messrs. Hodges, of Westmoreland-street, exhibited a specimen of electric bells, such as are now used extensively in the hotels in Paris. On pressing a button a bell is made to ring, and continues to do so as long as the button is held down, and at the same time a number rises up, indicating the room from which the call proceeds. The effect is produced by a galvanic battery placed underneath, contact being joined by the pressure of the button. His Excellency arrived shortly after ten o'clock, attended by Mr. Hatchell, private secretary, and Captain Cockerell, A.D.C., and was received by the President, Mr. J. H. Owen, hon. sec., and other members of the Institute, and remained for some time inspecting the various specimens of artistic design, with which he appeared much pleased. Amongst those present were:—

Mr. William C. Murray, Mr. J. Rawson Carroll, Mr. and Mrs. C. Geoghegan, Mr. and Mrs. Perrin, Mr. James A. Gardiner, Mr. P. J. Moran and Mrs. and Miss M'Guinness, Mr. and Mrs. W. B. Jukes and Miss Meredith, Mr. H. P. Ritton, Mr. B. T. Patterson, J. E. Rogers, Mr. M. Kendrick, R.H.A.; Mr. Lynn, Mr. and Mrs. Owen, Mr. and Mrs. Hugh Byrne, Mr. and Mrs. G. J. Stoney, Mr. John and Mrs. Hogan, Mr. and Mrs. G. F. Mulvany, Mr. Wm. Mulrennin, R.H.A.; Mr. and Mrs. Ball Green, Mr. C. Orpen, Mr. Charles Lanauze, Mr. J. P. J. Byrne and Miss Lawless, Mr. and Mrs. Keatinge Clay and Miss Clay, Mr. Charles Grey, R.H.A.; Mr. S. Sharpe, R.H.A., Mr. and Mrs. John Carolin and the Misses Carolin; Mr. C. Mulvany, Mr. Meade, Mr. Joseph Meade, Mr. and Mrs. George Carolin, Mr. E. H. and Mrs. Kinahan and party; Mr. John Faulkner, R.H.A.; Mr. James Nagle, Mr. and Mrs. J. M'Curdy, Mr. Dobbyn, Mr. and Mrs. John Lanyon, Mr. Barre, Mr. Peter Roe, &c.

## Public and Private Works.

The trustees of the Bethel Episcopal Church, Kingstown, after a careful examination of the designs submitted by various architects for the rebuilding of the church, have awarded the first premium to Mr. William Hague, jun., of Great Brunswick-street; the second to Mr. William Fogerty, of Harcourt-street; and the third to Mr. John C. Burne, of Harcourt-street. There were sixteen competitors in all. The mottoes are—1st. *Gulielmi Bedelii*, prize £20; 2nd. *Toujours pret*, prize £10; 3rd. *A Masonic Square and Compass*, prize £10. It is much to be regretted that an opportunity is not afforded of seeing the successful designs, many of which were most carefully got up, and possess great merit. The plans selected are for a building 81 feet long in the clear, and capable of affording accommodation to about 1,300 people. We hope to publish a full report of the designs in our next publication.

A neat villa residence, called Priory Lodge, has just been completed at Avoca-avenue, Blackrock, for Thomas Martin, Esq., from the designs of Mr. William Fogerty, architect, of Harcourt-street; Mr. Gregory Murphy, of Williamstown, contractor. The cost of the works has been about £1,000.

A new dwelling-house of very neat design is at present in course of erection at the end of Main-street, Ballinasloe. It consists of four storeys in height, including basement. The principal storey is finished in rock-faced ashlar work, with chiseled dressings. The entrance porch is of cut stone of massive appearance, supporting a piazza. The different storeys are to be divided by intermediate string-courses of Portland cement, inlaid with Mosaic work. The third and fourth storeys are to be finished in Portland cement, with architraves and entablature to the windows. The whole will be surmounted by a deeply recessed eave, with modillion cornice. The roof is hipped, and when finished will present a very handsome and imposing appearance to the town. The architect is Mr. J. F. Kempster, and the contractors Messrs. Clark and Seale.

A new lodge is about to be erected by the Right Hon. the Earl of Clancarty, Garbally, on the north side of the demesne. The style is partly Italian, after designs by the same architect. Mr. Seal contractor.

Extensive works are in progress at Lismany, the property of Allan Pollok, Esq. The works comprise a large and extensive farm-yard and offices. The contractor is Mr. Patrick Cody, of Lauretstown, who has lately completed several additions to Lismany House, under the direction and superintendence of the same architect as for the foregoing works, Mr. J. F. Kempster.

## Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

3, Douegall-place Building,  
Belfast, March 17, 1864.

SIR,—In your notice of the competition for the Belfast Bank, your correspondent has mentioned Mr. Hamilton, of Glasgow, as one of the competitors, this is a mistake; the name of our firm is Hamilton and Stirrat, Glasgow and Belfast, and are the firm meant. By correcting the mistake you will oblige  
HAMILTON AND STIRRAT.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—In reference to the O'Connell National Monument, would it not be satisfactory to all parties concerned in its welfare if the committee advertise for plans open to all Irish architects and artists, &c., giving £200 for the best and most approved design, and £150 for the second best, and then to give the execution of the statue to an eminent Irish sculptor, and the other parts in connection with same and monument, to an eminent Irish builder?

A SUBSCRIBER.

## RAILWAY INTELLIGENCE.

**RAILWAY FROM DOUGLAS TO PEEL.**—The prospectus of a company bearing the name of "The Isle of Man Railway Company (limited)," has lately been published. The names of Samuel Gibson Getty, Esq., M.P., of Belfast, and William M'Cormick, Esq., M.P., of Londonderry, appear as directors, with Mr. Hemans as engineer. The capital is £100,000, in shares of £10 each. The line will be single, its length about 12 miles, and it is stated that the gradients will be easy, and that its construction will present no engineering difficulties. The island is very rich, both in agricultural and mineral products; its fisheries are extensive, and there is an abundant supply of seaweed, which is much valued as a manure. There are also large slate and granite quarries; the land carriage, however, is at present tedious and expensive, and is a serious obstacle to the advantages derivable from the produce of the island. It is considered that when this is removed by railway communication a new era will be opened in the progress of its internal traffic, and that the profits derivable both from goods and from passengers and tourists will be such as to guarantee a good dividend upon the capital invested.

**MIDLAND GREAT WESTERN.**—The thirty-seventh half-yearly meeting of the shareholders of this company was held at the Terminus, Broadstone, on the 17th ult., John Ennis, M.P., in the chair. The secretary read the advertisement convening the meeting and the seal of the company having been affixed to the registry of shareholders, the following report of the directors was then read:—The half-yearly statement of accounts which accompanies this report, exhibits the following results, as compared with the corresponding period of last year:—The receipts from passengers and mails are, 1863, £50,552; 1862, £44,489. Goods, cattle, &c., 1863, £45,707; 1862, £41,110, showing an increase of 10,660, which, it is, right however to observe, is attributable to the extra mileage brought into operation by the opening of the Sligo extension. The receipts from the incorporated railway and canal are £114,002 0s. 11d.; disbursement, £63,830 14s. 4d. leaving £50,171 6s. 7d., which with the surplus from last half-year, £2,798 7s. 7d. leaves a disposable sum of £52,969

14s. 2d. available for dividend. From this amount the directors recommend that a dividend at the rate of  $4\frac{1}{2}$  per cent per annum shall be declared on the paid up capital of the company. This payment will absorb a sum of £48,502 13s. 9d., and will leave a balance to be carried forward of £4,467 0s. 5d.

**WATERFORD AND TRAMORE.**—The half-yearly meeting of the shareholders of this company was held on the 18th ult., at Waterford; Sir James Dombaine in the chair. The directors' report stated that the regular traffic of the line had improved, but the absence of income hitherto derived from races, the unusual wetness of the latter months of the past half year, and the depression in the agricultural interests, had had an injurious effect on the receipts. There was a balance of £325 in favour of revenue, after payment of interest on preference shares.

## THE CARMICHAEL SCHOOL OF MEDICINE.

The first stone of the new Carmichael School of Medicine was laid on Tuesday by his Excellency the Lord Lieutenant, in presence of a numerous and fashionable assemblage. The school will occupy a portion of the ground in front of the Hardwicke Hospital, North Brunswick-street.

His Excellency, who was accompanied by the Countess of Bessborough, Mr. John Hatchell, Private Secretary, Major Bagot, the Very Rev. the Dean of the Chapel Royal, Captain Cockerell and Mr. Donaldson, A.D.C.s-in-Waiting, arrived shortly after three o'clock, and was received by Dr. Robert Macdonnell, Dr. Curran, and Dr. Cruise, proprietors of the school, and conducted to a handsome pavilion erected for his reception.

Dr. Robert Macdonnell, having briefly apologized for the absence, through illness, of his senior colleague Dr. Mayne, read the following address:—

MAY IT PLEASE YOUR EXCELLENCY—Being the senior lecturer at the Old Carmichael School of Medicine, I have been deputed by Mrs. Carmichael and my colleagues to express to your Excellency our grateful acknowledgments for the high honour you have conferred upon us, in graciously consenting to lay the foundation stone of the New Carmichael School this day. By Mrs. Carmichael and by all of us your presence at this ceremonial is hailed as an auspicious omen of the success of an undertaking which we owe to the princely liberality of her late illustrious husband—Richard Carmichael. With your Excellency's permission, I shall state in a very few words the history of the enterprise which we are about to inaugurate. In the year 1826 three distinguished Dublin surgeons—two of them at that time connected with the hospitals of the House of Industry, but now, alas! no more; one of them still connected with the hospitals of the House of Industry, and, I rejoice to say, present amongst us this day—conceived the idea of founding a school of medicine in the immediate vicinity of the Richmond Surgical Hospital. They were led to this project from observing that the splendid hospitals of the House of Industry (in the midst of which we now stand) were not in those days as available for medical education as they ought to have been, from want of a sufficiently convenient medical school, in which the elementary branches of medicine, surgery, and the collateral sciences might be learned—the students who then frequented the Richmond Surgical Hospital being compelled to seek at distant parts of the city, and at a great sacrifice of time, instruction in those branches of medicine which can only be taught within the walls of a medical school. Richard Carmichael, Ephraim M'Dowell, and Robert Adams accordingly founded, at their own expense, in North Brunswick-street, yonder, the Richmond Hospital School of Medicine, and there (*mutato nomine*) it flourishes to the present day. It is scarcely necessary for me to say that the late Mr. Carmichael, having taken an active part in founding the Richmond Hospital School of Medicine, continued ever afterwards to be its most devoted friend and patron. Previous to the year 1840 he had already given a large sum of money to found the Carmichael prizes. These costly rewards of merit have been to the present day awarded annually, at the close of the medical session, to the best answerers in medicine, surgery, and the collateral sciences, and have largely contributed to the success of the school. It was the first attempt to introduce on a large scale the competitive system into the medical schools of Dublin, and it affords a signal proof of Mr. Carmichael's sagacity and foresight that he should have initiated a system which was afterwards adopted so extensively and with such excellent results in other departments. Almost the last act of Mr. Carmichael's life was to bequeath the munificent sum of £10,000 to rebuild the Richmond Hospital School of Medicine either on the old site or elsewhere, as might be considered most advisable. This bequest was to be contingent on the demise of Mrs. Carmichael. On the 8th of June, 1849, the medical profession in Ireland was suddenly deprived of one of its brightest ornaments—the medical science

lost a favourite son. The circumstances attending Mr. Carmichael's death are far too vividly impressed upon the minds of all who now hear me to need repetition. In the midst of health, and in the vigorous discharge of his professional duties, an accident removed from amongst us the noblest, the most magnificent, and the kindest-hearted of surgeons. From that day the Richmond Hospital School of Medicine has borne his name, as a memorial of the affection and esteem entertained by its proprietors for their lamented friend and benefactor. Some months since, Mrs. Carmichael, with a noble generosity, intimated to the proprietors of the Carmichael School that it was her intention to place Mr. Carmichael's bequest at their immediate disposal. In doing so she voluntarily deprives herself of a very considerable income, in order to carry out the most cherished wish of her heart—that of seeing with her own eyes her husband's intentions fulfilled. After much consideration it was decided that the site of the old Carmichael School was not the most eligible for the new school. The hospital committee, with a view to the mutual advantage of the hospitals of the House of Industry and of the Carmichael School, and in order to identify them as far as possible with each other, proposed to place this plot of ground at our disposal. The Board of Works with your Excellency's sanction, confirmed the proposal of the hospital committee, and Mrs. Carmichael at once assented. For the lecturers whom I have the honour to represent to-day, I have only further to say that the time and labour which they have hitherto devoted to the old Carmichael School shall henceforth be devoted with increased assiduity to the new Carmichael School, and that this noble educational establishment, worthy of the name and worthy of the fame of Richard Carmichael, shall never fail from any shortcomings on their part. On such a theme, were I to follow the bent of my own inclination, much more might be said; but the sentiment of the Roman poet forcibly occurs to me, and my classical friends will agree with me, and my fair friends will, I trust, pardon me for addressing you in his words:—

"Cum tot sustineas in publica commoda, peccem  
Si longo sermone morer tua tempora."

His Excellency returned the following reply:—

I have accepted most gratefully, and, indeed, with a deep sense of personal obligation, the invitation to lay the first stone of the new Carmichael School. It would be most superfluous here, in the heart of Dublin—in the immediate neighbourhood of the noble cluster of the surrounding hospitals—and, above all, in the presence of so many of his own associates, pupils, and admirers, to recur to the professional reputation, memorable achievements, or not less signal personal qualities, of Richard Carmichael. I would merely remark that there is a most appropriate and admirable consistency between the engrossing and devoted labours of his illustrious life, and that parting and posthumous bequest of which, by an act of this afternoon, we are about to realise the beneficent results. In drawing an omen from the past efficiency of the Richmond Hospital or old Carmichael School, it must be most gratifying to see the inaugural work on which we are now engaged graced by the presence of Mr. Adams, who was one of the original colleagues of Mr. Carmichael in founding the primary institution, and who has trod the same path of honour and usefulness. This brief address would be, indeed, most incomplete if it made no mention of her who had the most interest in the fame of her husband, and who has done more than all others to extend and perpetuate it, who, showing a wiser as well as a nobler love than the Carian Queen of old has not sought to raise over his cold remains her mausoleum in the dumb marble or lifeless statuary, but has caused him, though dead, still to speak in precious services to suffering humanity, still to live in the thanks and blessings of rescued multitudes.

His Excellency was then formally arrayed in a handsome apron, and presented with a silver trowel, manufactured by Messrs. West and Son, of College-green, which bore the following inscription:—"With this trowel the foundation-stone of the Carmichael School of Medicine was laid by George William Frederick Earl of Carlisle, Lord Lieutenant of Ireland, on the 29th March, 1864." On the reverse side were engraved the Carmichael arms, and underneath, "Presented to the Earl of Carlisle by R. Mayne, R. McDonnell, H. Curran, and F. R. Cruise, proprietors of the Carmichael School of Medicine."

The stone was then lowered to its bed, in which a bottle, containing a brief history of the school, was deposited, and his Excellency, after having in a scientific manner used the plumb-line, said:—"I declare this stone to be well and truly laid." His Excellency then called for "Three cheers for the new Carmichael School of Medicine," and the call was heartily responded to, as was a call on the part of the students for "A cheer for the Lord Lieutenant."

The architect, Mr. J. E. Rogers, has kindly favoured us with the following description of the building:—

The building, which owes its existence to the munifi-

cence of the late Surgeon Richard Carmichael, will contain, on the ground floor—the entrance hall, registrars' offices, lavatories, and water-closets for professors and students, anatomical theatre, 36ft. by 25ft.; reading-room for students, staircase, general museum, 50ft. by 21ft.; curator's private room, sitting and bed-room for porter, and stores. On the upper story are the dissecting-room over the museum, and of the same dimensions, a lecture-room for the demonstration of anatomy, chemical theatre, 18ft. by 25ft. laboratory, apparatus-room, museum of materia medica and resident's apartments. Under a portion of the building there will be a basement containing the injecting-room (to which the subjects will be brought by a back entrance), coal-cellar and ash-pit. A lift will raise the subjects from the injecting-room to the anatomical theatre on the ground floor, and to the demonstrator's and dissecting-room on the upper story, thus obviating the necessity of carrying them through the building according as they are required in different rooms. The stairs (which will be stone), will be supported by arcades resting on Bath stone columns, with carved capitals and moulded bases. Under the arcade will be placed (in accordance with the instructions contained in his will) the bust of the founder of the school, the late Surgeon Richard Carmichael. Over the staircase there will be an open timber roof with lantern light. The dissecting-room is at the rear of the building, and is placed on the upper story, in order to have the advantage of top as well as side light. The roof of this room will be open timber, with ample provision for ventilation, and the floor will be of Staffordshire tiles, supported on brick arches and iron girders; a down pipe will carry off the washings of the floor to the drain. The principal front will be faced with punched granite ashlar; window dressings Caen stone; all projecting strings, cornices, and hood moulds Portland. The windows on this front will have semi-circular heads, the discharging arches in granite and limestone alternately. The flanks and rear will be faced with black stone, with red brick window dressings; the funds at the disposal of the proprietors not allowing the granite face work to be carried round the building. Considerable difficulty has been experienced with the foundations, owing to the yielding nature of the ground; in some parts it has been found necessary to excavate to a depth of from 12ft. to 14ft. before a sufficiently solid substratum was arrived at. The total cost will be about £5,500, and the building will be handed over to the proprietors before the 1st day of October next. The architect to the building is Mr. J. E. Rogers, of 205, Great Brunswick-street, and the contractors are the well known firm of Gilbert Cockburn and Sons.

#### MEETING OF THE INSTITUTE.

A GENERAL meeting of the Royal Institute of the Architects of Ireland was held on Thursday evening, the 17th ult.:

CHAS. LANYON, R.I.A., President, in the chair.

There were present—Messrs. W. H. Lynn, E. H. Carson, E. P. Gribbon, J. Drew, J. Kelly, G. Wilkinson, V.P.; E. T. Owen, S. Symes, J. J. Lyons, J. Lanyon, J. S. Sloane, J. Birmingham, F. Nolan, P. J. Byrne, J. Bell, jun., C.E.; S. Swan, J. A. Adams, C. Papworth, F. V. Clarendon, W. Sterling, R. A. Gibbons, W. Doolin, W. Longfield, P. J. Byrne, jun.; J. Birmingham, jun.; P. J. Moran, F. Franklin, J. R. Carroll, W. Fogarty, and J. H. Owen, honorary secretary.

A paper was read by Mr. E. T. Owen, "On the Grouping of Mediæval Buttresses and Pinnacles," and which will be found on another page.

An interesting discussion followed, in which the President, Mr. Lynn, Mr. Carroll, and others took part.

Messrs. Samuel P. Close and Joseph Conolly were elected students of the Institute.

#### Miscellaneous.

A SUBSTITUTE FOR IVORY WANTED.—The well-known billiard-table makers, Messrs Phelan and Colander, of New York, announce their willingness to give 10,000 dols. for a suitable substitute for ivory, to be used in the manufacture of billiard balls. This statement appears in the *Tribune* of the 11th ult., and the prize is well worth striving for; it is not often that such a liberal reward is offered for the discovery of a new and useful material. The great cost of natural ivory at the present time, owing to the high rates of exchange and its scarcity in general, is sufficient to warrant extensive experiments; for should a substitute capable of being used for billiard-balls be found, it will not be confined to them, but will be available for a great variety of purposes. Years ago, when a substitute for leather was called for, a number of very good articles for certain purposes were brought forth, and we doubt not that, as in the case just mentioned, the artificial ivory will soon be forthcoming.

IRISH SLATE.—Active exertions are being made to have the slate quarries at the northern side of the county Dublin worked as soon as the proprietor of the estate arrives in Ireland, which is daily expected. The slates are stated to be, as regards colour and quality, equal to any.

MORNING AT POMPEII.—The dead city wakes not at dawn like the living, and, though it has now half divested itself of the ashy robe that has clothed it for many ages, the retreating night leaves it yet slumbering on its funeral couch. Tired to death, the tourists who saw it yesterday yet linger in their beds, and the morn that illumines the mummy city shines there upon no human face. Strange is it to see by her rosy and azure light this carcass of a city death-stricken in the midst of its pleasures, its labours, and its civilization, and which has not undergone the tardy dissolution of an ordinary ruin. You stand expecting that the masters of those perfect houses will come forward in their Greek or Roman dress; you listen for the rattle of the chariot whose track is still upon the pavement; you look for the traveller to re-enter the tavern where his cup has marked a ring upon the counter. We walk in the past as though we were dreaming of it; we glance at the corners of the streets, and there an inscription in red letters announces the spectral of the day. Only the day has gone by more than 1,700 years since!—

The *Standard*, in its description of Benson's Great Clock, says:—"A more splendid and exquisitely finished piece of mechanism we have never seen." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bed room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

DECORATIONS FOR THE SULTAN'S NEW PALACE.—A Paris letter in the *Independence* of Brussels says:—

"The Sultan is now having executed in Paris, by the most eminent sculptors, 24 animals—lions, tigers, elks, horses, and bulls—destined to ornament the gardens of the splendid palace which is being built at the Sweet Water. One of the most highly esteemed French merchants at Constantinople has been charged with this delicate mission. I yesterday visited the sculpture studios, and saw four lions and two tigers complete. The artists engaged are MM. Rouillard, Esler, Labruyère, Daumas, and Isidore Bonheur. M. Rouillard is charged with the direction of the whole order; M. Daumas executes two horses, and M. Bonheur two bulls. All the animals will be of natural size; 14 of them will be cast in bronze, and afterwards undergo a bath of gilding, and 10 will be in Carrara marble. There is a particularity attached to the production of the elk. Only one animal of the kind exists in France; it belongs to Baron de Rothschild, and it has been, therefore, necessary to apply to the illustrious banker for permission to visit it. That was graciously granted, and MM. Rouillard and Esler are about to proceed to the Château de Ferrières, where the elk is kept in an inclosed park."

BONELLI'S ELECTRIC TELEGRAPH COMPANY (LIMITED).—A prospectus has been issued for the increase of the capital of this company from £25,000 to £250,000. The peculiarities of Bonelli's system are, that by it messages are printed and transmitted direct from the instrument to its address without the intervention of a copy-right. Any number of messages can be repeated in an exceedingly brief space of time, and the ordinary message of twenty words will be transmitted for the charge of sixpence! This is to popularize the use of the telegraph, and we have no doubt that thousands will take advantage of the system, who are now deterred from using the telegraph in consequence of the many charges made for each message. The Bonelli telegraph can be worked with equal facility under the sea as on land, and we hope we shall have a branch office in Dublin when competition is required. This company has for some time most successfully worked its line between Manchester and Liverpool, and now desires to extend its operations to the whole of England.

The legacies left by the late Sir Wm. Brown, Bart., to the Liverpool charities amount to £4,050. The legacies are to be paid free of duty.

**CITY OFFICES COMPANY, (LIMITED).**—This is an undertaking which illustrates the extent of mercantile enterprise and enormous value of property in the city of London. It is proposed to purchase five sites of land, with the buildings now standing on them, in the most central situations in the great commercial capital of the world, near the Bank of England, and to erect blocks of premises to be fitted up after a uniform plan, and let for offices to first class merchants. The stipulated price to be paid for the whole is £365,000, or only £9 per square foot, which, though is seems a very large amount, is estimated as a moderate price compared with the sums which have recently been paid for other sites, some of which were sold at £37 a foot. If the investments in the latter case can yield a profit, as it is calculated they will, it is a very reasonable inference that this company will be able to realise a handsome dividend out of the rents. It is in connection with the Mercantile Credit Association and the Credit Foncier, and the capital purposed to be raised is £1,000,000, in 20,000 shares of £250.

**LAUNCH OF AN IRON SHIP AT CORK.**—To the magnificent fleet of iron vessels that has been turned out of the yard of the Cork Steamship Building Company may now be added the "Mooresfort." She is the largest iron sailing ship ever constructed in Cork, and is a perfect model of strength and endurance. She has been built for the firm of Moore & Co., Liverpool—one of the most extensively engaged English firms in the East Indian trade. She is intended exclusively for that branch of commerce. In her construction one object was paramount—that of giving her great stowage accommodation. In accomplishing this her builders have been most successful, while it may be truly said that her lines are such as will insure her to be a fast sailer. Her hull presents at its lower part a particularly square appearance above the bilge; but when she is deeply laden, in consequence of the fineness of her ends, her bulk will not be so apparent. The cut-water is in the clipper fashion, and her stern is round, and both give a general lightness to her lines. Her dimensions are as follows:—Length, 225 feet over all—204 feet long on her load water line; 34 ft. 8 in. in beam; depth of hold, 23 ft. 9 in. Her register tonnage is 1,200, but she will be able to carry 1,800 tons dead weight. She will be provided with three masts, the lower parts of which will be hollow cylinders of iron. Each mast will be square rigged. Her bowsprit will be of iron, but her topmasts will be constructed of steel. One of the improvements in the "Mooresfort" is that her windlasses, instead of being worked by direct action of handspikes, are set in motion by a capstan placed near the fore-castle, and which, by means of cog-wheels, works the windlass in a steady, continuous motion, and by this means a vast improvement is effected. At a quarter past five on Wednesday evening the 23rd, the shores were knocked away, the baptismal ceremony being performed by Miss Ryan, of Scarteen, county Limerick. The ship glided half the way into the river, and she stopped—the fact being, as we understand, that the launch ways yielded. An immense crowd assembled to witness the launch. A select party of ladies and gentlemen, including the Mayor, were entertained at a sumptuous *dejeuner* on board the Preussischer Adler after the attempted launch. Mr. Ebenezer Pike took the chair. We are happy to state that next evening she was successfully got off, and the launch completed.

**ROYAL NATIONAL LIFE-BOT INSTITUTION.**—From the report of this institution, presented at last annual meeting, we take the following extracts: Perhaps the most striking feature in the history of the institution during the past year was the large number of noble gits, in the shape of the cost of twelve new life-boats, which had been presented to it by philanthropic individuals. The committee had the gratification to know that the Lords of the Admiralty were taking steps to provide every man-of-war with an efficient life-boat. The committee proposed to build and place at some of the principal fishing stations model or standard insubmergible fishing-boats, from which, after sufficient trial, others might be built in the several localities; and thus a permanent improvement be established, which might lead to the saving of many lives on occasions of such boats being overtaken by gales of wind when at long distances from land. The number of wrecks during the past year was, as usual, very large, and the gales in October and December were perhaps the most destructive that ever visited the shores and seas of the British Isles. It was most gratifying to report that during the time these storms lasted, the life-boats were providentially the means of rescuing no less than 385 shipwrecked persons. With a shipping representing about sixty millions of tons, and 400,000 vessels which cleared outwards and entered inwards from British ports during the past year, a large number of shipwrecks had become almost a natural sequence. Since the formation of the institution, it had expended on life-boat establishments, nearly £100,000, and had

voted 82 gold and 738 silver medals for saving life, besides pecuniary awards, amounting together to £17,830. The expenditure of the institution in the year 1863, on its life-boat establishments, was £11,377 14s. 1d.; £1,351 6s. 4d. in rewards for services to shipwrecked crews; and £2,441 9s. 1d. for coxswains' salaries, and the quarterly practice of the boats' crews.

**ARCHAEOLOGICAL INSTITUTE.**—At a recent meeting of this Institute Mr. Albert Way communicated notes on discoveries of circular incised marking on rocks in Argyleshire and in Ireland.—The discovery of rock symbols was first announced at the annual meeting of the Institute in 1852, and since that time many inquirers, mainly stimulated by the Duke of Northumberland, have been engaged in investigating the origin and meaning of these strange glyphs of a remote period and unknown race. Their existence both in North Britain and in Ireland gives a fresh interest to the question. By the obliging courtesy of Mr. Richardson Smith, and of Mr. H. D. Graham, Mr. Albert Way was now enabled to lay before the meeting diagrams of numerous markings on rocks in Argyleshire; and by the kindness of the Rev. James Graves, a map was exhibited, which very clearly showed their general character and grouping. It appeared that, with slight exceptions, the Scottish figures are precisely similar to those examples that have been found in Northumberland.—Mr. Du Noyer and the Very Rev. Dean Graves, of Dublin, are making investigations in the South of Ireland, where markings have been discovered of exactly similar character.

**PETROLEUM OIL FOR COAL IN STEAMERS.**—A plan has been proposed for substituting petroleum oil for coal on board steamers. By experiments made here it has been proved that this oil will generate as much steam power in twenty-eight minutes as coal in an hour. Then there is a great saving of stowage, and an economy of expence by which it is asserted that 77,000 francs would be saved in one voyage across the Atlantic.

**TWO STORED RAILWAY CARRIAGES.**—The *Illustrated News* has an engraving of the new two-storied third-class carriages in use upon the Bombay, Baroda, and Central India railway. It was first tried in the early part of the year 1862, and has been found to be most popular with the natives as well as economical for the company. These carriages are constructed each to carry 120 passengers—viz., 70 in the lower story and 50 in the upper; whilst the ordinary carriages only carry 70 persons each. The importance of this will be understood by railway managers, especially for the traffic of a country where more than 95 per cent. of the travellers are third-class passengers. The roof of the first storey serves as the floor of the second. The seats are longitudinal instead of transverse, so that the sides of the carriage serve as backs to the seats; but there are also some seats down the centre.

**GUN COTTON.**—The Emperor, having heard of the great advantage to be derived from the use of the gun cotton prepared by Baron Lenck, of Wolfsberg, requested the learned professor to come to Paris to communicate to him the mode of its preparation. The Baron has arrived in Paris, and the Emperor is so well pleased with the invention, which promises to produce a great change in artillery practice, that he not only expressed his great satisfaction to the Baron, but further conferred on him the cross of Commander of the Legion of Honour, and presented to him a snuff-box set with diamonds and bearing his cipher.

**NEW WESLEYAN SCHOOL CHAPEL, NEWRY.**—A building for the double purposes of a day school and a chapel has been erected by the Wesleyans in William-street, at a cost of £220.

**BRITISH SOCIETY FOR THE ADVANCEMENT OF SCIENCE.**—The next annual meeting of above association will be held at Bath, commencing September 14th, under the presidency of Sir Charles Lyell, F.R.S.

**ANECDOTE OF RENNIE.**—Rennie, the eminent architect, who by his talents raised himself to a distinguished position, was once travelling in Scotland in a stage-coach. The axle-tree broke near a blacksmith's, and the son of Vulcan being out, Rennie himself lit the fire, and welded the axle in a masterly style. His fellow-passengers, who had been very communicative and friendly during the early part of the journey, now became very reserved, and the "respectables" especially held themselves aloof from the man who had so clearly revealed his calling by the manner in which he had mended the broken axle. Arriving at their journey's end for the day, the travellers separated. Mr. Rennie proceeded onwards to Eglinton Castle. Next morning, when sitting at breakfast with his noble host, a servant entered to say that a person outside desired to have a word with the Earl. "Show him in." The person entered, and he proved to be one of Mr. Rennie's fellow-travellers, whose surprise and confusion at finding the "blacksmith" of the preceding day breakfasting with my lord may be very easily imagined. The Earl was much amused with the story of the axle.

**SUBSIDY FOR A SHANNON PACKET STATION.**—At the last meeting of the Limerick Harbour Board James Spaight, Esq., J.P., in the chair, Mr. M. R. Ryan said,—"I beg to propose that as the steamers of the Transatlantic Company have discontinued plying from Galway to America, and as the subsidy granted to that company may be lost, we consider it important that the attention of the Irish members be directed to the subject, with a view of having the advantages of the Shannon for transatlantic purposes brought before Parliament and the directory of the Atlantic Company. I feel that we ought to hasten ourselves, now that the subsidy is lost to Galway. We have no impediment in our way to do the best we can to get it for the Shannon, which is, in every sense, most admirably adapted for it, with none of those great dangers to be encountered like the entrance to Galway bay. We could not do anything while Galway had it, for it was in Ireland, but now is our opportunity." The resolution of Mr. Ryan was put from the chair and unanimously adopted.

#### TO CORRESPONDENTS.

*We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.*

*Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.*

*All Communications respecting the DUBLIN BUILDER, should be addressed to Mr. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.*

#### RATE OF SUBSCRIPTION TO THE DUBLIN BUILDER.

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#### [ADVERTISEMENT.]

**AT a General Meeting of the REGULAR INCORPORATED and AMALGAMATED BODY of BRICK and STONELAYERS of the City of Dublin, held at their Institute, No. 49, Cuffe-street, April 6th, 1863:**

It was resolved—That henceforth the above Body do publish in the *General Advertiser*, and *Dublin Builder* a Monthly Report of the Names and Addresses of the Builders of this City and its vicinity who patronise this Body, for the information of Architects, Public Boards, Heads of Firms, and the Building Public; and, in order that they may not be duped by accepting estimates from parties assuming to employ first-class workmen, while they drag through their contracts with the waifs and strays, and impose them on the public for the regular men of the city, much to the prejudice of our long and well-earned reputation for ability and skill in our trade.

PATRICK HAND, Master.  
JOHN CUMMINS, } Stewards.  
JOSEPH O'TOOLE, }  
DENIS BYRNE, Secretary.

#### REPORT FOR THE WEEK ENDING 12TH MARCH, 1864.

Beardwood, James, 10, Westland-row.  
Bolton, Samuel H., 38, Richmond-street.  
Barker, J. and E., 27, Abbey-street.  
Breen, Stephen, 3, Lower Mayor-street.  
Boyce, J., Rathmines.  
Boyd, William, 97, Capel-street.  
Brophy, H. F., Harold's cross.  
Cockburn, Messrs., 179, Brunswick-street.  
Conolly, John, 30, Prince's street.  
Conolly, William, 39, Dominick-street.  
Doolin, William, 23, Westland-row.  
Donnelly, James, 89, Talbot-street.  
Doyle, Luke, 9, Temple-bar.  
Dempsey, John, 4, Peter-street.  
Dunne, Michael, 98, Amiens-street.  
Farrell, George, 12, Wentworth-place.  
Freeman, David, 15 Queen street.  
Freeman, James, Britian-street.  
Gahan, Matthew, Whitechurch.  
Grant, John, 16, Pembroke-street.  
Hogan, John, 11, Winetavern-street.  
Houston, Alexander, 20, Talbot-street.  
Hughes, John, North Strand.  
Hudson, George, 47, Capel-street.  
Hall, Thomas, and Son, 62, Harcourt-street.  
Kennedy, M., Marlborough-street.  
Lennon, P. and J., 17, Pembroke-street.  
Lawton, David, and Son, Seville-place.  
Lynch, Matthew, 34, Camden-street.  
Murphy and Son, 88, Amiens street.  
Moyers, George, 47, Richmond-street.  
Meade, Michael, 152, Brunswick-street.  
Mayers, Patrick, Conyngham road.  
Madden, Peter, 11, Whitefriar-street.  
Millard, Thomas, 68, Harcourt-street.  
McCormick, James, 90, Talbot-street.  
Murphy, Gregory, Williamstown.  
Nolan, John, 3, Meredyth-place.  
Nolan, J. J., 67, Townsend-street.  
Owens, Peter, 2, Store-street.  
Parker, Robert, 78, Marlborough-street.  
Poits, Patrick, Donnybrook.  
Whitacre, George, 75, Summer-hill.  
Wardrop and Son, Conyngham-road.  
Walsh, John, Mecklinburgh-street.

N.B.—If any omission in this report has been made, by notifying the same to the Secretary, at the Institute, it will be attended to in due form in the next report.

## Business Addresses.

**ROSS AND MURRAY,**  
Plumbers, Iron & Brass Founders, & Lead Merchants,  
92, MIDDLE ABBEY-STREET,  
DUBLIN.  
And DUNLOE-ST., BALLINASLOE.

**W. MAXWELL,**  
AGRICULTURAL ENGINEER AND ARCHITECT,  
BALLINASLOE

**JAMES LYNCH and Co.,** Bangor Slates,  
Fire Bricks, Tiles, Flue Linings, Sewer Pipes, and Bath  
Brick Merchants.  
Stores—53, HANOVER-STREET, EAST, DUBLIN.

**S. SHEPPARD'S**  
**MARBLE WORKS, MONUMENTS, CHIMNEY**  
PIECES, CUPS, VASES, &c., &c., and every description  
of Ornamental Work executed in Marble  
No. 28, LOWER ORMOND-QUAY.

**HENRY JAKES, CARVER,**  
6, UPPER ABBEY-STREET, DUBLIN.  
A quantity of Consoles and Block Letters constantly on  
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BUILDING SURVEYORS AND MEASURERS,  
199, GE. BRUNSWICK-STREET, DUBLIN.

**JOHN D'ARCY, MODELLER,**  
Ornamental Plasterer, Artist in Stucco,  
Scagliola, &c.,  
30, LR. DOMINICK-STREET, DUBLIN.

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Brassfounders & Plumbers' Furnishings.  
3, SWIFT'S ROW, DUBLIN.

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**WINDOW GLASS** for Dwelling Houses,  
Out-Offices, Conservatories, &c., with a large assort-  
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MAURICE BROOKS,  
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**UNION PLATE GLASS COMPANY.**  
The very beautiful article of Plate Glass, manufactured  
by this company, can be had at the price of the lowest in the  
market, shipped to any Port in Ireland.  
H. SIBTHORPE AND SON, Agents for Ireland,  
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**MANNIN'S Wholesale and Retail Drug,**  
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2, GREAT BRUNSWICK-STREET.  
(near D'Olier-street.)  
Cattle Medicine of all kinds.  
N.B.—Every article is warranted genuine, and at the lowest  
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**WINDOW GLASS.**—Every description of  
WINDOW GLASS, of superior manufacture, CRYSTAL,  
STAINED, ORNAMENTAL, CROWN SHEET, and PLATE.  
GLASS WAREHOUSE—3, ANGLESEA-STREET, DUBLIN,  
SALMON, RICE, & CO., PROPRIETORS.

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## PORTLAND CEMENT—Prices on Quay.

At DUBLIN, GLASGOW & DUNDEE, from 10s. the barrel.  
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" LONDON, DERRY, CARLISLE & WHITEHAVEN 10s. 9d. "  
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proper Workmen to lay them in any part of Ireland.  
Various specimens may be seen at their Warehouses.  
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**CHIMNEY PIECES**—in Italian, Belgian,  
Irish, and English Marble; Enamelled Slate, and Cast  
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CEMENT, SHEET, PLATE, and CROWN WINDOW GLASS,  
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cementitious and connecting powers for subaqueous Masonry,  
can be supplied by Rail or Water to any part of the Kingdom,  
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Lane and Lewis, Sculptors, of Birmingham, and late  
Foreman to Mr. H. Lane, begs to inform Architects and Build-  
ers that he executes, on the most liberal terms, Altars,  
Reredoses, Pulpits, Fonts, Chimneypieces, Tombs, Monuments,  
&c., in Marble and Stone at the lowest price compatible  
with good workmanship.

All Orders executed with promptness and personal attention

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**GLAZED SEWER PIPES** (Patent and  
Socket), and all Articles made of Fire-clay of superior  
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ROBERT BROWN.  
Also, DRAIN PIPES of all sizes for Field Drainage.  
Prices very moderate.

## Iron Founders, Plumbers, &amp;c.

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VOL. VI.—No. 104.

## THE ROUNDWOOD RESERVOIR.

**W**E publish, in another portion of our columns, an account of the visit of the Water Works Committee to the Roundwood Reservoir. The fearful catastrophe with which the town of Sheffield has been visited has made such vivid impression upon our own minds, that we are aroused to make every enquiry with regard to our own prospects of safety; and we trust that the lucid explanation of the works in operation at Roundwood which was given to the distinguished party who visited them on Monday last, by the Chairman of the Committee, Mr. Green, and Mr. Andrews, may be sufficient to allay all fears on the subject. Having in our last number weighed all the chances of safety and of danger which may exist, we have since had the pleasure of personally examining the works on the occasion of the visit in question, and by the courtesy of the Chairman and of the Superintendent we have gained such information as will enable us to draw a clear contrast between our own reservoir, situated far away in the bleak solitude of the mountains, and that which hurled destruction over the heads of the inhabitants of Sheffield. In the first place, as far as the safety of our own city is concerned, it is unnecessary to raise any question as to the stability of the Roundwood embankment; for were it to give way, the mass of waters would be carried far away down the valley through which the Vartry takes its course; and it has been shown that there are but eighteen houses that could be swept away by such a catastrophe. But laying aside such selfish considerations in a question where precious life and property are concerned, we will find that there is, in our case, little reason to dread such an occurrence. The close investigation which has been carried on at the inquest at Sheffield has elucidated facts which tend to show pretty clearly the origin of the accident; and although the engineers in their evidence have, through a natural indisposition to criminate members of their own profession, sought to veil its real cause in as much obscurity as possible, yet the jury have brought in a verdict of mismanagement, which the visit of Monday has shown will not be to be feared in our case. Numerous and conflicting accounts have reached us as to the construction of the Bradford embankment—that the slopes were too steep; that the earthwork was only loosely tipped, and not allowed time for consolidation; that the water was allowed to creep under the puddle; and lastly, what is most improbable, that a land-slip may have taken place. All this may be more or less true, but it had nothing to do with the real cause of failure; and it is shown pretty clearly that the proportions of the embankment, if not quite as massive as they might

have been, were sufficient to withstand at least four times the pressure to which they were subjected, and were conformable to the usual rule that is adopted in such cases. As at Roundwood, the Bradford reservoir was constructed by throwing an embankment across a valley, and two of its sides were thus formed of the natural ground. In a similar manner, also, the embankment had its puddle wall of ample thickness, its outlet pipe and channel for the by-wash. But in two features we find it remarkably different from ours; and it has appeared from the evidence of Mr. Rawlinson that these are precisely the two features which led to the catastrophe. In the first place, the main service-pipe was conducted directly through the embankment; and secondly, the outlet-pipes, for letting off the water in case of accident, were utterly inadequate for that purpose. To form a water-tight joining between the service-pipe and the material which surrounds it is the most difficult operation in the whole of the work, and one about which engineers are most undecided. If the pipe is carried through the embankment, it is liable to be bent or drawn, or the joints started by the tremendous pressure to which it is subjected; and the experience of eminent engineers has shown that puddle will not unite with the iron, so as to form a water-tight joint all round. This, it appears, was the real cause of the Bradford accident. If, on the other hand, it is passed through a culvert, to take off the superincumbent pressure, the difficulty of forming a water-tight joint is greater than before, and it becomes necessary to encircle it with a collar shield. Mr. Rawlinson recommends, first, that the pipe should be conducted, not through the embankment, but through a culvert resting on the natural ground; secondly, that it should be provided with a valve on the inside, so as to shut off the water when it may be necessary to inspect it, in addition to the usual valve at the outer end for washing the pipe. With regard to the outlet-pipe for letting off the water of the reservoir, we may add that, had it been of proper dimensions and easily workable, the ruined houses of Sheffield would be yet standing, and the fatal consequences of engineering negligence would not have to be deplored by many destitute sufferers. It appears that the engineers in charge of the reservoir became aware that the outburst was about to take place, and sought to let off the water, but in vain. As a last effort, an attempt was made to do so by blowing up the masonry of the by-wash, or overflow that carried off the surplus water, but it proved futile; and from the want of such a simple provision the engineer who planned the works was compelled to witness the destruction of a city along with the ruin of his own reputation.

We have much pleasure in testifying to the excellent workmanship, in addition to perfectness of design, which we have witnessed at Roundwood, forming a striking contrast to the unskilful and negligent execution which has been the cause of such a heavy misfortune in the sister country; although we feel that such testimony is almost uncalled for when

the works have passed the scrutiny of such eminent men as Mr. Bateman, Mr. Rawlinson, and many other engineers of high standing. The embankment, as far as it has been made, appears faultless in its construction; the puddle trench is carried down to the solid rock, and the greatest care appears to have been taken in the laying both of the puddle and of the earthwork, which is of such a nature as to be almost impervious to water in itself. The slopes next the water are closely pitched with granite, and the puddle wall is supported with a backing of earthwork capable of resisting forty times the greatest pressure that will be brought upon it. A road, which at present runs through the bottom of the intended reservoir, will be raised and carried over a portion of it on arches; a strong culvert has been built, through which to convey the outlet-pipe, and the masonry is of the most solid description. A tunnel of two and a-half miles in length is being constructed, and by the time it is finished the pipes will have been laid through nearly the whole of the destined line. The advantages which such an abundant supply of water will confer upon Dublin are inestimable, not only in cases of fire, but also more especially in the improvement of the sanitary condition of the city; for there is nothing so much needed in the poorer localities as a plentiful supply of pure water—in proof of which we need only refer to a most instructive treatise on "Public Health," which we have reviewed in another portion of our columns. In conclusion, we may observe, that although events will sometimes occur which are beyond the reach of human foresight, yet there can be no real cause to apprehend casualties in the case of our Waterworks, which, both in original design and in subsequent execution, are a masterpiece of talent and workmanship.

## THE DEBATE ON THE SCIENTIFIC INSTITUTIONS OF DUBLIN.

THE tedious procrastination and miserable parsimony which is exhibited by Government in all questions which concern the interest of this country, are a heavy drawback to Irish industry and enterprise. If it be shown that a light-ship placed beside a dangerous rock at the entrance of a harbour of first-class importance may be the means of saving life and valuable property, the answer is that it should be a local undertaking. If by the influence of main pressure a subsidy is granted to an Irish company, they are bound down by restrictions which are impossible to comply with. We are even furnished with an elaborate report to prove that harbours of refuge are quite unnecessary! It may be observed that there is nothing more to be deprecated than a wasteful expenditure of public money, and that it should never be granted unless an inquiry is first made as to the beneficial results likely to arise from the purpose to which it is devoted; but when thousands—we may say, even millions—are lavished recklessly upon experiments tending to the destruction, rather than the benefit of mankind, we may well feel a little jealous if we are grudging a small subsidy for the furtherance of industry and of social science.

There are in Dublin at present two institutions, both devoted to the promotion and advancement of scientific requirements, yet differing widely in the scientific paths which they follow, which receive material assistance from Government. There is room for two such institutions in a city as large as

ours, and in the metropolis of Ireland they are surely not too much to boast of. The Royal Dublin Society is now a time-honoured establishment, and is worthy of still more respect from the fact that it derives more support from its own members than from any extraneous assistance. Its efforts have been devoted to the promotion of many matters of social benefit, and especially to the improvement and promotion of the cause of agriculture. While doing so, however, scientific pursuits have not been overlooked, and great practical benefit has resulted from the instruction which it has liberally afforded, both in practical science and in the fine arts. It should be a matter of importance to a Government to encourage and foster such a useful institution, and it would be expected that when a small subsidy was asked for, for the erection of a new museum, such a reasonable request would be at once complied with. It is now three years since such a grant was solicited, and although not exactly receiving a refusal, it would appear that the Dublin Society are as far from receiving aid from Government for the completion of their museum as ever. A committee of inquiry was instituted in reply, in the year 1861, to consider the propriety of an amalgamation between the Dublin Society and the Museum of Irish Industry, which, along with other recommendations, was made a condition of the grant being given. Such an amalgamation, however, being distasteful to a majority of our citizens, on the ground that the two institutions were quite different in their character and pursuits, and a strong protest having been made against it, the matter was allowed to fall to the ground. Years passed over, and notwithstanding the repeated solicitations of the Society, representing that they were ready to adopt every condition which the Government might impose, the smallest pecuniary aid was not afforded for the desired object. And now, at length, a reply has been obtained, not that their request will be complied with, not even that their wishes will be favourably considered, but that a committee of inquiry will be instituted to investigate the same question that was raised three years ago. It is strange that the saving of a few pounds per annum should be made a matter of so much moment in Dublin, when money is actually lavished upon similar institutions in London, where, notwithstanding its immense superiority in size and population, it has been shewn that the attendance upon scientific lectures has been in our comparatively small city, double that of a similar establishment in London. The following statistics, which Mr. Gregory furnished, are of immense importance as shewing the value of our scientific institutions:—Cost of the Jermyn-street Institution, £6,387; ditto of the Museum of Irish Industry, Stephen's-green, £4,062; visitors to Jermyn-street in number, 24,151; to Stephen's-green, 28,842; attendance at lectures in Jermyn-street, 2,400; at Stephen's-green, 8,010.

Whether an amalgamation of the Dublin Society with the Museum of Irish Industry would be an advantageous move, is a question respecting which very conflicting opinions are entertained. It is urged by some that it is injudicious that two rival establishments should be maintained within such a short distance of one another, each with a separate staff of lecturers and professors, and that it would be attended with mutual advantage to effect a union of their resources. On the other hand, many maintain that the two Societies are pursuing courses so widely different that an amalgamation would be very inexpedient. Thus, they say that the former is devoted chiefly to the encouragement of agriculture and design, the latter to geology and industrial pursuits. It is not our object to discuss such a difficult question, but we might suggest that in the metropolis of Ireland there should really be room for two such institutions, and since their pursuits are so different, there should not be rivalry, but amity between them. But the real case under consideration as a source of complaint, is that the Dublin Society are in possession of a valuable collection of minerals and specimens, and a quantity of books sufficient to stock a library, and have no place to arrange them. They are at present

packed up and lost to public view, and it is for this purpose that they have solicited a moderate grant, in order to obtain for them some suitable accommodation. It does really look like mockery that in reply a solemn and formal committee should be instituted to take into consideration a totally different matter, and one which was looked on as long since settled, even when the Society have represented that their object is not in any way concerned with the question of amalgamation, and it casts a lasting shame on official bungling and procrastination that a bargaining should be entered into when they require only half the sum that has been given by one person, in a private capacity, for the restoration of a cathedral.

The facts of the case, and the way in which the question stands at present, are briefly as follows. In 1862 the Royal Dublin Society made an application to the Treasury for a sum of £10,000, with the view of placing the agricultural department on an efficient footing. In reply, an inquiry was instituted by a Royal Commission into the state of the scientific institutions of Dublin. The committee in their report made two recommendations; first, that some alterations should be made in the general council of the Royal Dublin Society; and secondly, on a principle of the most parsimonious economy, that the *Museum of Irish Industry should be abolished*, with the exception of two of its professorships, which were to be absorbed into the Dublin Society, which was also to receive its collections of mineralogy and palaeontology. This report naturally excited feelings of alarm and indignation in the city. Petitions were presented against such an act of wholesale annihilation, and such strong remonstrances were made, that the Government did not adopt the report.

No steps were taken towards supplying the Society with the grant which they required. They have since repeatedly urged that the museum is still in an unfinished state, that they are ready to comply with any conditions which the Government may impose, but that they take no interest in the question of amalgamation. And now, after three years of procrastination, another committee of inquiry is to be instituted, whose researches may be attended with as barren results as before. Some beneficent individual might haply supply the Society with the aid they stand so much in need of, but there is little hope that they will receive more than empty promises in sequel to the blundering investigations of official red-tapeism.

#### THE DUBLIN WATER-WORKS.

On Monday last the Water-works Committee of the Dublin Corporation, accompanied by about forty members of the Council, paid a visit of inspection to the Vartry Waterworks at Roundwood, about ten miles south of Bray. The party travelled from Dublin by the 10.30 a.m. train of the Dublin and Wexford Railway, arriving at Bray at 11.15. Thence they proceeded in carriages and cars by Newtown-mount-kennedy, to the scene of the day's inspection. The chief features of the water-works at Roundwood are a great storage reservoir, having an area of 409 acres, capable of holding, when filled, 2,482,310,483 gallons of water, or a 206 days' supply of 12,000,000 gallons daily; a vast embankment some 1,600 feet in length, greatest height 65 feet, the depth of water inside to be about 60 feet, and a covered conduit pipe and tunnel, together some three miles in length. From a relief tank at the end of the tunnel the water will flow through the great 33-inch main to the reservoir at Stillorgan, this main having an average falling gradient of 20 feet per mile; the level of the water in the Roundwood reservoir to be, when the works are completed, 692 feet above low water mark at Dublin. This main is even now very nearly all laid, and extends through Newtown-mount-kennedy, the Glen of the Downs road, by Hollybrook, beneath the Dargle, through Old Connaught, near Bray, thence to and along the line of the Dublin and Wexford Railway, and so on to Stillorgan; the distance traversed by the piping being about 17 miles, relief tanks breaking its continuity near the Glen of the Downs and at Rathmichael church. The gathering ground through which the river Vartry runs, from its source in the Sugar loaf and Djouce Mountains, is in extent

about 14,000 acres; the course of the stream from the mountains to the reservoir at Roundwood being about a distance of seven miles. The Corporation party, on ascending the hill behind Newtown called Collach Hill, stopped at the eastern end of the great tunnel just mentioned. This portion of the works has caused considerable delay in its construction, a very hard stone and unexpected quantities of water having been met with, requiring extensive appliances to overcome the difficulty. Indeed, in this tunnel alone some 20,000 gallons of water have to be removed daily by steam-power; this unexpected supply being stated as capable of adding many millions of gallons to the Dublin supply preserved in the reservoir. But about one-fourth of the tunnel has been completed, some 22 shafts having been already sunk in its construction. In consequence of the difficulty of this work, the contractor has been allowed a year's extension of time, which it is considered will be an advantage in permitting the great embankment, the second chief feature of the Roundwood works, to consolidate. A very minute inspection was on Monday made of this latter and most interesting section of the works. It is evidently being constructed in the most masterly manner. At its base it is about 500 feet in width, and about 22 feet at its apex. Along the latter a public road will be diverted when the works are completed. Through the entire length of this embankment a great puddle section is being laid down, the water face of this part being faced with granite, the outer face being simply grassed. Laterally beneath and through the middle of the embankment, a very capacious, and indeed architecturally handsome stone culvert has been formed, through which will start the supply for the Irish metropolis. An extensive by-wash has also been formed for the escape of surplus water, or for use in the event of a sudden overflow or accident. A deep cutting is also observed leading into the reservoir, which diverts an auxiliary stream into the great natural basin chiefly enclosed by the embankment described. Some 1,500 workmen are now employed at Roundwood, and, even with the increased time given to the contractors, it is expected that the water-works will be complete about the month of January in 1866. Their cost will be close on £280,000, the contract for the pipes alone being £10,000. The income derivable from the rates it is anticipated will be about £35,000 per annum. This visit of the Corporation has immediately followed an official inspection of the Government engineer, Mr. Bateman, who is understood to have pronounced most favourably of the works. The party reached Roundwood on Monday, at two p.m., and sat down in the lodge to a bountiful luncheon, Sir J. Gray, Mr. Philip Redmond, Mr. J. Butler, and Alderman Campbell being the members of the committee present; Sir W. Wilde, Mr. Neville, corporation engineer, Mr. Andrews, local engineer, Mr. Green, contractor, and about forty members of the Corporation being also present. Some one or two members of the Corporation, Mr. French and Mr. Whelan principally, expressed some disapprobation, the former securing some of the "puddling" for an analysis; but, truthfully speaking, the works at Roundwood appear most excellent, and very creditable, as far as they have progressed, to the contractor.

At seven o'clock the Corporation party and about eighty specially-invited guests sat down to a sumptuous banquet at Breslin's Royal Marine Hotel, provided by Mr. Barrington, T.C.

NEWTOWNBARRY.—R. W. Hall Dare, Esq. (for whom a large mansion is being erected at Newtownbarry, county Wexford), in acknowledgment of his satisfaction as to the progress of the works, and the manner in which the plans have been so far carried out, entertained the whole of the artisans and people employed thereon at a banquet on the 30th ult. One of the large rooms of the servants' apartments was decorated and fitted up for the occasion. In the absence of Hall Dare, Esq., the chair was ably filled by Percival Atkin, Esq. The usual loyal toasts having been given and responded to, that of "The lord of the soil" was enthusiastically received and honoured. "Messrs. Lanyon, Lynn, and Lanyon," coupled with that of "Mr. Gargan, the resident clerk of works," was next given. Mr. Gargan, in responding, thanked those present on the part of his employers, and expressed the pleasure he felt at seeing around him such a respectable array of tradesmen. To their skill was due the present satisfactory state of the works; he had long admired the anxiety displayed by them for the interests of their excellent employer, Mr. T. H. Carroll. The healths of the contractor and his manager having been responded to, the meetings separated, highly pleased with the entertainment of the evening.—*Communicated.*

NATIONAL GALLERY OF IRELAND.—The attendance of visitors during the week ending 9th April was 6,631. Total since the opening, 1st February, 78,290.

## ON THE GLACIAL EPOCH.\*

(Continued from page 60.)

THE rate of evaporation of water at different temperatures and under various circumstances was determined by Dalton, whose results are embodied in the following table. The evaporation took place in each case from a circular surface 6in. in diameter:—

Temp. F.	Evaporation per minute in calm.	Evaporation per minute in breeze.	Evaporation per minute in high wind.
deg.	Grains.	Grains.	Grains.
85	4.92	6.40	8.04
75	3.65	4.68	5.72
65	2.62	3.37	4.12
55	1.90	2.43	2.98
45	1.36	1.75	2.13
35	.95	1.12	1.49

We have no sufficient data to calculate the present mean temperature of the ocean; but in lat. 69 deg. 40 min., off the coast of Norway, at noon on a remarkably hot summer's day, Professor Forbes found the temperature to be 46.5 deg. Fah. The assumption of 40 deg. Fah., as the mean temperature off the coast of Norway, would, therefore, probably be in excess of the truth. Now, taking the mean of Dalton's results obtained at 35 deg. and 45 deg., and comparing it with the mean of his results at 55 deg. and 65 deg., it will be seen that an increase of 20 deg. in the temperature of the ocean off the coast of Norway would double the evaporation from a given surface. Such an increased evaporation, accompanied as it necessarily must be by a corresponding precipitation, would suffice to supply the higher portions of the land with that gigantic ice-burthen which groaned down the mountain slopes during the glacial epoch.

But would not the increased oceanic temperature tend to augment the mean temperature of the atmosphere even at considerable elevations, and thus raise the snow line and reduce the area of perpetual snow? In answering this question, the speaker showed that the limit of perpetual snow does not depend so much upon the mean temperature of the atmosphere at that particular elevation, as upon the amount of snow accumulating during the cold season. Under the equator, the mean temperature of the snow line is 35 deg., Fah.; in the Alps and Pyrenees, about 25 deg.; and in lat. 68 deg.; in Norway, it is only 21 deg. Thus the mean temperature of the snow line rises as we approach the equator, which means that the snow line itself descends below its normal height, owing principally to augmented oceanic evaporation accompanied by increased atmospheric precipitation. The deluges of rain which fall within the tropics far surpass the rainfall in the temperate and frigid zones, and doubtless the fall of snow upon intertropical mountains is proportionately great. The important influence which the amount of precipitation exercises upon the lower limit of perpetual snow is beautifully exemplified at the fine waterfall of Tysse Strenger, near the head of the Hardanger Fjord, and was first noticed by Mr. M. Williams. The spray from this fall, being frozen in winter, covers the valley for nearly half a mile with a stratum of snow and ice, so thick as to defy the solar rays of summer to melt it; thus lowering the snow line by more than 2,000ft. The speaker had also seen in the Sor Fjord, under similar abnormal conditions, a mass of snow lying in the month of August last within 10ft. of the level of the sea, although the normal snow line is there at least 4,500ft. above the sea level. That the height of the snow line is essentially dependent upon the amount of precipitation, and not upon mean temperature, is evident from a comparison of its height on the coast and in the interior of the Scandinavian peninsula, as given by Forbes in the following table, compiled partly from his own observations and partly from those of Von Buch, Naumann, and others:—

Latitude.	Height snow line in feet.		
	Coast.	Interior.	Difference.
deg.			
60	5,500	4,450	1,050
62	5,200	4,150	1,050
64	4,200	3,650	550
66	3,700	3,250	450
68	3,450	3,000	450
70	3,350	2,900	450

Thus, the difference between the height of the snow line near the coast, where, owing to the impact of the gulf stream, the winter is mild but the atmospheric precipitation great, and the interior, where the climate is severe but the air comparatively dry, amounts in some cases to as much as 1,050ft., or nearly one fourth of the total height.

Such is the depressing effect of greater precipitation as regards the limit of perpetual snow; nor must it be forgotten that copious precipitation is altogether incompatible with great summer heat. The incessantly clouded sky cuts off the solar rays, and moderates the summer temperature. It is a trite observation that a wet summer is always a cold one. The mean temperature of the land in contiguity with such extensive surfaces of snow could also not fail to be considerably reduced; for although the actual amount of heat in activity at the surface of the earth was greater during the glacial period than subsequently, yet the cold of winter became stored up in masses of falling snow, which in melting absorbed the heat of the succeeding summer, and thus reduced both the mean and summer temperature of the land, especially of such portions of it as were not situated greatly below the snow line. The common notion, therefore, that the glacial epoch was a cold one, is correct, although heat, not cold, was the cause of that epoch. This apparent paradox, that heat should be the cause of cold, finds its parallel in the ice-making machines that were in operation at the last Great Exhibition. In those machines, which produced from 2 to 12 tons of ice per ton of coal, the glacial produce was directly proportional to the amount of heat developed by the combustion of coal.

But it is evident that this lowering of the snow line by increased oceanic temperature could only occur within certain limits; for although the mean temperature of the snow line might rise from 21 deg., its present position in Norway, to 35 deg., its height under the equator, and perhaps even still higher, without any elevation of the snow line itself; yet a farther rise of mean temperature, which would result from a continued augmentation of oceanic heat, could not fail to elevate the snow line itself, and, eventually, to chase the last portions of snow even from the loftiest mountain peaks. A process the inverse of this has gone on in nature, leading gradually to the glacial epoch, and, eventually, to the present meteorological condition of our globe. While the ocean maintained a high temperature the snow line floated above the summits, possibly even of the most lofty mountains; but with the reduction of oceanic temperature it gradually descended, enveloping peak after peak in a perennial mantle until, during the glacial epoch, it attained its lowest depression, whence it again rose, owing to diminished evaporation, to its present position.

The speaker considered that, inasmuch as recent researches had rendered all previous hypotheses regarding the glacial epoch absolutely untenable, the one for which he now contended could not be said to come into antagonism with any other views. It also further commended itself by requiring the assumption of no natural convulsions or catastrophe, no vast or sudden upheavals or depressions, and no change in the thermal relations of our earth to the sun or to space. On the contrary, it insisted that the glacial epoch was normally and gradually evolved from a thermal condition of the interior of our globe, which could scarcely be said to be any longer the subject of controversy.

In conclusion, this hypothesis suggests the probability that the other bodies belonging to our solar system have either already passed through a similar epoch or are destined still to encounter it. With the exception of the polar ice of Mars, we have hitherto obtained no certain glimpse into the thermal or meteorological condition of the planets, neither is the physical state of their surfaces accessible to our best telescopes. It is otherwise, however, with the moon, whose distance is not too great to prevent the visibility of comparatively minute details. A careful observation of the lunar surface for more than a year with a silvered glass reflector of 7in. aperture, and of good defining power, had created in the speaker's mind an impression that our satellite had, like its primary, also passed through a glacial epoch, and that several and least of the valleys, rills, and streaks of the lunar surface were not improbably due to former glacial action. Notwithstanding the excellent definition of modern telescopes, it could not be expected that other than the most gigantic of the characteristic details of an ancient glacier bed would be rendered visible. Under favourable circumstances the terminable moraine of a glacier attains to enormous dimensions; and consequently, of all the marks of a glacial valley, this would be the one most likely to be first perceived. Two such terminal moraines, one of them a double one, appeared to him to be traceable upon the moon's surface. The first was situated near the termination of that remarkable streak which commences near the base of Tycho, and passing under the south-eastern wall of Bullialdus, into the ring of which it appears to cut, is gradually lost after passing crater 216 (Lubnietzky). Exactly opposite the last crater, and extending nearly across the streak in question, are two ridges forming the arcs of circles, whose centres are

not coincident, and whose external curvature is towards the north. Beyond the second ridge a talus slopes gradually down northwards to the general level of the lunar surface, the whole presenting an appearance reminding the observer of the concentric moraines of the Rhone glacier. The ridges are visible for the whole period during which that portion of the moon's surface is illuminated, but it is only about the third day after the first quarter and at the corresponding phase of the waning moon (when the sun's rays, falling nearly horizontally, throw the details of this part of the surface into strong relief) that these appearances suggest the explanation now offered.

The other ridge, answering to a terminal moraine, occurs at the northern extremity of that magnificent valley which runs past the eastern edge of Rheita. This ridge is nearly semicircular, and is considerably elevated, both above the northern termination of the valley and the general surface of the moon. It may be seen about four days after new and full moon, but the position of the observer, with regard to the lights and shadows, renders its appearance in the rays of the rising sun by far the most striking.

With regard to the probability of former glacial or even aqueous, agency on the surface of the moon, difficulties of an apparently very formidable character present themselves. There is not only now no evidence whatever of the presence of water in any one of its three forms at the lunar surface, but, on the contrary, all selenographic observations tend to prove its absence. Nevertheless, the idea of former aqueous agency in the moon is by no means new. It was entertained by Gruithuisen and others. But if water at one time existed on the surface of the moon, whither has it disappeared? If we assume, in accordance with the nebular hypothesis, that the portions of matter composing respectively the earth and the moon once possessed an equally elevated temperature, it almost necessarily follows that the moon, owing in the comparative smallness of its mass, would cool much more rapidly than the earth; for, while the volume of the moon is only about 1/49th, its surface is nearly 1/13th that of the earth.

This cooling of the mass of the moon must, according to all analogy, have been attended with contraction, which can scarcely be conceived as occurring without the development of a cavernous structure in the interior. Much of this cavernous structure would doubtless communicate, by means of fissures, with the surface, and thus there would be provided an internal receptacle for the ocean, from the depths of which even the burning sun of the long lunar day would be totally unable to dislodge more than traces of aqueous vapour. A globe of wax was exhibited which had been cast under water; it was highly cellular, and the water had been forced into the hollow spaces, completely filling them. Assuming the solid mass of the moon to contract on cooling at the same rate as granite, its refrigeration through only 180 deg. Fah. would create cellular space equal to nearly 14½ millions of cubic miles, which would be more than sufficient to engulf the whole of the lunar ocean, supposing it to bear the same proportion to the mass of the moon as our own ocean bears to that of the earth.

If such be the present condition of the moon, we can scarcely avoid the conclusion that a liquid ocean can only exist upon the surface of a planet so long as the latter retains a high internal temperature. The moon then becomes to us a prophetic picture of the ultimate fate which awaits our earth, when, deprived of an external ocean, and of all but an annual rotation upon its axis, it shall revolve round the sun and arid and lifeless wilderness—one hemisphere exposed to the perpetual glare of a cloudless sun, the other shrouded in eternal night.

## THOUGHTS AND SUGGESTIONS ON THE ARTISTIC EDUCATION OF ARCHITECTS.

(Continued from page 56.)

ONE more word on architecture proper.

One of the most glaring defects in the works of English architects of the present day (I do not of course, refer to those of the better class) is the evidence they afford of the want of eye. This defect is destructive to numbers of works which would otherwise possess some merit. You continually see a window or other feature not badly conceived, but rendered utterly offensive by some glaring discord in the proportion of its parts. This clearly results from simple inability to perceive—I will not say the niceties, but, the very first principles of proportion—a want of

\* Mayer has recently proved that the action of the tides tends to arrest the motion of the earth upon its axis. And although it has been proved that since the time of Hipparchus the length of the terrestrial day has not increased by the 1-100th part of a second, yet this fact obviously leaves untouched the conclusion to which Mayer's reasoning leads.

† By Mr. G. G. Scott, R.A. Read at the meeting of the Architectural Association, London.

\* Paper read by E. Frankland, Esq., F.R.S., at meeting of Royal Institution of Great Britain.

culture of the eye. I have often feared that it might be a natural obtuseness of perception on the part of our race, it prevails amongst us to so serious an extent. I am, however, convinced of the contrary by its entire absence in the works of the Middle Ages, and for the most part in those of the intermedial period. In all or the majority of these, we find evidences of an almost instinctive perception of the niceties of proportion, while the merits of our own day seem to point in the very contrary direction. I will take the liberty, while on this subject, at the risk of repetition and of some irrelevance, of transcribing a passage from a paper which I read two years since at the Architectural Museum, in which I addressed the following advice to architectural students:—

"It is ridiculous to suppose that such an art as architecture is to be learned without the most careful study of its existing productions, or that originality is likely to be developed upon a basis of ignorance; and it is equally unlikely that excellence will be attained solely through the medium of knowledge, without the most jealous and careful training of the eye to the most delicate and scrupulous perception of the right and the wrong in form and proportion. The want of this is the most crying sin in modern architecture; especially, I fear, in this country. Continually is the more cultivated eye offended by discords which in music would set the very teeth on edge. I know not how to advise you on this point. This delicacy of perception is in some degree intuitive; but that it is not wholly so is proved by the fact that the works of some periods are nearly all harmonious, while at other periods this harmony seems only occasionally to have been attained. The only rule I can suggest is the jealous cultivation of the eye. As the greatest of moralists has said, 'Keep thy heart with all diligence, for out of it are the issues of life';—so one may say to the architect, 'Keep thine eye with all diligence, for out of it are the issues of art.' Never allow your eye to get accustomed to or condone errors of proportion, even in works which in other respects you venerate for the noble art which clothes them; and much less allow of any deliberate error in your own designs. To avoid these blemishes sketch your designs over and over again—no matter how slightly and roughly—rejecting rigorously everything against which the eye rebels, and never permitting a proportion which it has once condemned to remain, even for a minute, before you: for ocular perception is most delicate, and its instinct may be blunted by dwelling even for a few seconds upon what its first impression saw to be wrong. Never clothe a form with detail or with pleasant drawing till its proportions have been thoroughly sifted and rigorously corrected; and if you fear that you have, by dwelling too long or too indulgently upon what you have sketched, prejudiced your eye in its favour, put it away, and attend to something else, or take the opinion of some unprejudiced person in whose correctness of eye you have confidence; for the first impressions of another will often correct your own.

"As to obtaining a knowledge of actual architecture, I cannot too often nor too strongly urge careful sketching from first-rate examples. The student of Classic architecture is under a disadvantage, as its original and best examples are in other lands; but with those who pursue the other great branch of architectural art, the case is very different; for, though in most parts of Europe he will find constant and ever varying objects of study, he can never go far from home without finding among the monuments of our own country productions equally deserving and equally instructive. To the student, then, of Gothic architecture, I would concentrate my advice on this point in one word—*Sketch*; and if any one advises the neglect of this, I assure you that he stands, *ipso facto*, self-condemned as a false teacher. I want you, however, to add to this a great deal more; I want you to obtain distinct and precise instruction in art in all its bearings upon architecture: I want to urge upon you to study figure drawing; animal drawing; the drawing of foliage, whether natural or architectural; the combination of figures and animals with foliage; the designing of coloured decoration in all its branches; and of every other art which bears upon architecture. I want to urge upon you the necessity for the systematic learning of all these kinds of drawing, and the obtaining of a perfect mastery of them; and not only this, but that you should learn, in some degree at least, the actual practice of these arts. Human life is not long enough to do the latter thoroughly; but now, in the days of your youth, you can do it to a certain extent, even at the sacrifice of a few frivolous amusements. You have embarked on a noble art: make its cultivation take the precedence of all inferior pursuits. To effect this, I am disposed to think that combination is necessary. A society of students might be formed, and aided by others, for obtaining the best instructors in all these branches of art, which each student singly would find impossible. I earnestly commend this to your united consideration. And, above

all, do it once, or your own individual share in the coming reformation will be lost."

It is, however, more than time that I should come to the practical gist of my paper. It is quite clear to me that every architectural student should, during the entire period of his pupillage, in addition to the practical teaching he obtains in his master's office and to his studies of the practice, the science, and the literature of his art, be going through a constant course of direct artistic training of the kinds laid down in the foregoing suggestions, and that the same training in a still higher form should be continued as much longer as circumstances will permit.

The practical question to be considered is how this is to be provided for, as at present it is impossible. It may be said, perhaps, that the *Institute* ought to provide for this. It may be that it ought; and judging from the evidence given by the late Mr. Papworth before the Commission of Science and Art, in 1836, I believe the founders of the Institute had some such intentions; but I doubt very much whether it will ever be done, and "while the grass grows the steed starves." It may further be said that the Royal Academy ought to do it. I strongly hold, that so far as relates to its own students in architecture, it is its bounden duty to do so, and I am happy to say that this duty is acknowledged, and there is a prospect of its being acted up to as soon as practicable. I would mention, however, that instruction given by the Academy can never supply the wants of the profession, and must always be the more advanced, and not the elementary teaching; indeed, the same is now the case with the students of painting and sculpture, who are expected to have gone through their elementary training, and made considerable progress previously to their admission as students at the Academy.

Again, it may, perhaps, be said, that the required facilities are already offered at the schools at South Kensington. Those schools, I would reply, are admirable in their intent, but were founded for a wholly different object—to supply artistic instruction to the manufacturing artisan. It is true that they go much beyond this in practice, and that their organization is far more perfect than anything which we can hope for. I go even further than this—and I take this opportunity of saying it as publicly as I am able—I think the collections of objects of art (added to their library and to our architectural Museum) offer such wonderful advantages for study that I would urge upon every student of architecture, if he has nothing else to guide him in the choice of his place of residence, to seat himself down as near South Kensington as he is able, that he may enjoy the extraordinary facilities for art-study which this great establishment offers, and which probably exceed what is to be met with in any city in Europe. Still, however, I cannot imagine that members of such a profession as ours would desire to be dependent on the schools of manufacturing art for their own artistic training, if they can obtain it by any means more distinctly their own.

I will now offer for your consideration the result of my own long and anxious consideration of the subject.

I am convinced that we shall never obtain for our architectural students that artistic training which we know to be necessary unless we put our own shoulders to the wheel and provide it ourselves. I would, therefore, propose that a central School of Architectural Art shall be founded in London (probably in those very rooms), in which those branches of high art which I have enumerated as bearing upon architecture shall be taught by men of the highest ability in their several branches, these several teachers being paid so liberally as to secure both the best men and their best exertions; that this school shall be mainly self-supporting, though aided by annual subscriptions from individual architects, and, perhaps, by grants from the Institute of British Architects, your own Association, and any other societies which may be willing to afford aid, the self-supporting element being a regulated payment by the students; for it is quite certain that the students of such an art as ours do not desire to have instruction on any terms short of its proper value, though they will be too glad to obtain, by means of a combined effort, teaching of so high a grade as would have been impossible to procure by private means; that this school of architectural art shall be under the management of a board of visitors, to be jointly appointed by the council of the Institute and the council of this Association (and which shall, if possible, include one eminent painter and one eminent sculptor) a certain proportion of its members retiring every year, and not being re-eligible for two years. That the teachers be elected for terms of one or two years, open to re-election, and shall be as numerous as the board of visitors deem necessary; as, for example, a teacher of drawing from the human figure, and a teacher of modelling the same (these two duties, being open to be performed by the same man); a teacher of animal drawing, if the last named cannot undertake it; a teacher of drawing and modelling architectural ornamentation; a teacher of coloured decoration, &c.; and the number being always dependent on circumstances and on the judgment of the visitors.

There may also be occasional teachers of special subjects, such as the designing of stained glass, of mosaic, and many other branches of art; the great principle aimed at being the power and the command of funds to be attained by combination—in fact, the self-supporting element of the institution.

Every architect who joins it should consider himself as bound in honour to use all his influence with his pupils to become students, and every student should be under the same obligation to give as constant attendance as possible. The instruction may be enlivened, from time to time, by lectures—not the casual papers customary at meetings of societies, but *paid* and *practical* lectures, by men of known eminence in their several departments of art. Each year there should be a competitive examination of the students with prizes in their several departments, followed by exhibitions of the performances of the students. In fact, everything should be done to offer incentives to the most strenuous exertion, and to inspire the students with an ardent enthusiasm for self-culture, and for using every possible endeavour to attain eminence in the noble art which they profess. The students at this school, when they become students at the Royal Academy, would enjoy, as I hope, still further facilities, when the intended regulations may come into operation; but we want immediate action, and this we must take for ourselves: our art is literally starving for want of artistic instruction: the want of it has clipped its very wings, and renders it impossible for it to attempt any lofty flight. Two things only are needed to correct the evil—a full and heartfelt appreciation of the intensity of the need, and an earnest and determined combination to meet it. I have done my best to suggest the mode of action, and I now solemnly and in all earnestness commend it to your immediate and energetic consideration. It is a strictly practical question which I take the liberty of submitting to you, and one on which the very life of our art depends. Do not, I beg of you, weaken it by hooking other questions on to it, or by raising difficulties—by looking out for "lions in the way." Face it, I pray you, in its simple form, and with a determination to meet it, and you will cover yourselves with honour, and merit the lasting gratitude of all lovers of our glorious art. I appeal to you in the first instance because you have already been first to show your appreciation of this great need, and to give substantial proof of that appreciation by taking many practical measures to meet it. I now beg of you to do this on a larger scale, and in a manner both worthy of the greatness of the object and commensurate to the magnitude of the necessity. "I speak to wise men," and beg of you to "judge what I say," and I do so in all confidence that my appeal will not be in vain, and that you will come forward and rescue our noble profession from the disabilities under which it is absolutely groaning, and place it on a level worthy both of its glorious mission and of the great period of civilization under which Providence has cast our lot.

If you do this we may once again see our England the glory of all lands in her architecture, as she is in so many other of her practical undertakings.

#### ON THE PRINCIPLE OF IMITATION AS APPLIED TO THE DECORATIVE ARTS.\*

THE reaction which, within the last thirty years, has set in and run with so strong a current in favour of Mediæval architecture has been accompanied by a taste for a similar style in furniture and decoration, in painting, and in forms of worship. The question of rituals is altogether foreign to our province. Nor is it my purpose, in the remarks which I have to bring before the Society of Arts, to discuss the relative merits of Classic and Gothic architecture, of post or pre-Raphaelitism in painting. It seems to me that no man can be a faithful apostle, or even a true loving disciple of art, until he has become truly catholic in his taste and tolerant in his practice; until he has seen the vision of the sheet descending from above, and is prepared to find beauty as well as pleasure in every style of art which has exercised the taste, the skill, and the ingenuity of man. But as the waves raised by this eruption of Mediævalism into our times have flowed in ever-widening circles over the feelings of the age, they have left their impress on objects which, *a priori*, no one could have expected they would reach. In the discussions which of late years have been carried on, on the subject of art, language has been perverted from its original meaning, ethics and æsthetics have been jumbled together, bad taste has become confounded with moral turpitude, stucco, when employed to decorate the exterior of a building, is denounced as an unprincipled sham; an ornamental casting as a falsehood, because it may resemble a carving; a composition or painted imitation of a wood or a marble as a downright and inexcusable lie.

It is my object, by a candid examination of the subject, to try to eliminate some principle,—to ascer-

\* Read at the Society of Arts, April 6, by THOS. PURDIE, Esq

tain in what cases ornamental castings and composition or painted imitations of material may be employed, without infringing the laws of propriety or good taste. Or whether the use of such appliances belongs to the same category, and is to be subjected to the condemnation generally awarded to such practices as the wearing of false jewellery, or the restoring by means of rouge the tints of the rose to the cheek of the faded beauty.

As the text of the present discussion, and as representing that view of the question, from which, after a full and, I trust, a fair consideration, I venture to differ, I shall quote one or two passages from a celebrated author, who is generally considered one of the soundest art-critics of the day. Between the principles of mediævalism and the practice of those imitative arts which shall come under our notice there is no absolute or necessary antagonism. I trust, therefore, it may not be supposed that in supporting the one I must be held as condemning the other. In urging the toleration of certain decorative appliances, I yield to no one in admiration of the glorious structures of the middle ages, in which our forefathers have left, in a fossil form, for the study of the geologists of history—a record of the taste, the spirit of self-sacrifice, and of the religious sentiments of the age in which they lived. Indeed, it will be found that I shall arrive, in numerous instances, at the same practical conclusions with my opponents, although we may have taken different roads to get there.

Touching the false representation of material, says the talented author referred to, in one of the eloquent denunciations for which he is famous, "The question is infinitely more simple and the law more sweeping; all such imitations are utterly base and inadmissible. It is melancholy to think of the time and expense lost in marbling the shop-fronts of London alone, and of the waste of our resources in absolute vanities, in things about which no mortal cares, by which no eye is ever arrested, unless painfully, and which do not add one whit to comfort, or cleanliness, or even to that great object of commercial art—conspicuousness. But in architecture of a higher rank, how much more is it to be condemned. I may perhaps be permitted," he continues, "while I express my sincere admiration of the very noble entrance and general architecture of the British Museum, to express also my regret that the noble granite foundation of the staircase should be mocked at its landing by an imitation, the more blameable because tolerably successful. The only effect of it is to cast a suspicion upon the true stones below, and upon every bit of granite afterwards encountered."

And again, at another part of the same book:—

"The worth of a diamond is simply the understanding the time it must take to look for it before it is found. Exactly as a woman of feeling would not wear false jewels, so would a builder of honour disdain false ornaments. The using of them is just as downright and inexcusable a lie. You use that which pretends to a worth which it has not; which pretends to have cost, and to be, what it did not, and is not—it is an imposition, a vulgarity, an impertinence, and a sin. Down with it to the ground, grind it to powder, leave its ragged place upon the wall rather; you have not paid for it, you have no business with it, you do not want it. Nobody wants ornaments in this world, but everybody wants integrity. All the fair devices that ever were fancied were not worth a lie. Leave your walls as bare as a planed board, or build them of baked mud and chopped straw, if need be, but do not rough cast them with falsehood."

I cannot agree with those who think there is no force in these arguments. They seem at first sight not a little convincing; and, coming to us with the sanction of a great name, they would have been worthy of our best attention, although they had been possessed of no other claims. But I believe that they are fallacious notwithstanding.

It will be observed that the sin is held to lie in the deception. I shall not be suspected of an intention to argue that there is no harm in a moral deception, but it may perhaps be asked on what authority the principles of ethics are in this case applied to æsthetics. The principles of ethics are founded (leaving revelation out of view) on the primary convictions of mankind, and I may assume that no one will commit the absurdity of claiming for æsthetics a higher authority. The very fact, then, that these imitations are so generally used and so much admired among an educated and a moral people, certainly affords the strongest possible presumption in their favour. As these primary convictions mainly lead men in the paths of morality, it is surely a sound conclusion that they cannot lead us far or permanently wrong, where any essential principle is involved, in matters of taste. But we shall pass from this point, and ascertain, as careful judges ought to do, on what side the best precedents can be quoted.

Now it is not unusual in disputed questions of taste—which means of course in all questions of taste—to appeal to the authority of the ancient Greeks, as the court of last resort, and I should be sorry to depart

from a custom which, if not yet venerable from its antiquity, had at least the merit of being the fashion, until the taste for Mediævalism to some extent supplanted that for classic art. In appealing to them we may congratulate ourselves, and perhaps the ancient Greeks too, that they do not live in modern times, for one of two things must have been the result of such a misfortune; either we should have wanted that authoritative tribunal—the wisdom of our ancestors—before which we could bring our cases for ultimate decision, or they, the ancient Greeks, must have had an accumulation of suits which would have left the Court of Chancery altogether destitute of a reputation.

Did the Greeks, then, allow the principle of deception in art?

It is recorded of Zeuxis, one of the greatest painters of ancient times, that the birds came and pecked at the fruit on his canvas, while one of his rivals asserted that the boy who held the basket could not be equally well painted, else the birds would have been frightened; of Apellas, that he painted horses so truthfully that animals of their own species greeted them by neighing. Whether these stories be more worthy of belief than that of Arion and his dolphins, we know not, but the fact of their being related, sufficiently proves that the wonderful people whose support we claim were not less alive to the power of painting than of music, and that the deceptive character of the former was reckoned one of its chief merits. In a trial of skill between Zeuxis and Parrhasius, the victory was adjudged to the latter, when his opponent, entering his studio, desired him to withdraw the curtain behind which he supposed his rival picture was concealed, the curtain itself being the picture; and Zeuxis gracefully acknowledged his defeat, saying his own picture merely deceived birds, while the other had deceived men.

But we can appeal to authority which many will regard with greater veneration than that of the ancient Greeks. Ornamental castings in bronze, iron, and other materials were universally employed during the middle ages, while the first use made of oil painting after its discovery in the early ages of the Christian era, was to paint imitations of marble.

The work of Heracleus, a compendium of the arts as practised previous to his time, is supposed to have been written in the seventh century. In it we find elaborate instructions for preparing the surface of columns, and painting them in imitation of marbles, as if, too, this were the only artistic use to which the oil vehicle could be applied. In fact, precedents of all ages may be adduced to sanction the practice which our modern authors condemn. But it is not enough that we produce strong presumptive evidence, however conclusive that may be, in support of our views. Nor is it enough that we can appeal in their support to the practice at once of ancient and modern times. We must also show that they are just in themselves, or that they rest on right principles. This we propose to do by the following method:—

1st. We shall shortly advert to that love of imitation in which the fine arts have their origin.

2nd. We shall state some cases in which deceptive imitations are admissible, as contrasted with those of a different class.

3rd. We shall name the qualities which give value to decorative appliances, and illustrate the subject by showing how far some of these fulfil the conditions required of them.

4th. We shall conclude by pointing out and illustrating the conditions which ought to regulate the use of surface coatings.

First, then, as to that love of imitation which lies at the root of the fine arts. All decorative art may be divided into three kinds with reference to its subjects, or the mode in which they are treated.

1st. The geometrical.

2nd. The conventional.

3rd. The purely imitative.

Examples of the first class are to be found connected with every style of architecture. Almost all Moresque ornamentation is geometrical, and the Greek fret may be named as affording an example of the style.

The second class, or conventional, takes its place midway between the other two. It is imitative after a fashion, through which—although natural forms are not directly imitated—the spirit of the form imitated is retained, as a melody in music, in the variations which are composed upon it. The most perfect examples of conventional ornament are, perhaps, the lotus of the Egyptians, and the honeysuckle of the Greeks. All architectural ornament may be said to be either geometrical or conventional, or a combination of the two.

The third, or purely imitative art, includes the painting of the human figure, of landscape, fruit, flowers, and all cases in which a direct representation of the object is attempted.

We cannot afford time to treat this subject fully, nor have we anything to do in the present discussion with geometrical or conventional ornamentation. Our

attention will be restricted to the third class which we have named, as it is only in the exercise of purely imitative art that the questions now proposed for discussion can arise.

To make a great artist, the head, the heart, and the hands must combine. He must be possessed of the three great qualities which give power over the imagination, the emotions, and the understanding. He must be possessed, first, of imagination or fancy, the power which creates, invents, or suggests, which is common to the painter, the poet, and the sculptor. Second, he must possess a sympathetic nature—that power of sympathy which teaches the heart to vibrate in unison with the true, the beautiful, and the good. In simple language, he must be possessed of taste, which has been well styled the science of the emotions, a faculty which—according as it is considered passive or active in its nature—signifies on the one hand susceptibility to the emotion, on the other, the knowledge, intuitive or acquired, of those qualities in external things which are fitted to excite it in others. Third, he must possess the technical knowledge and skill to enable him to express by means of form and colours the ideas which the mind has conceived. Now these three qualities of imagination or fancy, taste, and executive skill, must be found, less or more, in every work of art. Not equally.

It is only in the highest rank of art, where human life is the subject and human form the mode of expression, that the highest faculties of the mind are called into exercise. This rank is the highest, for the simple and obvious reason that it does so employ these powers, that it deals with the noblest subjects, and addresses itself to the most profound emotions of the human mind. It is in the field which these faculties open to us that art must operate if it is to assist in the great work of cultivating the intellectual powers or the moral sentiments, and in reaping the rich fruit they are calculated to bear.

(To be continued.)

## COMPRESSED ASPHALTE.

(From the *Mechanics' Magazine*.)

At a recent meeting, M. Malo read a very interesting paper, "On Compressed Asphalte as a material for roads," before the Society of Civil Engineers, at Paris. After referring to the defects inherent in all the old systems of paving adopted in the French capital, M. Malo treated of the attempts which had from time to time been made to substitute something better. Of all the systems tried, however, he stated that but one had borne the requisite tests, and that after a trying noviciate, extending over a period of ten years, compressed asphalte now took a place as a powerful rival to ordinary stone paving and macadam.

The asphalte employed for the works already executed in Paris is a pure carbonate of lime, naturally impregnated with from six to ten per cent. of bitumen. The rock is quarried in regular beds, four to seven yards thick, at Seyssel (Ain), Val de Travers (canton de Neuchâtel), and in several other places in the Jura. At a temperature equivalent to that of boiling water, the bitumen softens so much that the stone crumbles to powder; if now this powder, while still hot, be powerfully compressed, it will form masses possessing, when cold, an amount of hardness equal to that of the unquarried rock, and it is this peculiar property which has been somewhat recently applied on an extended scale, to the formation of roadways in Paris.

M. Malo stated that the crude asphalte is first broken by mechanical means into small pieces, then reduced to powder, and subsequently placed in large iron cauldrons, wherein it is heated to about 140° degrees cent. While thus hot it is carried quickly, in suitable ladles, to the locality where it is to be employed. The proper curved form which the finished road is intended to assume has been previously imparted to a bed of concrete (*Beton*), on which the hot asphalte, in powder, be it observed—for pressure is needed to make it agglomerate—is spread, and carefully rammed, with heated cast iron rammers, into a solid sheet, so to speak. Three heavy rollers are then passed successively over the gradually hardening roadway. The first weighs about 5 cwt., the second 1 ton, and third roller about 2 tons 5 cwt. By this means of the stratum asphalte is reduced to a uniform thickness, fixed in Paris at four centimetres. Two or three hours after the passage of the last roller the material has become so far cooled and consolidated that traffic can be freely resumed on its surface.

In 1850, one year after the discovery of this process, M. Darcy, Inspector-General of Roads, proposed its application to a portion of the boulevards; but it was not until 1854 that the first piece of compressed asphalte pavement was put down, in the Rue Bergère, under the superintendence of MM. Homberg, Chief Engineer, and Vaudry, Engineer in Ordinary in the Municipal service. In 1854 we

find that about 700 or 800 metres only of the new roadway were in existence. In 1858 the area had increased to 8,000 metres, and now it is more than 100,000 metres, without including many large court-yards, for which the new pavement has been selected, less for the sake of solidity than for the absence of noise which follows on its use. As in all other new things, M. Malo stated, that many mistakes were made at first, many mishaps met with, and difficulties overcame. We will mention a few of the more important.

The first essential was obviously to discover a good method of preparing the material. After months of labour and care this object seemed as far from being obtained as ever. Then followed the difficulties of application, and in this department the experiments conducted in the Rue Neuve Petits Champs were fertile in instruction. The asphalt used was hard and unmanageable; the season far advanced, and it was a matter of some difficulty to procure a dry surface of concrete for the asphalt to rest on. The moisture was evaporated by the heat, and, pervading the mass, prevented the efficient agglomeration of its particles. Worst of all, the concrete itself reposed on soil recently disturbed in the formation of a sewer, and the settlement which followed, as a matter of course, led to the rupture of the bed of asphalt. Ultimately all these obstacles were overcome, and M. Malo states the advantages of the new roadway as follows:—It produces neither mud nor dust; the annual wear was equalling only one millimetre, once it has become thoroughly consolidated by the passage of vehicles. It is almost perfectly noiseless—no trifling advantage, be it remarked. What would not we dwellers in London give for a noiseless pavement? The labour of horses is materially lessened on the compressed asphalt, as compared with stone paving or macadam; a fact disputed, however, by M. Tresca, a gentleman who has conducted a valuable series of experiments on the tractive resistances of various roads. The expense of maintaining wheel carriages in repair is considerably reduced by the suppression of ruts and jolting. M. Malo stated the saving at 8,500,000 francs, supposing all Paris asphalted, yearly; and, lastly, the absence of vibration tends to the durability of the houses on either side. In opposition, it has been urged that the new pavement is too slippery for smoothly shod carriage and saddle horses (*chevaux de luxe*). According to M. Malo, this inconvenience is never experienced unless the curvature of the roadway is exaggerated, or on steep hills. This has been verified by experience. It was found that one horse in 1,308 fell in passing through the Rue de Seze, which is paved, and but one in 1,409 in passing through the Rue Neave des Capucin, which is asphalted. Sometimes, however, the surface is rendered slippery by the presence of foreign substances dropped in traffic. A simple washing removes the evil. The same end may be attained by means of a slight sprinkling of sand.

M. Malo estimated the cost of the different roadways used in Paris at the following rates per square metre:—

Material.	Formation.	Annual Maintenance.
Compressed Asphalt and concrete.....	15f.	1f. 25c.
Pavement of Belgian Porphyry.....	10f. to 22f.	0f. 50c. to 1f. 50c.
Macadam.....	7f.	2f. 40c. to 3f.

M. Malo concluded by stating that all the Jura district, from the department of the Bas Rhine to Savoy, abounds in asphalt, so that no fears need be entertained of exhausting the supply by extending the application of the material.

#### MEMORIAL TO THE LATE DR. SMITH.

THE following is a description of the memorial window to be placed in the Ladye Chapel, St. Patrick's Cathedral, as a testimonial to the late John Smith, Mus. Doc.:—The window consists of a triplet of lancets, the centre light being superior in height to those of the sides. In subject matter the entire window is devoted to the expression of the praise of God, glorified by music as in heaven and in earth. In the centre light is introduced conspicuously the figure of David harping forth his inspired psalmody, choral angels being grouped above his head. In the side lights are assembled groups of singing and instrumental figures, blending in turn their voices and music with those of David, and the angels of the central division to which they turn. The various groupings thus described form the main effect of the subject matter occupying the centre of the triplet; horizontally there are, however, twelve medallions arranged, four in each light, above and below the principal subject. These medallions each contain an angel, minstrel or choral according to its position. The whole of the work will be of the very richest colouring and most elaborate design generally, and at the foot of the middle triplet window there will be a polished brass tablet containing the inscription in the old English characters of black, relieved by initials of red.

### Public and Private Works.

A handsome villa residence has been erected at Dunmore, for David Malcolmson, Esq. The style is peculiar, but effective. The roofs are executed in a curved line, having projecting eaves supported by brackets; two semicircular bows, forming very elegant features, face the terraces and gardens, and a recessed timber verandah on the front entrance. The works have been very creditably executed by Mr. Matthew Lynch, builder, Camden-street. John S. Mulvany, Esq., architect.

A large mansion has been completed for John Malcolmson, Esq., in one of the finest parts of the county Waterford, and situated convenient to the river Suir. It comprises dwelling-house in centre, with extensive wings on sides, in which are kitchen, offices, servants' apartments, &c. Mr. Ryan, Waterford, builder. John S. Mulvany, Esq., architect.

A handsome mansion with extensive offices, &c., in the Italian style of architecture, is now in course of erection at Glengheen, near Fintona, Co. Tyrone, from the design, and under the superintendence of, Mr. FitzGibbon Louch, C.E., architect, Sackville-st., Londonderry. Mr. George Armstrong, Brookborough, is the contractor.

A large mansion has been for some time in the course of erection at Newtownbarry, Co. Wexford, for R. W. Hall Dare, Esq., from the designs, and under the superintendence of, Messrs. Lanyon, Lynn and Lanyon, of Belfast and Dublin, architects; Mr. James Gargan, resident clerk of works; Mr. Thomas H. Carroll, of 17, Lower Baggot-street, Dublin, builder.

An iron gate-lodge and entrance of original design and peculiar construction, is in course of erection for William Malcolmson, Esq., near Portlaw, county Waterford. Mr. Wm. Turner, Hammersmith Works, contractor.

#### RAILWAY INTELLIGENCE.

**PROPOSED RAILWAY FROM CLONMEL TO DUNGARVAN.**—A proposal has lately been started for connecting the above towns by a line of railroad, and has received the patronage of the Duke of Devonshire and Lord Stuart de Decies. The project has been already started in the year 1859, and is now renewed under auspices of great promise. The district is populous and richly circumstanced, within which are comprised the estates of the Duke of Devonshire and Lords Stuart de Decies, Cremorne, Stradbroke, and Huntingdon; of the Chearneys, the Musgraves, the Keilys, the Moore Smythes, the Usshers, the Bashes, the Keanes, the Drews, the Beresfords, the Powers, the Maxwells, and a host of others. The details of the undertaking have not been yet made public; but it is stated that it is intended that the railway shall connect the town of Fermoy with the Waterford and Limerick Railway, close to the important capital of Tipperary. This line has been warmly taken up by the Duke of Devonshire, who is anxious to add the advantages of a railway to the many other benefits which Lismore enjoys under his enlightened and liberal proprietorship. His Grace, therefore, has offered to take £10,000 worth of the share capital, Lord Stuart de Decies will take £2,000, and Mr. Bagwell, M.P., of Marlfield House, Clonmel, £1,000. The High Sheriff of Waterford, Mr. Robert Percival Maxwell, D.L.; Sir Richard Musgrave, Bart.; Sir John Keane, and all the landed proprietary of that extensive and wealthy neighbourhood, will give their earnest support. Between Clonmel and Fermoy the distance would be 38 miles, and after leaving Cappoquin, it is suggested that the line should give a branch to Dungarvan, distance six miles, making a total of 44 miles, which it is computed will be made at an outlay of little over £7,000 per mile. If a sum of £1,000 per mile be subscribed by the district proposed to be traversed, an eminent contractor is prepared at once to commence the undertaking. A preliminary meeting was held at Dromana Castle, the seat of Lord Stuart de Decies, and there it was agreed that Sir R. Musgrave, and Mr. Francis E. Curry, agent to the Duke of Devonshire, should wait upon the surrounding gentry, with a view to ascertaining the number of shares likely to be taken by them. The promoters on obtaining signatures for the required sum, will proceed to obtain the necessary Parliamentary powers to enable them to enable to carry out their design.

**EUROPEAN CENTRAL RAILWAY COMPANY.**—This company is formed to execute a grand undertaking. A glance at any modern map of Europe will show that while Northern and Central Germany are intersected by a network of railways, and while Italy possesses her own series of railway lines, beginning at the foot of the Alps and extending to the extremity of the Peninsula, there is a perfect blank, devoid of railways between the Lake of Como and Lucerne. A line connecting these two places would unite the systems of Germany with those of Italy,

and place the North and South of Europe in immediate communication. By the construction of this line 800 miles of sea voyage will be saved in the journey to India, and the distance between England and her greatest dependency will be virtually shortened by three days. The line from Chiasso (Como) to Biasca, in the Canton of Tessin, was formally commenced in January, under Government inspection. This is the first work of the European Central Railway Company. When some arrangements, now pending with the Swiss and Italian States are completed, the line from Biasca to Lucerne will be commenced. Lucerne will be the point of junction for all the European systems.

#### OLD MENS' ASYLUM, LEESON-PARK.

THE building, of which a sketch is presented in the present number, has been erected from designs by Mr. William G. Murray, R.H.A., at Leeson Park, on a site not far from the Molyneux Asylum, which building it somewhat resembles in style and general character. This excellent charity, which is designed for persons of respectability, who have seen better days, and found themselves, in their declining years, in unforeseen poverty, has hitherto found a home in an inconvenient and inadequate building at Russell-place, North Circular-road, and it is a fact worthy of notice that it has numbered among its inmates some of the original founders of the charity who, when it was established in the beginning of the present century, were in prosperous or affluent circumstances.

The building is intended to accommodate 42 inmates, and contains in addition to the necessary dormitories and sleeping apartments, a spacious and airy common hall on the ground floor, board-room, and matron's apartments. In the basement a large dining hall, kitchen and other offices, and smoking room; and on the upper floor an infirmary for sick or bedridden inmates, divided by screens into separate cubicles. The walls are built of granite, with dressings of Drogheda limestone. The contract has been carried out in a most efficient and admirable manner by Mr. Geo. Moyers; amount about £3,000. The ornamental iron work was executed in part by Brawn, of Birmingham, and in part by Fagan of Great Brunswick-street. The plumbers' work of lavatories, bath-rooms, and water-closets by Lamprey and Rendell.

#### THE BETHEL CHURCH—NOTICE.

IN our last number a typographical error has occurred which is calculated to convey a very different meaning from what was intended. In speaking of the exhibition of the successful plans for the new Bethel Church, Kingstown, it is stated—"It is much to be regretted that an opportunity is not afforded of seeing the *successful* designs;" the word should have been *unsuccessful*. It is now asserted as probable that none of these plans may, after all, be carried out, and that a new church is proposed to be erected somewhere in the neighbourhood of Sandycove, into the expenses of which the funds that were intended for the new Bethel will be merged.

#### THE SITE FOR THE PRINCE CONSORT MEMORIAL.

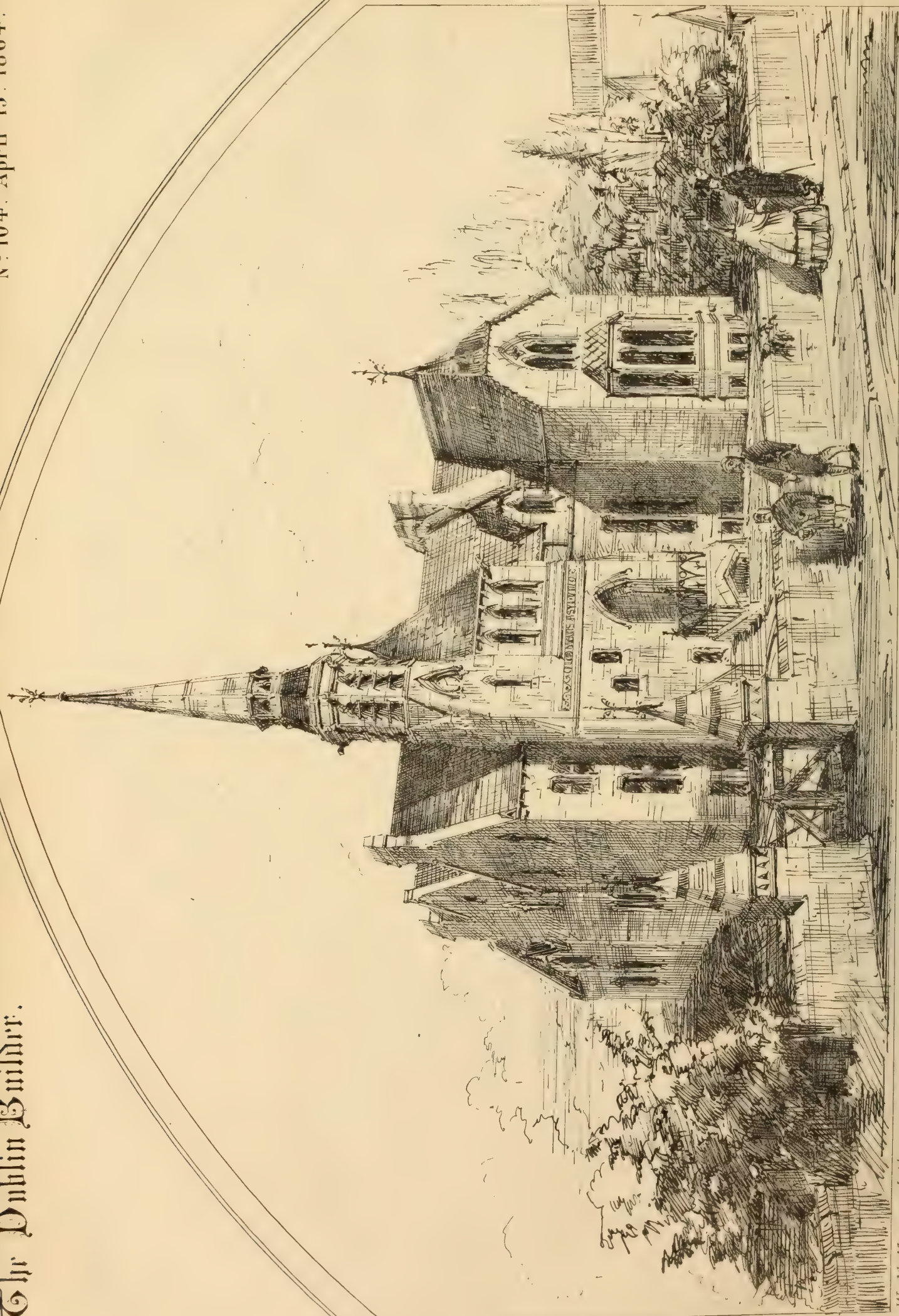
AT a late meeting of the Corporation a resolution was carried, referring to Committee No. 1, a memorial praying that the Council would re-consider their decision granting a site for the Prince Consort Memorial, in College-green. The committee met on Saturday, when the following resolution was moved by the Hon. J. P. Vereker, seconded by Alderman Bonsall, and on a division carried by 14 to 7:—"That this Committee is of opinion, and do accordingly report to the Council that no action is desirable on foot of the memorial before us, as we see no reason for disturbing the decision solemnly arrived at by the Council granting the site at College-green, for the purpose of erecting a statue to his Royal Highness Prince Albert."

**ROYAL DUBLIN SOCIETY.**—The sixth evening scientific meeting will be held on Monday evening, 18th inst. Chair taken at eight o'clock, precisely. Communication: 1. Emerson J. Reynolds, "On Albumen, and some of its Metallic Compounds." 2. James M. Barry, "Notes on a recent Visit to Queensland."

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The Dublin Builder.

Nº 104. April 15. 1864.



W. M. Mortson. Lith.

W. G. Murray. Architd.

THE OLD MEN'S ASYLUM, JACKSON PARK, DUBLIN.

## ARCHITECTURE IN FRANCE.\*

## MEDIÆVAL TO RENAISSANCE.

A HISTORY of architecture in France is no light matter to give to this audience. Its leading features, and very much of its details, have been already most admirably set forth by such writers as Petit, Freeman, Ferguson, Scott, and others of our own country; and by De Caumont, Viollet-le-Duc, Verneilh, and other French authors; and there are few, perhaps, of my audience who do not well know not only those works, but the examples themselves, from personal study in France.

Much, therefore, that one would ordinarily dwell upon would be a mere waste of time here, and I trust, therefore, that I shall be excused in speaking to a greater extent than I usually do of these particulars, which have struck me the most forcibly in my own French studies.

Now, to begin with, I must ask you to call to mind the well-known fact that France never did, from the earliest to the latest of the Mediæval times, exist as an architectural whole. We find great local peculiarities in England, between even the different counties. Extend the studies to the sister kingdoms of Ireland and Scotland, and the peculiarities are seen still more strongly. But Mediæval France was broken up into various schools of art in a much more determined way. It was never, except in a few rare instances, one kingdom at all, politically,—not subject to one ruler,—not obeying the same laws.

Clovis found at his accession that his southern boundary was the Loire. He passed that, and pushed his confines on to the Garonne, and even beyond. Burgundy was added by his son. Charles Martell did nearly the same; so did Pepin; and so, after him, did the still more renowned Charlemagne, who ruled at his death what no French ruler, except Napoleon, ever did before or since, *all France*, with a great part of Italy, Spain, and Germany. But after these great monarchs, France was dismembered by their several sons; Italy, Spain, and Germany were eventually lost; and Mediæval France, such as her kings ruled in the twelfth century, really comprised only what was left of the kingdom when Brittany, Normandy, Burgundy, and all else to the east of the Rhone and south of the Loire were cut off.

And we must remember that this was not merely so in name: that these provinces, owning the French king as their feudal chief, were not really his vassals. These provinces were, *de facto*, distinct kingdoms, allied with their feudal chief when it suited their purpose, and allied equally often, for the same reason, with his enemies; and the counts of Brittany, Normandy, Burgundy, and Aquitaine, warring as often against the king as for him, and thus keeping up the national feeling of their several provinces in opposition to a united France, drew strongly a line of boundary to each for art as well as for war.

It was not till Philip Augustus and St. Louis (1226—1243), at the beginning of the thirteenth century, that the king of France was really the ruler of the greater part of it, as we now know it; and even after them France had to go through the fiery ordeal of our Edward and Henry, and saw Brittany, Normandy, Burgundy, and Guienne, still and again defy him. Then, again, in England, ours was the architecture, mainly, of one race. The Roman work was well-nigh destroyed before our architecture, as we find it, arose; and exercised no influence whatever upon it. But in France, the Roman work remained bodily before the eyes of the Mediævalists. Even now, you enter Rheims, or Autun, or Bordeaux, by or near the old Roman gateway; you may still see bull-fights in the amphitheatre at Nîmes, and may worship the arts there in the temple where the Roman bowed down to his gods. In fact, the Romans themselves, like their architecture, seem never to have quite died out, but to have amalgamated, in the south especially, with the conquering races. Many proofs of this will be found, directly stated, in history. Then, again, there came down streams of emigration from the Rhine and down the Rhone, the Rhenish arts and architecture coming down with the streams, as we English carry them to our colonies. Then, again, there came up from the sea, through the southern ports, whatever the Venetians could bring from Byzantine Venice, and whatever the Easterns could send from Saracenic Syria and the Nile; not mere goods and merchandise, but arts and the men who practised them, and who formed goodly colonies at Marseilles, and Narbonne, and Limoges, much as we English do now wherever the doing is worth it. Then, too, in the north, were the Normans working art in their own province, Normandy, their own peculiar style,—the only one, so far as I know, of Mediæval times clearly belonging to the name, and to be traced wherever the Normans went, in their own land, in England, in Sicily, distinctly, to them and to no one else. So that, with all these facts together, we

may well hesitate at tracing French history in a part of an hour or so.

Yet I willingly have dwelt, at some little length, upon this beginning, because it really forms the basis upon which all knowledge of such history must be founded; and because, too, it shows how little an architect can expect really to know, if he venture beyond mere bricks and mortar, without being well grounded in history. Not only the history of France, but, we must know something of what was practised at the time in Germany, Venice, Constantinople, and the East, before we can enter very deeply into the matter. Without, however, detaining you more as to this, I may state broadly, as an introduction to French architecture, that between architecture as practised by the Romans and as revived in France, in later times, there was a clear, deep gap of some six centuries. For the latest time assigned to any Roman work of note is the third century, whereas the earliest Mediæval work that we know of, as worth caring for, bears date about the tenth. That is a long stride, that same six centuries; Goths, Franks, Saracens, had overrun the country then; Charlemagne, the great emperor, had ruled and died, and his enormous kingdom had been scattered to the winds; and, as we come upon France at the awakening of art in the tenth century, we find its king governing no more than one of its large provinces.

Now in all this great space of 600 years there is scarcely anything, from one end of France to the other, of importance enough to have attained celebrity.

A few remains of some little interest may, indeed, be cited, and they are scattered widely over the country, from the Basse Cœuvre at Beauvais, in Picardy to St. Jean, at Poitiers, and Coustonges in the Pyrennees.\* But the dates of these buildings are very doubtful, and the remains too scanty for successful theorizing, and all that we know beyond the Roman character of the detail is, that the nave and aisle arrangement with clerestory above was clearly, though rudely, even then in use; so, too, apparently was the dome; and that the masonry most in use was that of small stones, carefully bonded, and often arched with courses of Roman tiles.

It will assist us in our estimate of the arts in France at that time, if we call to mind that in England we had Brixworth, Wearmouth, and Jarrow; that in Germany there were Aix la Chapelle, and the portico of Lorsch: in Italy, St. Vitale, St. Prassede, and one, at least, of the fine brick towers; and at Constantinople, St. Sophia's. So that our art then in France was sadly in arrears, and that is about the sum total of our knowledge both of the character of existing works and of their dates. We get in the tenth century on somewhat surer ground, for we have then, as examples, Tournus, St. Etienne, at Nevers, the Abbey of L'Ainay at Lyons, and Notre Dame de la Couture at Mans.

As to the latter, however, I have very strong doubts, and as the presumed age of the oldest part is almost the end of the tenth century, we may, I think, safely refer the building generally to a later date, and so remove it from our present consideration. The rest of these churches are more particularly within reach of German influences. At Lyons there is the dome, together with a singular arrangement of sculpture over the aisle columns; and at Tournus an almost unique example of vaults, arranged crossways, over the nave. This occurs in several places to the aisles, but I remember no other to nave. St. Etienne, at Vignory, I have not seen, but Viollet-le-Duc assigns it to the tenth century. There is, however, a very good monograph of it in the Institute Library, by M. Girault de Prangey, who gives good reasons for supposing that the church is not earlier than the beginning of the eleventh century. Even at this date, however, we have the first, so far as I am aware, of the chevet arrangement, and without any trace of its being copied, to my knowledge, from any existing building.

The main works of similar date in Italy are parts of S. Ciriaco Ancona (a cross church) S. Fosca, in Torcello (also a domed church), and S. Ambrogio, at Milan; whilst in Germany there is little beyond parts of S. Pantaleone, at Cologne, and perhaps parts of Mayence. I say *perhaps*, for when we come to investigate these early-dated buildings—to go through the history of their repeated rebuildings and reconstructions, we become painfully aware that nothing but an examination, stone by stone, on the spot, such as Professor Willis and others have given to our own buildings, can with certainty clear up their history.

We may, however, so far as our knowledge goes, take it for granted that the beautiful arrangement of apsidal chapels appears in its earliest example in the

north-east of France at the end of the tenth century, or beginning of the eleventh.

The interest increases with the next century. In the tenth century nearly all the examples were drawn from the countries near the Rhone: but in the eleventh we must trace the awakening of our art in nearly every part of France, and can find noteworthy examples everywhere.

In Picardy and Normandy we have Roscherville, Jumieges, the abbey of Caen, St. Lo, and others, all bearing strong signs of their Norman parentage, and being, in fact, more Norman than French, if we may so distinguish the parentage.

In Brittany there is comparatively little worth notice clearly identified with the eleventh century; and one is surprised to find that the same must be said of that tract of country so rich in memorials of the two next centuries, French Flanders or the Isle of France. Champagne, Burgundy, Lorraine, and Alsace contain little more than Langres—a very large and interesting church, with details clearly copied from classic remains (a good sketch of it is given by de Caumont)—S. Remi, at Rheims, which clearly shows a German feeling, and Notre Dame de la Couture at Mans, which shows the most northern, to my knowledge, of the Angiovine churches without aisles. But get down farther south and we have a most interesting series gradually appearing. We have in Anjou, Poitou, and the neighbourhood, Loches, Saumur, Villandry, that most interesting example, St. Hilaire, in Poitiers, and others.

Here we have clearly, so far as we can judge in the eleventh century, the grand arrangement which we find in many of the old basilican churches, of the eastern end raised high above the western part. One finds, too, in nearly all, the barrel vault, carried on great square sectioned ribs; the apsidal ends sometimes on the chevet plan, as at St. Hilaire, and sometimes in the plainer form of the simple apse to chancel and each aisle, as at Loches. And we find, too, the simple plan, so well known since as the Angiovine, of the cross church, without aisles, apsidal end and dome at the crux.

St. Hilaire and others, too, have their domes. All these churches are worth attentive study; St. Hilaire, in particular, seems to me to present as many picturesque features, shorn even as it is of its nave, as any church of the size that I know. Notre Dame de Nantilly, at Saumur, too, is a most interesting place, and if the date assigned to its roof (the eleventh century) be correct, it shows about the earliest case of the pointed arch, up north, that I am aware of.

Then we get down farther south to Guienne, and we find ourselves at once in a country where art has advanced in a degree that we should scarcely expect from the few examples northward. We find Souillac, Perigueux, Toulouse, Moissac, St. Croix at Bordeaux, Carcassonne, and others, all presenting the most picturesque effects of plan and section, and, as a whole, very much beyond the general style of the more northern provinces.

Now here we meet, for the first time, so far as I am aware, with well-recorded instances of the real Byzantine pendentives, as distinguished from the form used by more Eastern nations. This Byzantine form is so peculiar, difficult, and artificial altogether as to render it very unlikely to be invented by the architects of such, comparatively, rudely constructed works as those which we here investigate. We find it at St. Sophia's and St. Marc's; but not all through Venice even; for St. Fosca, in Torcello, has the beginning of a dome which shows a strange sort of compromise between the Byzantine and Eastern, whilst that most interesting church, St. Ciriaco, at Ancona, has a dome which is altogether Eastern. I shall allude again to this peculiarity in tracing the history of art from the south.

Then again we find the prototype (we may almost say the original) of Notre Dame de Poitiers, in the earlier church of St. Croix at Bordeaux. We have the curious plan of Moissac, not Angiovine, but more like the southern one of Avignon, and above all, we have the glorious church of St. Sernin, at Toulouse, containing, though in a rude way, all the essentials of the finest cathedral, save and except the clerestory. Five aisles, the centre having a fine barrel vault, a cross plan, with aisles to the cross, apsidal chapels to the transepts, a bold apse with aisles, and five apsidal chapels leading from it.

One cannot help regretting, in looking over this splendid church, and others akin to it, as one does too with the Renaissance churches of the Rhine, that so successful a beginning had not been further prosecuted and well worked out into a distinct style.

Now we come to Auvergne, a curious tract of country, distinct in its natural characteristics from the rest of France. It was first, I think, brought distinctly under notice in England by Professor Donaldson, and its main features have since been excellently described by Mr. Street. Both papers are amongst the Transactions of the Institute.

Clermont, Issoire, Brioude, and others, are most interesting, but they are so well-known from the above

\* By Mr. T. Hayter Lewis, read at the meeting of the Architectural Association, April 1st.

\* Many of these buildings are very curious. St. Jean, at Poitiers, more particularly so. The mouldings are very carefully worked out, clearly in imitation of the Roman, and so bold and good, that one wonders that the building, as a mass, should be so rude.

and other works, that I will not detain you with them now. I ought, however, to remark, that two gentlemen of great knowledge in French art, Mr. Waring and Mr. Street, differ as to the claims of Auvergne as an art school. Mr. Waring considers it to be altogether indigenous and spreading its influence into the surrounding provinces; whereas Mr. Street assigns its origin to Eastern or Byzantine influence, like those which originated the style of Perigieux and others.

I now come to Provence, the most interesting district in France, to my mind, for Romanesque work, yet in the eleventh century it was scarcely so advanced as we might expect. We here find Valence, Avignon, Arles, St. Croix, at Montmajour, La Palud, Vienne, and others. These Provençal churches have, for the most part, a cross plan, round arches for the subordinate parts, no triforium or clerestory, the nave being covered with a pointed barrel vault, resting on massive unmodelled ribs. The section of the few mouldings used in Mediaeval in some, quite Roman in others. But the ornaments are, almost invariably, traditional copies of Roman. We have too, at Avignon, the dome combined with the pointed barrel vault, and at the picturesque sepulchral chapel of Montmajour, one of those seeming imitations of such old work as the tomb of Galla Placidia, the baptistery at Ratisbon, or the end of Mayence cathedral, which make us doubt whether so clever a plan be original or not. The Avignon dome is, so far as I know, unique in the way in which the square plan of the dome drum is worked out from an oblong base. No Byzantine architect did that. It is Eastern altogether.

As this eleventh century is an important one in the history of our art, I will take a short review of its main features in France.

In the north we have a style pretty well developed by the Normans, who have left the clear distinct traces of their work wherever their race could find a home, in England and Sicily, as much as in Normandy. They get, so far as I can see, no share of their inspiration from the south. What was not their own was German. Then east, west, and south of this we find but little to remark until we come to the German provinces on the east, and approach Aquitaine to the south.

There we meet at once with the Venetian work as shown at Perigieux, Souillac, and Angouleme; and with the Eastern work as shown in nearly every other dome and in the pointed arches, and with details which show their copyism from the old provincial works of the Romans. I class them thus, for I have not the slightest doubt in my own mind that the use of the dome was altogether a revival that came from the East in the Middle Ages; the form of its pendentives being modified by the Roman architects of Byzantium, and as we see it at Perigieux, but showing their genuine Eastern origin in every other school with which I am acquainted.

It is the mixture of Roman, Norman, Rhenish, and Eastern art which makes the study of French so interestingly difficult, and results in so many picturesque arrangements in plan and outline. In the twelfth century we find art in Picardy and Normandy still Norman, but advanced, and slightly mixed with the pointed arch.

There is little in Brittany worth mention; but in central and northern France there are parts of Senlis, Noyon, Soissons, Laon, Bourges, Sens, Chartres, Le Mans, and St. Remi at Rheims.

In Anjou and Poitou we have the picturesque church of St. Nicholas; at Blois, the cathedrals of Tours and Angouleme.

In Guienne we have the portals and cloisters of Moissac, La Cite in Perigieux, &c.

In Auvergne, great part of Le Puy, &c. And in Provence, the portals of Tarascon, St. Trophime at Arles, &c.

You will see by the above list that we are now in the era of great churches. Not that the great cathedrals were finished as we find them; but each has remained enough to show that those who first designed them were twelfth-century men at the latest, and that their designers meant them to be of the vast proportions which they assume now.

We find that the nave of Le Mans was then built of its present size, because the outer walls and arcades are original. Bourges also was designed to be of the same extent as we now see it, for the north and south doorways are of twelfth-century date. At Chartres the great west front is of the same date. The great churches of St. Remi, at Rheims, in the north, and Toulouse, in the south, were earlier. Still I doubt whether a more interesting series could be found than we see in ranging from north to south through these great French churches.

The fact of the great size of the churches at this date and earlier seems to interfere a good deal with M. Viollet-le-Duc's theory as to the thirteenth century work. He describes the cathedrals of that date as being rebuilt in consequence of the great and sudden efforts made during the enfranchisement of the

towns, their great increase of wealth and population having led to the rebuilding on so vast a scale of their cathedrals. It did undoubtedly lead to their being rebuilt in a much more ornate manner, but the size had been set in the olden times long before.

Start at the extreme north, and we are stopped at once at Laon, one of the grandest as well as most ancient of these works,—almost superior in the beauty of its sight even to Durham. It stands on a spur of a long range of hills, with a steep escarpment from the plain, and you ascend straight up the face of the rock by ranges of stairs, one only having no less than 260 steps. The face of the cliff is terraced off and clothed with vineyards, and high above you as you ascend, towering above all around it, and standing boldly and grandly out, with its towers against the sky, stands the grand church of Laon.

I know of no work more beautiful or nobler of the age,—noble in the magnificence of its outline, and beautiful in the richness of its detail. The date is given, in the guide-books, as 1114, and it is said not to have been altered since.

Nearly every arch is pointed, and it is so Gothic in its general feeling, so advanced in many of its details, that it is scarcely possible to credit its date to be so early. M. Viollet-le-Duc, indeed, considers that it was almost destroyed before 1190, and rebuilt *circa* 1200, and that date quite harmonizes with its present appearance. The shafting to the piers is so delicate in form as almost to be painfully so in parts, those of the nave especially. The mouldings are those so well known in later times, and much of the enrichment is beautifully graceful, though the capitals retain much of the Romanesque in their foliage. The only thing wanting to complete the Gothic is tracery to the windows; and were the church restored in its integrity, or finished as designed, one thing more only would be required to make it almost perfect,—the chevet in place of the straight end. Laon altogether may be described as being thoroughly Gothic in outline, with much more Romanesque in detail than works of the same date with us. It is a marvel in art, and presents a subject well worth the most attentive study. Only a few miles from it is Noyon, almost perfect in plan, but wanting the picturesque towers of Laon.

Farther south, and about level with each other, are Senlis, between Noyon and Paris, and St. Remi, at Rheims, much more to the east, both Romanesque, but St. Remi has strong marks (in its tower particularly) of the German influences which we should expect to find there. Then we find at Paris a still more curious contrast in style and dates, for we have in the earlier parts of St. Denis a great approach towards the perfect Gothic, whereas, within a short distance of it, there remains the church of St. Germain des Pres, built twenty years later, and perfectly Romanesque. This curious fact was brought very prominently forward by Mr. Scott, in his Royal Academy lectures. But still more curious is the history of St. Germain, as told by the writers upon it; for they give clear and positive accounts of the church having been altogether rebuilt in the seventeenth century. I cannot account for these statements, and merely bring them forward as not to be forgotten. The church is well known to me, and I do not believe that any restoration such as this must have been could have been carried out at the date assigned to it, or even now; but, as the church is a most important one, the statements above alluded to should be known.

A little south of Paris we get Sens to the east, and Chartres to the west; Sens transitional, but Chartres pure Romanesque in its sculptured porch and west front.

A little farther south and we come to the nave of the great cathedral of Le Mans, near Chartres. This, too, is one that requires very strict examination on the spot. The arches over columns have clearly been put in round, the pointed arches of mouldings having been introduced afterwards; and it seemed to me, on close scrutiny, from a seeming alteration in the curve of the main arch ribs spanning the nave, that they were put in, at first round up nearly to the apex, and then the summit altered into a point. I have a very strong impression that the whole of this nave was finished at or near the end of the eleventh century, and that we have in it the nearest approach in these parts to the true basilican outline of the nave, it having been altered only as we find it in the twelfth century. A very little farther south and we come on the Loire, to Angers and Tours cathedrals, and St. Nicholas, Blois.

Tours was late in the century, and the earlier part is of well-advanced Gothic. But Angers and St. Nicholas seem much earlier, and present very notable features. Angers has the bold cross, aisleless plan of Angouleme, but without its domes, the church, of some 50 feet span, being vaulted with high domical vaults, and nearly all the arches pointed: the ornamentation very rich and beautifully carved.

But Angers contains very much of early date of extreme interest. St. Serge, for instance, the choir whereof is said to be still earlier than the cathedral,

and yet is designed with an elegance and lightness that makes its feeling Gothic altogether. In fact, there are very few specimens of our Pointed architecture to equal it in lightness. Then, in St. Nicholas at Blois, we find the southern dome combined with the northern chevet, the arches partly pointed and partly round, and the dome itself most curiously formed in a half Byzantine and half Eastern way. Blois is just at the midway between northern and southern influences, and its architecture is influenced just as we might expect.

(To be continued.)

#### THE SHEFFIELD INQUEST—MR. RAWLINSON'S EVIDENCE.

THE following evidence was given at the inquest held at Sheffield, on the bodies of some of those who lost their lives by the bursting of the Bradfield Reservoir, by Mr. Rawlinson, Government Engineer:—

I have had experience in the construction of waterworks. I have executed waterworks at Wigan, Berwick-on-Tweed, Swansea, and other places. As inspector, I have made myself acquainted with the great works erected during the last twenty years, and have personally inspected many of them, including those at Liverpool, designed and executed by Mr. Hawksley, and those at Manchester, designed and executed by Mr. Bateman. I have inspected carefully the Bradfield reservoir, which has failed, and other reservoirs of the company, and the reservoir at Agden now being constructed. I have also carefully looked over the specifications. As a practical engineer, I think no waterworks embankment ought to have pipes laid through it so as to prevent repair or renewal when necessary. The engineer should be master of his work, not let it be master of him. I know of many instances of failure where pipes and culverts have been laid through the main embankment. Cast iron pipes, having plain socket joints, although previously tested to four times the head of water they may have to carry, are occasionally found fractured and defective when the water is turned on, although in the street trenches in which they are laid they have only 4ft. of earth to bear. With the most careful jointing, the joints are sometimes found to be blown or defective. Pipes laid in the streets can be repaired without much damage. A defective pipe in this embankment may have worked the destruction we have witnessed, and no human ingenuity could prevent it under the circumstances in which those pipes exist. I did not say that it did so. I wish that to be clearly understood. That, therefore, is not a legitimate way in which to lay pipes for the making of a reservoir. In my own practice I have formed a tunnel or culvert through the solid stratification on one side of the valley and perfectly free from the loose earth of the embankment. That culvert is executed in the very best possible manner with hydraulic lime, and puddled to make it perfectly watertight over the top. Within that culvert or tunnel the outlet pipes are ultimately laid. Provision is made for closing the pipes inside the reservoir. The centre portion of the tunnel—namely, that under the heaviest portion of the embankment, is closed by brickwork set in cement, so as to make a perfectly watertight plug at that point. Valves are placed at the outer end of the pipes in the usual way, to work the pipes. On the inner shaft arrangements are made to draw the water at various heights in the reservoir, or to exclude it from the shaft, so as to enable the pipes to be examined. Such an arrangement renders any accident to the pipe for mischief absolutely impossible. Where I have laid cast iron pipes through puddle under small heads of water, as pipes leading to a valley syphon, I have found it necessary, in order to prevent the water creeping along the outer surface of the pipe, to put on collar shields, as described by Mr. Jackson. I have done this because I found that I could not make puddle adhere to the cast iron pipes so as to be watertight, even under only five feet pressure. Unless these precautions are taken the water does creep along the surface of the pipe. In land draining, where ordinary drain pipes are laid in a clay subsoil, the best drainers make no provision for an open substratum. They know that water will find its way to the pipes, and I believe the pipes drain as much by their outer subsoil as by the inner capacity. I believe there is an outer creep along every pipe. The result of that experience teaches me that a smooth line of cast-iron pipes, with joints such as are described by Mr. Gunson, are not to be trusted as certain to be watertight in such an embankment, although lined the whole length with puddle. I heard Mr. Gunson's evidence as to the mode in which he had laid the pipes through the embankment. I expected to learn that the crossing of the puddle trench had been provided for, so as to give a bearing to the pipes uniform with that of the solid ground on either side. I was surprised to learn that in place of this an artificial trench had been excavated,

at a flat slope from the bottom of the puddle trench, until at the surface line it exceeded 200ft. in length; that this had been filled with puddle to the depth of 20ft. in the puddle trench, thinning itself to 18in. of puddle on the solid at either end, leaving upwards of 200ft. of pipes, in 9ft. lengths, with no other bottom support than the puddle beneath them. This would be in that portion of the embankment where there would be the greatest possible weight—namely, under the apex. I have had considerable experience on railway work. I have seen 60ft. embankments—and this was 90ft.—carried apparently over solid ground; I have executed bridges and culverts on such ground beneath those embankments. Serious fractures always, total destruction occasionally, resulted. I have known it settle so much as to move the grass surface 300ft. away on either side. That occurring in a naturally compressible stratum, I should dread placing jointed pipes in an artificially formed compressible substratum. If that line of pipes had been depressed into the puddle, in all human probability it has not gone down equally in the puddle trench and under the loose embankment. But if it can be proved it has gone down equally as a bow would bend, and not drawn a joint, in my opinion it has left a cavity in the puddle trench above it, because the puddle in an artificially and carefully formed material, made so solid that if the puddle is as perfect as I believe, it could not follow the compression of the pipe equally on either side of the puddle wall. We have been told that the bank was formed on the same plan as the Agden reservoir, in course of construction; the material not being watertight on each side. The inference is that the water, as it rose, would penetrate the bank, and search out its weakest point. The reason the embankment did not show signs of failure on the first admission of the first 40 ft. of water, would arise from the fact that the lower half, being upwards of 200 ft. wide, may have been sufficiently tight to prevent any access of water to the puddle wall. As the water rose foot by foot in the reservoir it narrowed the intervening space between the water and the puddle wall  $2\frac{1}{2}$  ft.; and from my inspection of that bank, and from its state as it exists now, to be seen by any one, it is obvious that the upper half of the bank is not made of water-tight material, but contains a very large proportion of rubble-stone. I measured some not on the surface more than 4 ft. long, 2 ft. wide, and 9 in. thick. The water would thus penetrate to the puddle wall, gradually creep vertically down the face of the puddle wall, and inevitably find out the weakest point. On the opposite side of the puddle wall there is the same defective arrangement of rubble-stone, dangerously close to the puddle wall. That this was so through the deepest part of the bank is evidenced by the description of the ultimate breaking down of the top of the bank. The first top-water has been described as coming over in sheets and waves of foam. That water did not flow down the slope of the embankment, but was absorbed vertically into it. We have been told this reservoir embankment was made exactly as the Agden embankment. From the mode of tipping the wagons, and the material tipped, I have no hesitation in coming to the conclusion that the substance of that bank is as porous as a sieve. The specification limits the tips to 3 ft. each in thickness; the tips at present in work are, at least, double that height. This method of working rolls the largest stones continually to the foot of the tips, and makes, in fact, a rubble embankment, open and porous in layers. With regard to the mode of obtaining material to make the embankment I hold it is most objectionable to take the material for making your embankment from within the reservoir, and below the water-mark, excepting a trial shaft has shown that that material is in its whole substance water-tight. In this Bradfield reservoir several acres of surface have been bared by excavation. Many square yards of fissured rock have been bared. Into that rock I found by examination, that surface water readily flows without pressure. With pressure the flow of water into them would be greater. No engineer can tell what is to become of that water. It may waste itself harmlessly below, but there is a possibility of its communicating with fissures beneath the external slope of the embankment. In such a case the engineer has no right to run the risk of letting water into the substrata, because the water will be beyond his control, and it will be impossible for him to tell what will become of it, except by experience. I do not undertake to say that water has done any injury. I have no evidence, neither can anybody say it has not done injury. I have examined the by-wash, and do not think it adequate to convey away the flood water. I would have made a very much larger by-wash. In this case the by-wash has not been the cause of any injury, as the water never rose to it. I do not approve of a sloping by-wash, such as the whole of the Sheffield Water-works possess. I think it is always better to break your by-wash channel by a series of steps. I think for such a capacity of water, and such a drainage area, the two 18 in. pipes totally inadequate to give safety to the bank in the

case of anticipated danger. To take away the incoming water of a flood from the reservoir the by-wash and pipes ought always to be equal to safely removing the greatest possible flood on a full reservoir. I have no wish to make statements away from this special question, but shall be glad to answer questions.

By the jury—I would not have put pipes in the embankment. Wherever put, the pipes should have been longer. It is a fatal objection to the scheme that there should not have been valves to shut the water off from the pipes. The pipes and by-wash would not carry away a flood coming when the reservoir was full. There ought to be a goit to carry away the flood water when the dam was full. I am surprised that the engineers destroyed the one they used while the embankment was being made.

By the coroner—Several causes may have led to the catastrophe—a fractured pipe, a blow or drawn joint, a creep along the pipes, a pressing down of the pipes in the puddle trench by the heavy material on both sides of it; or a washing away of the outer slope, as suggested by Mr. Leather; by a landslip, caused by undiscovered fissures and springs in communication with the interior of the reservoir, which fissures and springs, if they existed and had such communication, would become active for mischief as the water rose in the reservoir. Those are the methods which occur to my mind as agents which may have caused the destruction of the bank—one of them, or more of them combined, may have done it. My opinion is that it was the most fatal mistake to lay the pipes in the centre of the embankment upon an artificially formed compressible material. I think, also, that in the formation of the embankment, the stones which are being dipped into the Agden embankment should be kept away from the puddle wall; that 3ft. layers are much too thick, and that 6in. layers, as suggested by Mr. Leslie, are the only safe way of making the embankment.

By Mr. Smith—There are many instances, especially of late, in which pipes are not laid through the embankment. At Dublin the culvert plan round the embankment is being made—I think also at the Rivington reservoirs.

After retiring twenty minutes the jury returned into court, and

The coroner said they had made up their minds. He was glad he had no occasion to sum up, because he should have spoken in a manner that would perhaps have been disagreeable to some persons.

The verdict was as follows:—"We find that Thomas Ellstone came to his death by drowning in the inundation caused by the bursting of the Bradfield reservoir on the 12th ult., that in our opinion there has not been that engineering skill and that attention to the construction of the works which their magnitude and importance demanded; that in our opinion the Legislature ought to take such action as will result in a Governmental inspection of all works of this character, and that such inspection ought to be frequent, regular, and sufficient; and that we cannot separate without expressing our deep regret at the fearful loss of life which has occurred from the disruption of the Bradfield reservoir."

#### STRENGTH OF STEEL.

THERE are few branches of professional knowledge that are still in such an undetermined state, both as to mathematical theory and experimental data, as that of the strength of materials—the term being used in its broadest acceptance. Even confining our attention to wrought iron alone, and merely to its behaviour under a tensile stress, we find that many facts with respect to the different strains produced by the various kinds and durations of tensional stresses are very vaguely known. If this be the case with wrought iron, used more or less in construction for centuries, we find a still greater lack of data upon the behaviour of steel,—an almost new form and application of the metal, iron, to structural purposes.

The only work accessible to the English reader, that gives us some accurate experimental data on the tensile strength of steel, is that of Mr. Kirkaldy, and it is a perfect storehouse of facts applicable to daily practice. Most especially is this so with steel, upon the tensile strength of which the most discordant statements have been published. The strength of cast steel alone is thus given by a number of different experimentals at values ranging from an ultimate strength of 80,657 lbs. to 142,122 lbs. per square inch of sectional area. Such varying results evidently testify to differences in the modes of testing, to a narrow range of experiments, and to inaccuracies thus caused.

But the greater number of these isolated experiments have been rendered utterly fruitless by the fact that the ultimate breaking strength merely was registered, and that in many cases no account was taken even of the progressive stretching of the specimen under examination. Even quite recently much

money has been almost uselessly spent on experiments so conducted as to obtain no really useful result, as was recently shewn at a meeting of the Institution of Engineers in Scotland, in the course of an interesting discussion on the important conclusions arrived at by Mr. Kirkaldy on the tensile strength of wrought iron and steel. Mr. B. Connor said that some unpublished experiments of Messrs. Naylor and Vickers, of Sheffield, carried on with a view of ascertaining the best steel for axles and railway tyres, had apparently shewn that "the material best suited for axles was the worst for standing great tension." It was found that steel "which could not bear 35 tons of tension, was the best for journals. They tried steel with 15 cwt. falling from 1 foot up to 36 feet. The tensional strength of the steel was then increased so as to stand up to 69 or 70 tons, but it broke with a weight falling one-third of the space, and with less than one-half of the weight; and so that that which stood the greatest tension broke with the greatest concussion." Mr. Clay, of the Mersey Works, has also published a series of experiments made with the view to ascertain the effects of repeated workings on the strength of steel. The ultimate strength appeared to increase up to the fifth working, and to slowly diminish from thence to the tenth operation. The truth is, however, that both the Sheffield and Liverpool set of experiments are rendered completely nugatory, from the contraction of area of the specimens during elongation and after fracture not having been noticed. Our more scientific neighbours have very carefully investigated the theory of the strength of materials, and the experimenters of France and Germany have taken the relations of the original and fractured area to the structural value of steel very thoroughly into account. We have, for instance, now before us a report of some experiments on the use of cast steel for boilers, made by order of the French Government in 1856-7.\* The table of experiments gives very carefully the total and proportional elongations of the plates, and their contraction of area after rupture. The intimate relation between ductility and a low breaking strain, and between hardness and a high breaking strain, is well noticed in the conclusions of the experimenters. We remark that these French steel plates shewed an ultimate strength of only 46·20 to 58 kilogrammes per square millimetre of initial cross section, but the ductility was very great—the elongation under stress at the instant of fracture being 19 per cent.—the reduction of the section de rupture 31·7 per cent. of the section initiale. We cannot too often remember that what we term the hardness of a body is, necessarily, a resistance of its molecules against any fresh adjustment, against what might be termed an internal gliding to and fro. A body thus constituted must, *ceteris paribus*, give a high ultimate breaking strain, although its resilience or spring, or the mechanical work performed in breaking—the *force vive de rupture*—may be comparatively slight. Being evidently unaware of what had been done abroad, and seeing the almost universal disregard by English experimenters of the contraction of area of the bars experimented upon during the stress and after the fracture, Mr. Kirkaldy naturally concluded that he alone had first observed this important phenomenon. The deductions of many experiments led him to place great importance on the contraction of the specimen's area when subjected to great stress. He says:—"The apparent mystery of a very inferior description of iron suspending, under a steady load, fully a third more than a very superior kind, vanishes at once when we find that the former had the benefit of retaining to the last its original area only slightly decreased; whilst the latter, on breaking, was reduced to very nearly a fourth of its original area,—the one a hard and brittle iron, liable to snap suddenly under a jerk or blow; the other very soft and tough, impossible to break otherwise than by tearing slowly asunder." There are reasons for believing that Mr. Kirkaldy has, perhaps, put too much importance on the contraction of the fractured area, taken by itself. But, with his usual caution, he has carefully guarded himself against being led too far away by his own personal prepossessions, and he has carefully given in his tables, not merely the original and fractured areas of his specimens, but also the areas of the specimens when under stress. In our valued contemporary, the *Annales des Mines*, for 1861, there is an account of some remarkable experiments, conducted by Professor Tresca, on the strength of steel, and intended as complementary to the experiments we have referred to on the use of steel plates for boilers. Some experiments made together by Mr. D. More, of Glasgow, and Dr. Rankine, appear to have led these two gentlemen to conclusions similar to

\* Rapport a S. Exc. le Ministre de l'Agriculture, du Commerce, et des Travaux publics sur l'Application de la Tôle d'Acier fondue, a la construction des Chaudières a vapeur par une commission composee de MM. Combes et Lorieux, Inspecteurs généraux des mines, et Conche Ingenieur en Chef, Professeur de Construction et de Chemins de Fer a l'Ecole des Mines, *rapporteur*.—Paris: Dunod, 1861.

those of Professor Tresca. As Dr. Rankine says, "It was found that as the load increased, the elongation increased at a uniform rate, until it reached a certain point, when there occurred a great increase in the rate of elongation, which was not quite sudden, though nearly so." Professor Tresca represents the results of his experiments by means of a curve, the abscissæ representing the loads, and the ordinates the elongations of the specimen. There thus resulted a curve, "the early part of which proceeded in a nearly uniform direction, and which merged by a quick bend into a portion proceeding in a different direction, corresponding to the more rapid elongation." It would thus appear that the greater portion of the cohesion of the metal had been overcome at the point indicated by the sudden change in direction of the curve. A solution of this question is exceedingly important, as it would probably afford us some accurate means of comparing the relative qualities of different kinds of iron and steel, and would give an accurate measure of its factor of safety, or the ratio in which the breaking load ought to exceed the working load. According to Professors Tresca and Rankine's experiments, it would appear scarcely safe to accept Mr. Kirkaldy's proposal to take as a measure of the factor of safety "merely the breaking strain per square inch of the fractured area of the specimen, instead of (as is now done) the breaking strain per square inch of the original area." There can be no doubt, however, that Mr. Kirkaldy's proposal is a move in the right direction. It appears almost absurd to merely take the ultimate strength of iron or steel into account without any regard to its *force vive de rupture*. It has been well pointed out by Professor Rankine that the truth probably lies between the two areas, the original and the fractured area, and that the best test of the quality of the material was the strain at which the sudden drawing out of the fibres commenced. The question is now whether such experiments could be easily made on a sufficiently large and numerous scale.—*Building News*.

## Reviews.

*On the Conservation of Ancient Architectural Monuments and Remains.* By G. G. SCOTT, R.A. John Henry and James Parker, Oxford, and 337, Strand, London. 1864.

This little treatise forms the subject of a paper which was read by the author before the Royal Institute of British Architects on the 6th of January, 1862, and is now brought before the public for the first time in the form of a pamphlet. After observing that "to any country which possesses a history and a civilization, the monuments and remains by which that history and civilization are illustrated are a matter of immense value," and that when the remains which bear the stamp of classic antiquity are searched out, delineated, and preserved with the utmost zeal and assiduity, those which derive their origin from our own land are still more deserving of our care and attention, the author states that it is a melancholy fact that, though our country is studded with those relics of the past, they are every year being reduced in number, and that those which remain are constantly subject to the danger of destruction or deterioration from various causes, of which the principal are—

- I.—Natural decay and dilapidation, arising from exposure to the weather and neglect;
- II.—Wilful destruction and ruthless mutilation; and,
- III.—The yet more destructive inroads of over restoration.

The object of the treatise is to bring the above facts prominently under the notice of architects, and to suggest the most effectual and practical means for the preservation of many most interesting buildings which are at present undergoing rapid destruction from one or all of these reasons. The subject is dealt with in a clear and comprehensive manner, and the methods suggested are well calculated to fulfil their object. Speaking of the downfall of buildings from gross neglect, the author observes:—

"How many of our ruined buildings have lost large portions within the memory of man. The Abbey of St. Augustine, in Canterbury, has lost its great tower within no very distant period; and I myself remember the newspaper notice of the fall of the central tower of Whitby Abbey, carrying away with it large portions of the surrounding building: indeed, such downfalls, if their statistics could be collected, would be found to reach an alarming number and amount, while the silent and yet more fatal progress of decay is every day and every hour eating into the most beautiful and most precious architectural details. And how could it be otherwise when walls constructed of small stone and rubble-work are exposed, with no protection but ivy and wall plants, to the constant action of the most destructive of climates; when every shower penetrates the crumbling mass, and every frost has its full swing in its disintegration; and even the more solid stone, from being kept in a constant state of saturation with water, has every cause of destruction in full and continued operation upon it—and all this for centuries together? Nor have these been the sole agents of destruction. Many, indeed the greater majority of our noblest abbey churches, and even some cathedrals, have been taken down for the value of their materials;

and those which were left as ruins were, for the most part, spared more because there was no market for their material than for any care for their preservation; and it naturally follows that they would become the quarries which would supply all the pretty buildings around them."

Again, in describing the principle to be adopted in repairing buildings that are still in use, but fast falling to decay, he observes:—

"The great principle to start upon is, to preserve the greatest possible amount of ancient work intact; never to renew a feature without necessity, but to preserve everything which is not so decayed as to destroy its value as an exponent of the original design; never to add new work except in strict conformity with the evidences of its original form; never to work over or smarten up old work for the sake of making it conformable with new; never to 'restore' carved work or sculpture, but to leave it to speak for itself; and, generally, to deal with an ancient work as with an object on which we set the greatest value, and the integrity and authenticity of which are matters which we view as of paramount importance."

Many practical experiments are recommended for the observance of the above rules, and the author suggests that a *vigilance committee* should be appointed for every district by the Institute, in whom should be vested the maintenance and reparation of all ruined buildings, and who should have the power to put a veto upon their being subjected to injurious treatment.

The subject is important, and is worthy of the serious consideration of every architect.

*Reports of Dr. Mapother's Papers on Subjects concerning Public Health.* Fannin and Co., 41, Grafton-street, Dublin.

THIS valuable work consists of a reprint of papers which were read at different times by Dr. Mapother before the Statistical and Social Enquiry Society; and although treating chiefly on subjects that are interesting to members of the medical professions, there are many parts which contain matters of the highest importance to architects and city engineers with regard to the influence which badly constructed buildings and insufficient drainage exercise over the sanitary condition of the poorer classes, and which render the book very worthy of their notice. The first part is devoted to the consideration of the present sanitary state of Dublin, and the author draws a fearful, yet truthful, picture of the disease and misery induced by the overcrowded occupation of ill-constructed, badly-ventilated and badly-drained houses. As an example, Dr. Mapother observes:—

"He had visited very many rooms occupied by the poor, and had measured their cubical capacity, and taking the average number of persons to each room, which Mr. Robinson deduced, namely, 3.59, each person will have a breathing space of 1160 cubic feet. In nearly every one of these rooms the windows do not open at the top, and are almost never opened at the bottom; in many in which they merely sleep, there are no fireplaces, several are surrounded by high walls, and in not one is there any attempt made at artificial ventilation, so that the air cannot be renewed, and is breathed over and over again. The poor often regard the air-tightness of the windows as the perfection of house architecture, for thus the foul air of back yards is excluded, and in many instances he was really inclined to agree with them. Every crevice is carefully closed at night. In many parts of the city there are very high houses, especially in neighbourhoods which have declined, and these are extremely unwholesome, by exclusion of sunlight and free circulation of air from other houses around them. The only mode of artificial ventilation which would be practicable would be the insertion of two gratings in the outer wall of each room, such as are now usual in club houses and public offices; in every new house builders should be compelled to adapt them. Their cost could not exceed a couple of shillings."

The dreadful exhalations of the Liffey at low water have long been a source of complaint; and in summer it is astonishing that anything like health can be maintained in the houses along the quays. It is no wonder that it should prove a fertile source of disease. Some curious results of analysis are detailed in the following paragraph:—

"The noxious character of the emanations from the Liffey, especially at low tide, when its shores are left uncovered by water, but covered with decomposed organic matter, has often attracted public attention, and the river was denounced by Lord St. Leonards in the House of Lords as "an absolute pestilence in consequence of its being made the channel for the whole sewage of the city." He obtained on February 5th, at low tide, and as nearly simultaneously as the distance would allow, some of the water of the Liffey; 1st, at the Metal-bridge, or about the centre of the city; and, 2nd,

at Sir John Rogerson's-quay, when nearly all the sewage of the city had been discharged into it. For comparison, he subjoined an analysis of the water of the river at Ballysmuttan, by Mr. Plunkett, of the Museum of Irish Industry:—

### ANALYSIS OF LIFFEY WATER.

	Grains of Organic Matter per Gallon.	Inorganic.	Total Impurities.
Ballysmuttan, . . .	64	2.88	3.52
Metal-bridge, . . .	2.33	18.64	20.97
Rogerson's quay, . .	83.88	476.32	559.20

"These results may give rise to many speculations. The water at the Metal-bridge is as pure as many waters used for drinking, and it may be that for want of flushing, the many large sewers, including the Poddle, which discharge above this point, throw in very little impurity. The large quantity of inorganic matter in the water at Sir John Rogerson's-quay is common salt, showing the effect of tide, which it would seem from the organic matter also throws back much refuse. Both waters were inodorous and pretty clear, and he did not think that any decomposition of organic matter can occur in so large a bulk of water. He believed that all the injurious effluvia proceed from the stuff exposed on the mud-banks at low tide, and he regarded it as most desirable that as soon as the new supply renders the city basin, James's-street, unnecessary for domestic use, it should be used to flush the sewers and keep the banks covered at low tide."

Dr. Mapother anticipates great benefits from the new water supply. He observes:—

"Into every house, or within easy reach of the poorest, the new water supply will be brought for domestic purposes, steps being taken to place the cost upon the landlord of the premises. At present it is impossible that domestic or personal cleanliness and consequent salubrity can prevail, when the poor have to carry without appropriate vessels the water from a fountain, often at considerable distances from their tenement. . . . The rapid extinction of fires is another advantage of the abundant water supply we are promised, but in fact its advantages are incalculable, and our debt of gratitude is indeed great to the Water Committee of the Corporation, and especially to Sir John Gray. The two mains will diverge at Leeson-street, and after encircling the city, will reunite at its western extremity, sending off in their course numerous intercommunicating branches. As an anatomist, this arrangement, even in its minutest details, struck him as happily based upon the perfect system of vessels for supply of the brain and other parts of our body."

Many other instances are given of the evils that arise from the defective state of the sewerage of the city, which, however, the author remarks, has been much improved of late years through the exertions of our city engineer. It would be well worth the attention of architects to suggest some means for the ventilation and improvement of the dingy and overcrowded houses of our lanes and alleys.

Two very interesting papers follow on food and diet, and the treatise concludes with a notice of a work published by that most talented and self-devoted woman, Florence Nightingale, with regard to the construction of hospitals. As the remarks which she makes are the result of many years' experience they are very valuable, and the suggestions which she makes on the construction of hospitals, that we quote them as cited by Dr. Mapother, *in extenso*:—

"The first principle of hospital construction, Miss Nightingale asserts, must be that it shall be built in pavilions or separate blocks, having wards, nurses' rooms, sculleries, lavatories, baths, and water-closets, unconnected with other pavilions, save by a common airy corridor; the building for the administrative part of the establishment shall be central. These and other important conditions will be best understood by reference to the plan of the Herbert Hospital, near Woolwich, which, Miss Nightingale states, embodies every scientific or desirable element. Her description of it will not bear curtailment.

"This when completed, will be by far the finest hospital establishment in the United Kingdom, or indeed in Europe. It consists of four double and three single pavilions, with the ends in the free air. All the wards are raised on basements, those at the lower end of the ground are so lofty as to afford excellent accommodation for the museum, library, medical officers' rooms, board-rooms, and stores. There are only two floors of wards to each pavilion, and the distance between the pavilions is double the height of the pavilion, measured from the floor of the lowest ward. Every ward has a large end window commanding beautiful views; and the ablution and bath accommodation, together with

water-closets, is placed in the free atmosphere at the ends of the wards. Each large ward contains from 28 to 32 beds, with windows along the opposite sides, one for every two beds; and each ward has a nurse's room and scullery. Unfortunately the army regulation number of cubic feet per bed, has limited the height of the wards to 14 feet. There is a convalescents' day-room in the central pavilion. The kitchen is in a basement, also in the centre; over it there is a library, and over the library, the chapel. At the administrative offices and quarters are in a separate block in front. The axis of the wards is a little to the east of north; and each side will receive the sun's rays during some part of the day. At one end of the hospital there are separate lunatic wards with separate offices. At the other end is the operation theatre, with a few small wards for special cases. The total accommodation is for 650 beds in seven detached buildings, all connected together through the centre by a corridor one floor in height, with a basement corridor beneath, through which the whole of the service of the hospital, so far as regards the conveyance of diets, medicines, coals, and the removal of dust and foul linen will be carried out. This is effected by a system of lifts and shoots, and the result will be that the usual bustle observed in hospital passages will be altogether avoided. The hospital embodies the great administrative principle of an entire separation between what is immediately necessary for the sick, and what is not so, and yet without interfering with the efficiency of the administration. Over the corridor there is an open terrace to which the convalescents in the first floor wards will have easy access in fine weather. And the covered corridor below will be available for exercise in wet weather. Each ward is 26½ feet wide and 14 feet high, and each bed has from 93 to 97 superficial feet, and 1200 to 1400 cubic feet. The walls will have a polished light-coloured surface. It is intended to warm the wards by two open fire-places along the centre of the wards, the flues being carried under the floor, and used for warming the air admitted to the wards. The floors are of iron beams, filled in with concrete, and covered with oak boarding. The whole will be fireproof, and the sick in the lower wards will not suffer from noise in the wards overhead. Hot and cold water will be laid over the entire building; and the supply, which is taken from chalk and hard, will be softened by the lime process before being transmitted to the hospital."

Dr. Mapother is inclined to differ with Miss Nightingale on some points for which we must refer our readers to the work itself. The treatise is valuable and instructive, and worthy of being read with close attention.

## General Items.

A statue is about to be erected at Sebastopol to the memory of Admiral Lazareff, who commanded the Russian Black Sea fleet during the late war.

As M. Dubray, of Passy was recently exhibiting in his studio the model of an equestrian statue of Napoleon I. for the city of Rouen, a portion of the framework broke, and the model which had engaged the artist more than a year was smashed into a thousand pieces.

The handsome tower of the new Town Hall, Adelaide, will be dedicated to the memory of the late Prince Consort.

However high house rents may be, you can always have at least one room at your command—the room for improvement.

An emigrant to Port Natal, writing home to one of his friends says:—"We are getting on finely here, and have already laid the foundation of a larger gaol."

A printer being called on to reply to a toast, said, "Gentlemen, I thank you most heartily. I can't make a speech; but I can print one as long as you like."

The Port of Dublin Corporation require a plot of ground about 100 feet square, contiguous to the Custom House, on which to erect suitable offices. The building in Westmoreland-street, at present occupied, although at various times remodelled, has been found inconvenient for the business of the board.

Several of the great iron works in Paris are employed in the manufacture of improved machinery for working the mines in Mexico.

The operative carpenters and joiners of Liverpool demand from their employers an advance of 2s. per week in their wages, commencing on the first week in May.

Messrs. Holme and Nicol have been declared the contractors for erecting the new Exchange Buildings at Liverpool, at £68,380.

## Miscellaneous.

**A TRAP FOR PICKPOCKETS.**—A letter from Turin in the *Morning Herald* relates the following amusing story. The invention referred to deserves to be recorded amongst the noblest discoveries of mechanical science. Great surprise was caused a day or two ago on the Corso Vittorio Emanuele at Milan by the novel spectacle of an old gentleman closely followed by a young man of shabby appearance, whose hand, deeply thrust into one of the pockets of his companion, was not withdrawn even after his position had begun to excite the general attention. No. 1 walked stoutly along, smoking an enormous pipe. No. 2 was stepping with all the delicacy of King Agag, and seemed to be covertly employed in the effort to dissolve his near connexion with his mysterious partner. A crowd soon gathered in the wake of the strange pair; the old gentleman continued to walk on and smoke, as if unconscious of the presence of the other, who now altered his tone, uttering incoherent cries, such as, "Oh, please don't, sir; Oh, pray let me go, sir; Oh, sir," and so on. In process of time a policeman made his appearance, and the matter was explained. The young man was a pickpocket, and his hand, when released from the old gentleman's pocket, was found to be imprisoned, together with a magnificent silver snuff-box, in a peculiar engine, closely resembling the wire muzzles used in continental cities to confine the jaws of dogs. The baffled thief was taken into custody, and the old gentleman reset his trap, which attracted much attention for the ingenuity of its construction.

**THE GLASGOW WATERWORKS**, begun in 1856, and opened by her Majesty in person on October 14, 1859, deserve especial notice. From the classic and beautiful shores of Loch Katrine, a distance of thirty-four miles straight, the pure water of that lovely Highland lake is conveyed, by mere gravitation, through aqueduct, and tunnel, and pipe, under the mountains, over the valleys, and across the rivers, into the heart of the populous city. The engineer was Mr. Bateman. The total cost of these works was £918,000. The Corporation also paid £674,000 to buy up the old waterworks, which belonged to a joint-stock company, and a part only of which, on the south side of the Clyde, has been kept in operation, the rest being now superseded. The water from Loch Katrine is of exquisite purity and unlimited in the amount of its supply. Descending from an elevation of 360ft. above the sea-level, eighteen and a half million gallons are daily poured into Glasgow for the public and private wants of a population of 450,000; and there is no fear of the bursting of their reservoir.

**The Clerkenwell News**, Oct. 27, speaking of Benson's watches in the Exhibition, says:—"In Benson's great case are some fine specimens of engraved watch-cases, designed by the pupils of the Schools of Design. They are, perhaps, on the whole, the best specimens of engraved watch-cases in the Exhibition." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medalist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London; 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

**THE WEATHER.**—Ordnance Survey Office, Phoenix Park, Dublin.—Extract from the Meteorological Register for the Month of March, 1864.—Barometer—Max. 30.064; min. 28.742; mean, 29.500. Temperature in air—Max. 58.7; min. 26.8; mean 42.7, mean of dry bulb, 42.5. No. of days the wind blew in certain directions—N., 2; N.E., 4; E., 10; S.E., 1; S.W., 7; W., 5; N.W., 2; calm, 0. Rain fall, 2.843. The following information is for the corresponding period in 1863:—Barometer—Max. 30.365; min. 28.835; mean 29.696. Temperature in air—Max. 60.6; min. 27.3; mean 45.7. Mean of dry bulb, 46.2. No. of days the wind blew in certain directions—N., 3; N.E., 1; E., 2; S.E., 3; S., 3; S.W., 8; W., 9; N.W., 1; calm 1. Rain fall, 1.124. Highest barometer was on the 12th, at 9.30 a.m., wind W.; lowest ditto on the 6th, at 9.30 p.m., wind S.W. The warmest day was on the 20th; the coldest day, 24th. Greatest rain-fall in 24 hours, .626 inches, on the 8th. Number of days on which rain or snow fell 19. The greatest amount of ozone was 1.0 on the 11th, 12th, and 31st; the least was .0, on the 1st, 2nd, 4th, and 18th. Mean for the month .5. A large yellow butterfly was seen flying about the garden at this place on the afternoon of the 19th March.

**DISCOVERY OF ANCIENT COINS.**—The workmen engaged on the new line of railway from Derry to Letterkenny, in the county Donegal, recently turned up a number of ancient English coins. The exact locality of the discovery was in the parish of Burt, on the banks of Lough Swilly. The coins, when found, were lying loosely in the soil, covered by a small flat stone, beside or partly under a very large isolated rock. The number of coins found is not known. Being of small size, coated with clay, and blackened by age, the labourers thought them of no value, and threw most of them away; others, I have heard, were given to children, and lost. I have been able to collect six of them. They are silver pennies of King Edgar, who reigned A.D. 958-975. On the obverse they all have the same legend EADGAR REX; but the reverse of each has a different inscription: one reads FARD + ENINO; another apparently IZEM + BERT; another ASFER + DNON; another MERO + PI MONE. They have no heads, or figures of any kind; but each has a cross in the centre of the obverse: one has a cross in the centre of the reverse, with the legend round it: the others have the inscriptions on the reverse in two lines, with three crosses between the lines. It seems strange that coins of such an early date should be found in so remote a part of Ireland. It would be interesting to know if any of a later period had been discovered in the same place; for, if they were all of the coinage of Edgar we might suppose they had been placed there during or soon after his reign. It is a remarkable fact that, from time immemorial, a tradition existed in the neighbourhood that gold was secreted under the very rock where the coins were discovered.—*J. L. Porter, in Athenæum.*

**THE INDIAN TELEGRAPH.**—The *Bombay Gazette* says:—"The most important event is the successful completion of one principal portion of the great enterprise for connecting England and India by the telegraphic wire. By noon on Tuesday, the 9th inst., 359 miles of the Persian Gulf cable, forming the first section from Gwadar to Cape Mussendom on the Arabian coast, had been laid from the ships Kirkham and Marian Moore, and at three o'clock in the afternoon of the same day a telegram dated Malcolm's Inlet, Cape Mussendom, and sent through the cable to Gwadar, and thence to Kurrachee, reached Bombay, and made known the gratifying news that, thus far, nothing could have been more successful. The cable is reported to be in perfect working order. The Tweed, which is the third of the cable ships, has arrived here, and is only waiting for the Ferose, now overdue, to be towed up the Gulf, when the laying of the second section, from Cape Mussendom to Bushire, will be at once commenced. The Assaye, with the third section on board, left England nearly four months ago, and anchored in our port yesterday, and the probabilities are that by the end of March the whole length of the cable will have been submerged, and that Bombay will be in direct telegraphic communication with Bussora. Recent letters from Bagdad, however, make us anxious for the safety of the short land line from Bussora to that city, the Arabs having already, as we learn, broken the wires and ill-treated the workmen engaged in the construction of the line. Another difficulty likely to make itself felt when the cable has been laid down is the inefficiency of the present telegraph from Kurrachee to Bombay. It will be most vexatious if, after so many serious obstacles have been successfully overcome, telegraphic communication with England is interrupted precisely where it ought to be most safe and regular. The Arabs between Bagdad and Bussora may be quieted partly by threats and partly by bribery, but the Indian telegraph department can neither be frightened nor coaxed into doing its work properly, and the sole remedy is for an independent English company to make a line of its own between Bombay and Kurrachee."

**ROAD LOCOMOTIVES.**—On Wednesday, the 6th, the powers of a road locomotive—manufactured by the Bray's Traction Engine Company—were tested on a short distance of the main line of thoroughfare from London to Maidstone, in the neighbourhood of the Sevenoaks junction of the London, Chatham, and Dover Railway. The engine has been constructed on order from the Russian Government for military purposes; and the object of experiment was to show whether the engine could move, over very heavy gradients and on bad roads, loads of 40 or 50 tons. The distance traversed by the engine was about half a mile, and the load attached to the engine was 45 tons gross weight, consisting of five wagons. One half the distance was nearly on the level, and the other portion of the road had an incline of about 1 in 16 to 20. It was stated that a short distance of the incline was 1 in 11. The engine did its work in a few seconds under twenty minutes, which would give a speed averaging a little over a mile and a-half an hour. However, it may be stated that when the engine went over any portion of the road approaching the level, a speed above three miles an hour was attained.

**VOLTAIRE'S TOMB.**—The Paris *Figaro* states that a rumour, for some time past in circulation, to the effect that the remains of Voltaire are no longer at the Pantheon, has now been confirmed. The tomb is empty, and nothing is known as to what has become of its contents. This discovery was made, it declares, through the following incident:—"The heart of Voltaire, as is generally known, was left by will to the Villette family, and had been deposited in their chateau; the present marquis de Villette, a descendant of Voltaire, having resolved to sell the estate, offered the celebrated relic to the Emperor; it was accepted by the Minister of the Interior in the name of his Majesty, and the question then arose as to what should be done with it; the most natural idea was to place it with the body in the tomb at the Pantheon, but a scruple arose; the Pantheon had again become a place of Christian worship, and if the tomb of Voltaire was still in the vaults the reason was rather from a consideration that what was done could not be undone than from any other; at all events no fresh ceremony relative to Voltaire could take place in that building without the authorization of the Archbishop of Paris; Mgr. Darboy, on being consulted, before making a reply first hinted that there was a belief that, since 1814, the Pantheon possessed nothing belonging to Voltaire but an empty tomb. In consequence, it was determined to verify the truth of the report. A few days back the stone was raised, and as the Archbishop had stated, the tomb was found to be empty! A strict inquiry into the subject has been ordered, and the Emperor has given instructions that the heart shall be enclosed in a silver vase, and deposited either in the great hall of the Imperial Library, or at the Institute of France.

**EXCAVATIONS AT POMPEII.**—Imbedded in flint in the second floor of a newly discovered house at Pompeii, a statue of a bearded philosopher, "clamide" or vestment in hand, has been exhumed. The figure is seated in an arm-chair, a papyrus in the right hand, the head supported by the left. A small Paris; a Silenus and a Satyr in different attitudes; a shepherd seated on a rock milking a goat, of which the head is wanting; a beautiful scenic mask, and several objects in bronze of a most rare perfection, are the latest discoveries. The various arms found near the lake of Varese, of which mention was made in the last letter, are different to those found either in Switzerland or Denmark, no less for their form than their sharpness, being finely pointed. Captain Angellucci, the discoverer of these arms, searching the archives of Lombardy, has found documents of great value, one especially describing a boat constructed in pieces for exportation, but easily put together for sea, in the fifteenth century; a request from the King of Hungary to the Duke of Milan in 1450 for the builders of those boats known as "gatti" (cats) on the Lake of Como; another request from Louis XI. of France to the Duke for workers in arms, as those of his kingdom were not sufficiently expert the proving of a mortar in a castle near Genoa, 1476; a gun, with powder in the stock, of Vercelli, 1346.

**TAYLOR PRIZES FOR THE PROMOTION OF THE FINE ARTS IN IRELAND FOR THE YEAR 1864.**—The trustees offer the following prizes, open to art students of Irish birth or attending a school of art in Ireland, to be awarded at an exhibition to be held on the 23rd November, 1864, at the house of the Royal Dublin Society. 1. For the best drawing or cartoon in chalk, the figures to a scale of three feet (two or more prizes each), £10. [Subjects:—"The Good Samaritan" "the meeting of Eneas and Dido, after the shipwreck." 2. For the best landscape in oil colours, £20. To be increased or lowered in amount or wholly withheld according to the merits of the works. All works must be delivered before two o'clock on Saturday, 14th November, 1864, at the house of the Royal Dublin Society, Kildare-street, Dublin, where the conditions and other particulars may be ascertained.

**ARTIFICIAL RAINBOW.**—M. J. Doboseq has contrived for the French theatre a method of imitating the rainbow, of which Cosmos speaks very highly. He employs, says the *Intellectual Observer*, an electric light, obtained with the aid of 100 Bunsen elements. The first lenses of his optical apparatus render the rays from this source parallel, and transmit them through a rainbow-shaped hole in a screen to a double convex lens of very short focus, from which they pass to a prism, and emerge with sufficient divergence to make an effective rainbow on a screen about six yards off. This rainbow is said to be brilliant even when the whole scene is lit up.

**COAL IN MONT CENIS TUNNEL.**—At the Manchester Geological Society, Mr. Joseph Dickenson has exhibited a number of specimens taken from the rocks now being tunnelled through the Savoy side of Mont Cenis. They appeared generally to be from metamorphic rocks; and as yet, he believed, no granite had been touched upon. The most interesting mineral is coal, which is found associated with the metamorphic rocks. It has, he was informed, been cut through in different places in the tunnel. Between

San Michel and Modane similar coal is being worked to supply the district. In thickness it is as irregular as the rocks themselves. It is very similar to the Welsh anthracite. There is no regular dip at all in any of the rocks. In one part they stand up like a cone. As for the coal, it is impossible to say which is the roof and which is the floor, as it is sometimes vertical, and it dips in such a variety of directions. The rock which adjoins the coal is of the nature of shale. There are no stratified rocks near—not more than the bedding sometimes met with in metamorphic rocks; neither is the limestone stratified but it lies in large masses, the same as quartz. The masses are partially laminated, and the coal lies imperfectly bedded. Here and there the quartz and limestone, instead of taking the shape of solid rock, are like snow or flour, and are used in making the mortar for the tunnel.

**HOLYHEAD HARBOUR.**—The estimate of the cost of completing this harbour, as given in the Civil Services' estimates for the current financial year, which have just been issued, is £45,000, of which £25,000 is for the refuge harbour, and £25,004 for additional packet accommodation. The original estimate for the harbour and packet pier, including the purchase of land, was £808,063; and this was brought up £1,198,063 by the estimated cost of the extension works required to shelter the roadstead, recommended by the Admiralty, and sanctioned by the Treasury in 1855. In the following year came a plan for a further extension of the northern breakwater, an improved landing place for mail packets, and a railway to join the Chester and Holyhead line, which together added £105,000 to the original estimate. In 1857 other works in connexion with the pier for landing and embarking mails were planned, which brought the total up to £1,545,000, on account of which there has been voted, from 1855 to 1863, both inclusive, £1,303,000. To the vote for the current year must be added £1,848 for salaries, wages, repairs, rates and taxes, lighting, and other incidental expenses, towards which sum the harbour dues are estimated to furnish £800.

**IMPROVED GATES FOR LEVEL CROSSINGS.**—Messrs. J. and C. Lea, of Stafford, have erected a set of their patent gates at a crossing on the Garston and Edgehill branch of the London and North Western railway, near Liverpool. Connected with the gates are two signals, upon the up and down lines, distant from the crossing some 400 and 500 yards, respectively, which are raised or lowered, as the case may be, with the opening or closing of the gates. The opening and closing of the gates and working of the signals are done simultaneously by means of a lever, which an ordinary-sized lad can easily move. The gates when closed are perfectly secured by catches, which, when the gates are required to be opened, are lowered by the man in charge of the lever at the moment he opens the gate. Only a few seconds are required for opening the gates and raising the signals, and the closing the gates and lowering the signals are done in an equally short space of time.

**THE ROYAL LIFEBOAT INSTITUTION**, as a testimonial of merit to the three men who risked their lives in saving two fellow creatures from the Shamrock, of Wicklow, last month, has transmitted the sum of thirty shillings for distribution amongst them. Surely our Government should in some way acknowledge such acts of bravery.

The *Morning Herald*, October 23, 1862, speaking of the plate in the Exhibition, says, "Mr. Benson, who has a medal for plate, exhibits some beautiful things." Benson's argentine is a splendid material composed of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps; and an illustrated catalogue containing 300 Engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "Excellence of manufacture, Argentine and Electro Plate." Post-office Orders and Cheques should be made payable to James W. Benson, Branch Establishments, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

**MONSTER STEAM HAMMER.**—Messrs. R. and W. Morrison, of Newcastle-upon-Tyne, have just forged the largest and most powerful steam hammer in the world for the Russian Government. The piston-rod to which the hammer is attached is a ponderous piece of metal, weighing no less than 42 tons in its rough forged state; and now, when dressed down to the required dimensions, it has only been reduced to 35 tons. The length of the piston-rod is 58 feet, the diameter 2 feet 4 inches, having a stroke of 14 feet 6 inches, the piston being 6 feet 8 inches. The forging of this mass of metal occupied forty-four days. The cylinder for this hammer was cast at the Elswick Engine Works. Its diameter inside is 6 feet 8 inches, its weight upwards of 49 tons. The standards weigh nearly 40 tons each. The united weight of the hammer-bar, the cylinders, and standards amounts to over 150 tons.

**PROPOSED IRISH CIVIL SERVICE AND GENERAL BUILDING SOCIETY.**—The next general meeting of this society will be held, pursuant to adjournment, at the Northumberland Hotel, on Monday evening next, the 18th inst.

#### TO CORRESPONDENTS.

*We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.*

*Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.*

*All Communications respecting the DUBLIN BUILDER, should be addressed to Mr. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.*

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#### [ADVERTISEMENT.]

**AT a General Meeting of the REGULAR INCORPORATED and AMALGAMATED BODY of BRICK and STONELAYERS of the City of Dublin**, held at their Institute, No. 49, Cuffe-street, April 6th, 1863;

It was resolved—That henceforth the above Body do publish in the *General Advertiser*, and *Dublin Builder* a Monthly Report of the Names and Addresses of the Builders of this City and its vicinity who patronise this Body, for the information of Architects, Public Bodies, Heads of Firms, and the Building Public; and, in order that they may not be duped by accepting estimates from parties assuming to employ first-class workmen, while they drag through their contracts with the waifs and strays, and impose them on the public for the regular men of the city, much to the prejudice of our long and well-earned reputation for ability and skill in our trade.

PATRICK HAND, Master.  
JOHN CUMMINS, } Stewards.  
JOSEPH O'TOOLE, }  
DENIS BYRNE, Secretary.

#### REPORT FOR THE WEEK ENDING 12TH MARCH, 1864.

Beardwood, James, 10, Westland-row.  
Bolton, Samuel H., 38, Richmond-street.  
Barker, J. and E., 27, Abbey-street.  
Breen, Stephen, 3, Lower Mayor-street.  
Boyce, J., Rathmines.  
Boyd, William, 97, Capel-street.  
Brophy, H. F., Harold's cross.  
Cockburn, Messrs., 179, Brunswick-street.  
Conolly, John, 30, Prince's-street.  
Conolly, William, 39, Dominick-street.  
Doolin, William, 23, Westland-row.  
Donnelly, James, 89, Talbot-street.  
Doyle, Luke, 9, Temple-bar.  
Dempsey, John, 4, Peter-street.  
Dunne, Michael, 98, Anson-street.  
Farrell, George, 12, Wentworth-place.  
Freeman, David, 15, Queen-street.  
Freeman, James, Britain-street.  
Gahan, Matthew, Whitechurch.  
Grant, John, 16, Pembroke-street.  
Hogan, John, 11, Wincavern-street.  
Halston, Alexander, 20, Talbot-street.  
Hughes, John, North Strand.  
Hudson, George, 47, Capel-street.  
Hall, Thomas, and Son, 62, Harcourt-street.  
Kennedy, M., Marlborough-street.  
Lennon, P. and J., 179, Pembroke-street.  
Lawton, David, and Son, Seville-place.  
Lynch, Matthew, 34, Camden-street.  
Murray and Son, 88, Anson-street.  
Moyers, George, 47, Richmond-street.  
Meade, Michael, 152, Brunswick-street.  
Mayers, Patrick, Conyngham road.  
Madden, Peter, 11, Whitefriar-street.  
Millard, Thomas, 58, Harcourt-street.  
McCormick, James, 90, Talbot-street.  
Murphy, Gregory, Williamstown.  
Nolan, John, 3, Meredith-place.  
Nolan, J. J., 67, Townsend-street.  
Owens, Peter, 2, Store-street.  
Parker, Robert, 78, Marlborough-street.  
Potts, Patrick, Donnybrook.  
Whiteacre, George, 75, Summer-hill.  
Wardrop and Son, Conyngham-road.  
Walsh, John, Mecklinburgh-street.

N.B.—If any omission in this report has been made, by notifying the same to the Secretary, at the Institute, it will be attended to in due form in the next report.

# The Dublin Builder.

VOL. VI.—No. 105.

## PUBLIC COMMITTEES AND THE ARCHITECTURAL AND ENGINEERING PROFESSIONS.

THE rapidity with which the profession of Civil Engineering has risen in rank and importance since the time when it first began to be looked on as a distinct and separate calling, worthy of the talent and energies of an educated man, is a notable instance of the progress of the march of intellect during the present century. Far less than a hundred years ago, almost the only works executed consisted in the construction and repairing of common roads, and there were no requirements that called for any special exercise of the trained experience of an educated mind. But when the giant intellects of a few men like Watt and Stephenson developed a new era in the annals of social intercourse, and the tide of commerce and international traffic became deepened tenfold, then at once a whole train of wants sprang into existence which rendered it a matter of moment, not only where thousands and millions of money were concerned, but also for the protection of life and limb from danger, to entrust the care of works only to such men as could apply the powers of a high scientific education, coupled with practical experience, to the most judicious outlay of the capital which such works required. From that time the profession of Civil Engineering was raised to a rank second to none in importance, entailing an amount of responsibility which few would like to incur who had not obtained a qualification by years of training and study. The advantages to be derived from the employment of first-class engineering skill in works even on a comparatively small scale are now so universally recognised, that it is looked on in all cases as almost indispensable, and companies feel themselves more secure in adopting, even at an additional outlay, the plans of men of recognised ability. It has long been an established principle, not only in matters which demand architectural or engineering skill, but at the commencement of almost any undertaking, that a little judicious outlay in the beginning is better than a misplaced economy that may result in a threefold expenditure. It is certainly, then, not a little surprising that, when an engineer furnishes to a Board of Commissioners a set of plans for the carrying out of an important object, which exhibit proofs of the greatest care and study, and receive the immediate approval of the Board of Trade, one of their first acts should be to raise a question as to the very moderate remuneration to which, by his labour, he is most justly entitled.

It has for some time been considered a matter of immediate necessity to improve the condition of the harbour at Dundalk. It appeared from investigations, that the original

channel through the harbour, as laid down in charts more than twenty years ago, had been in a great measure lost by the influence of tides and currents, that many bends and curves had arisen from the same cause, resulting in extensive shoaling, and that in several places the banks were being carried away by the ebb and flow of the tides. Plans and specifications were accordingly furnished, at the instance of the Harbour Commissioners, by Mr. J. Neville, C. E. The report sent in by the latter gentleman was a masterpiece of engineering talent, and was complete, and even elaborate in its details. It commenced by enumerating, *in extenso*, the various maps and charts which had been made of the harbour at different periods, exhibiting by comparison the changes and the deterioration which the hand of nature had gradually wrought. It next described the causes of the present defects that offer serious obstacles to navigation. Thirdly, it showed by what means these defects could be remedied; and lastly, an estimate was furnished, and the order was described in which it would be most advisable to execute the works proposed. The merit of the plans was so obvious, from the fact that they were not shrouded in any professional mystery, but explained their own object by a system of the plainest reasoning, that the Commissioners decided at once upon adopting them; and on their being submitted to the Board of Trade in the usual manner, they received the immediate approval of that body, a compliment not always paid even to the most celebrated engineers. Yet, at a meeting of the Commissioners shortly afterwards, certain members complained of their being called on to pay Mr. Neville even  $2\frac{1}{2}$  per cent. on his estimate, and spoke of taking the execution of the works out of his hands altogether. We feel convinced that had these gentlemen considered for a little, they would have paused ere they had proposed to adopt the fruits of intellectual labour, and to dismiss the author with a mere nominal remuneration. Advice which is given cheap is seldom valued, and an engineer who gives his opinion for nothing will have little chance of attaining to an eminent position. And what would be  $2\frac{1}{2}$  per cent., or even 5 per cent., if it ensured the adoption of the best plans, and their being carried out in a masterly manner? Would it not be better to pay £600 additional on £1,200, than to sacrifice perhaps three times that amount upon bad plans or unskilful engineering? But the members who made such a proposal could not have comprehended the value of the plans with which they had been furnished, nor understood the labour which they must have cost their author. There is no subject within the sphere of an engineer's calling so intricate, so difficult to master, or concerning which so much controversy exists, as the improvement of rivers and harbours, and the guiding of fresh water and tidal currents in such a manner that their action may be turned to useful account instead of proving injurious; and there is no other case in which so many failures have occurred, and so much money has been wasted through injudicious management. Our own harbour of Kingstown

is an example, which, owing to its not having been constructed according to the plans of the eminent engineer who first designed it, has in many points proved a failure, and many a good ship has been wrecked within the walls from which it should have obtained protection and safety.

We do not seek to blame the commissioners for seeking to practise economy, it is a virtue seldom found in commissioners, and which deserves the highest praise when it is exercised in a proper manner, but we will ever uphold to the utmost the dignity of both the architectural and engineering professions, whose interests it is the special object of our journal to promote; and were the members of either to suffer themselves to be bargained with and beaten down, the dignity of their calling would be trampled upon, and its prestige would be irrecoverably lost. Their avocations demand as much education and talent as any of the other learned professions; they do not entail an iota less of responsibility, nay, they are accompanied with perhaps far more than any other, for one error of judgment, one fatal mistake may involve its author in irretrievable ruin; their duties require not only mental anxiety but often much bodily labour; they are often obliged to incur even personal danger.

It is with feelings of strong satisfaction that we record the resolutions passed at the last meeting of the Royal Institute of the Architects of Ireland, proving its fixed determination to maintain the honorable standing of the Architectural profession; for the line of conduct which has been for some time pursued by building committees with regard to competitors has been loudly complained of, and is deserving of the strongest censure of the Institute; and were it continued much longer it would tend to remove all confidence on the part of architects, and induce them to hold back from competitions altogether. We trust therefore, now that the evil has been brought so prominently forward, it may deter public bodies from pursuing such a course in future, and that breaches of good faith on their part may not have again to be complained of. The increase which the Institute is receiving each month to its numbers offers a fair prospect of future influence and strength, and it may soon prove a bulwark of protection to every young architect who will take shelter in its ranks.

### OLD MEN'S ASYLUM, LEESON-PARK.

In our last number we published a description, accompanied by an illustration of the above building. We have since been favoured with an account of a large kitchen range, with which it is supplied, which has been manufactured and erected by Messrs. Hodges and Sons, of Westmoreland-street.

It consists of a large hot plate, a roasting chamber, and a high pressure circulating boiler, by which the whole building is supplied with hot water. There is also a large steam boiler, by means of which soups, vegetables, &c., may be cooked in large quantities in vessels fixed in the kitchen, quite apart from the range.

This entire and perfect apparatus is worked by one fire of 15 or 16 inches wide, and is similar in its detail to some that are now in process of manufacture for other public institutions.

The Gothic grates in the principal rooms were also supplied by Messrs. Hodges and Sons.

## OUR PUBLIC AND DOMESTIC ARCHITECTURE.\*

THE fifth of the series of "Afternoon Lectures" was delivered on the above subject on last Wednesday, at four o'clock, by Samuel Ferguson, Esq., Q.C., LL.D., M.R.I.A., before a large and fashionable attendance.

THE LORD CHANCELLOR occupied the chair.

Mr. Ferguson, in opening the lecture, said:—

The extended scope of your programme, which now includes Art as well as Letters, gives me this opportunity of directing a large amount of cultivated intelligence to the present state of British architecture. Our generation has gained for itself an eminent place in the history of Literature. It has stamped its impress on a National School of Painting; but, after a long period of indecision, it has as yet come to no determination on the form to be permanently assumed by its most lasting and characteristic material exponent. It is only by the control of educated judgments that the public taste, in such a period of irresolute and tentative selection, can be restrained from caprices which might constitute a permanent reproach to our century; and I address you in the hope that some of that mental activity which seeks its gratification in these reunions, may apply itself to the formation of opinions definite enough to be felt in the final adoption of something that shall be beautiful in itself and suitable to that civilization which it will have to represent among succeeding generations.

The schools which divide our tastes I may designate as the Regular and the Mediæval; including, under the former, all varieties of the Classical type; and under the latter, the different forms and modifications of the Byzantine, Gothic, and Saracenic styles. By the use of the word "Regular" in reference to the one school I do not intend to cast any reproach of irregularity on the other. Both styles have rules. The architecture even of those nations whom we esteem barbarous, has rules as fixed as our own. There is a regular order, gradation, and harmony in the parts of a Chinese tower or temple, any marked departure from which would hurt the educated Chinese eye. A Hindoo pagoda strikes the European observer as a medley of incongruities; yet each one of its members is designed on a fixed pattern, and has a definite proportion to every other. Subjection to rule not being the criterion, I therefore assume no abstract superiority for the styles which we derive from Greece and Rome in calling them Regular; but use the word only for purposes of distinction. It may seem strange to some of my elder hearers that in speaking of the Classical styles I should employ language so apologetic; but by a stranger fluctuation of taste, one is now obliged to use some degree of caution in bespeaking even a tolerant consideration for those forms of construction which so much delighted the best judges of the two last centuries. A century has hardly elapsed since one would have incurred the scorn of all cultivated persons who should have ventured to hint that the Mediæval styles possessed any merit whatever. As an example of the tone prevailing in our city little more one hundred years ago, let me refer to the "Treatise on Architecture," by Mr. John Aheron, published in Dublin in 1754. Discussing the varieties of vaulting and archwork, Aheron, with the complacency of a man well assured of a good reception for what he is about to say, reproduces for his Irish readers what had been written for the wits of England by Sir Henry Wotton, in his "Elements," in 1650:—"As for those arches, which our artizans call of the third and fourth point (he speaks of the pointed Gothic), I say, these, both for the natural imbecility of the sharp angle itself, and likewise for their very uncomeliness, ought to be exiled from judicious eyes, and left to their first inventors, the Goths and Lombards, amongst other reliques of that barbarous age." And, judging from the illustrious names found in his list of patrons and subscribers, Aheron may be taken as reflecting the sentiments of the most eminent of our nobility and gentry of his time. Nothing, indeed, could exceed the contempt for Mediævalism which prevailed during the architectural revival of the seventeenth century. John Evelyn, in 1687, dedicating his "Account of Architects and Architecture" to Sir Christopher Wren, expresses the cultivated English opinion of that day in terms which curiously contrast with the commendations we are now in the habit of bestowing on the very features he most condemns. "It was," says he, speaking of the decadence of Classic Art, "after the irruption of swarms of those truculent people from the North, the Moors and Arabs from the South and East, overturning the civilized world, that, wherever they fixed themselves, they soon began to debauch this noble

and useful art; when, instead of those beautiful orders, so majestic and proper for their stations, becoming variety and ornamental accessories, they set up those slender and misquise pillars, or rather bundles of staves, and other incongruous props to support incumbent weights and ponderous arched roofs, without entablature. Let any man of judgment that has the least taste of order and magnificence, after he has looked awhile at King Henry the Seventh's chapel at Westminster, gazed on its sharp angles, jetties, narrow lights, lace and other cutwork and crinkle crinkle, then turn his eyes to the Banqueting House, built at Whitehall, by Inigo Jones, after the ancient manner, &c. Not," he adds, "that there is not something solid and oddly artificial, too, after a sort: but then the unreasonable and universal thickness of the walls, clumsy buttresses, &c., nonsensical insertions of various marbles impertinently placed, turrets and pinnacles thick set with monkeys and chimæras, and abundance of other busy work and incongruities, dissipate and break the angles of the sight, and so confound it that one cannot consider it with any steadiness where to begin or end."

To have doubted, in those days, that Wren's restoration of the towers of Westminster Abbey was an improvement, would have been deemed as grave an artistic heresy as it would now be to question that they are a disfigurement. Such are the mutations in taste: and it is impossible to deny to the advocates of the one school, or of the other, ample credit for learning, argumentative ability, and eloquence. But there is such a thing as æsthetic fanaticism; and, as I daresay you have detected some traces of that ingredient in the haughty periods of Wotton and Evelyn, so it is not to be denied that a good strong infusion of it mingles with the Mediæval Renaissance in the midst of which we find ourselves and our buildings at the present day. In this, as becomes us in every case of speculative division of opinion, let us invoke a spirit of tolerance, and examine calmly, and in some detail, the grounds on which the Regular system has been principally impugned.

I put out of consideration the admitted unsuitableness of the pure Greek temple for the uses of modern civilization in a northern climate. Requiring as we do light and warmth within doors, we cannot dispense with windows and abundance of internal accommodation, in whatever edifice we erect, whether it be a church, a palace, or a dwelling-house. In an ancient Greek temple erected under the sun of the Levant, the object was to attain shade and coolness with the free access of the open air. The porticoes and lateral colonnades surrounding the cell were perfectly adapted to this purpose; and their beauty resulted as well from the harmony of fitness as from that of form; but what constituted fitness then and in that locality is utter unfitness now and here. The space occupied by the portico is in great measure lost for purposes of utility; that covered by the lateral external colonnades is wholly so. Of the three chief examples at this side of the Alps, the Walhalla—that pantheon of the worthies of Germany, erected by King Ludwig of Bavaria—is the happiest. Yet with all its great advantages of site and climate it is felt to be an exotic; and when seen with the recollections of Munich still present to the mind of the spectator, seems rather a detached specimen from the Architectural Museum than a natural product of the bank of the Danube. The comparatively bright skies of Paris fail to relieve the colonnades of the Madeleine from an aspect of blankness and monotony, made even more remarkable by the sumptuousness and diversified splendour of the Boulevard; and when we come northward to Edinburgh, and look at the transplanted Doric porticoes of the Scottish capital, seen as they too often are through Scottish mists, and under the chilling influence of northern winds, the sense of incongruity becomes painfully strong. It is not around these forms of art that the battle of the styles is really waged; the objects of serious attack and defence are the class of structures which I may generically term Palladian, those adaptations of the elementary forms of Greek and Roman building to the civilization of Western Europe, which Palladio, in the sixteenth century, advanced to distinguished excellence in Italy, and which his followers in these islands have carried to great perfection in such structures as we find in the pages of the "Vitruvius Britannicus," and more directly amongst ourselves in the civic buildings of Dublin of the last century. It is against this class and character of edifice that the advocates of a Mediæval revival direct the objections which have to so great an extent prevailed in alienating the public taste from the Regular style. These objections range themselves under two heads: structural untruth and poverty of design.

The charge of being structurally untrue is that which finds the reader acceptance. We have, in literature, for the last twenty years been taught such a horror of what are called *shams*, that the imputation of being in any respect a *sham* is almost as damaging to an architectural as to a moral feature; but a little consideration will, I think, reconcile us to

the necessity of admitting forms in ornamented construction which must to some extent be obnoxious to this ill-sounding name; and will also satisfy us that *shams* are by no means peculiar to the Regular school.

So much has been made of this charge of unreality that we shall find it convenient to examine it systematically; and you will probably be surprised, after putting aside these unrealities which are common to every work of decorated construction, to find so little that really is unreal in Regular architecture.

Unreality may be in point of material or in point of form. I pass the first by, as not being specially alleged against Regular buildings; observing merely, that a smooth surface of plaster, even though it should be scored with lines suggestive of non-existent cut stone, would probably be preferred by any but an enthusiast to the reality of brick and mortar or rubble masonry which constitutes the actual interior facing of the walls of most modern edifices. As regards unreality in point of form, it consists in features which either present the semblances of things that never existed in the situations where they are represented; as, for example, the lions' heads for discharging the water from the gutter of a classical cornice; or suggest the continued existence of things no longer present; as, for example, a pediment without a roof behind it.

If we were to banish unrealities of the former kind we should have no ornamentation at all. The leaves of plants do not, and never did in fact, grow round the capitals of columns; and this is equally true of the thistle or the coltsfoot clustered round the head of the Byzantine or Old English shaft, as it is of the Classical forms of foliage which decorate the Orders. You will remember it was not on a pillar-top but on the flat of his garden plot the artist remarked that beautiful combination of structural and vegetable forms presented by the acanthus leaf curling up the sides of the flower-pot, from which he designed the Corinthian capital. In truth, we decorate, not in architecture merely, but in every ornamental art, by transferring the images of beautiful objects from the places where Nature puts them, to new places of our own designing; and it is its very unreality, in this sense, which makes decoration the congenial and delightful thing to the imagination that it is. But there is a propriety in the mode of presenting those images so that they shall not appear too real—just as, in a theatre, the foot-lights and the proscenium serve to reassure us when the fictions of the scene become painfully actual—a propriety which we understand by the phrase of the objects being conventionalized. The lions' heads, which form the classical spouts for the rain water from the roof, are examples of this kind of conventionalized decoration. When the Mediæval sculptor presents the whole animal, lion, or bear, or hippogriff, crawling down the face of the wall, to form his gargoyle, he deals, like the classical artist, in a decorated unreality; but, he has not, like him, had regard to conventional propriety. When improved methods have provided for the discharge of the water from the roof by a convenient system of down-pipes, both lions' heads and gurgoyles fall into the more legitimate category of unrealities, and being made solid to prevent the passage of the water, becomes structurally false as indicating arrangements which have ceased to exist.

Features open to this objection are unquestionably to be found in Regular architecture. They arise from the original employment of wood as the material for ornamented construction. The principal example may be seen in any Doric entablature. You have observed above the columns and in the interspaces of the frieze those oblong panel-like projections divided by vertical channels which are technically called triglyphs, having plummet-like objects depending from them, termed *guttae*. The eye is so familiar with their appearance, that, save for purposes of criticism, one would hardly think of inquiring what it is they represent. But if the question be pressed; it must be admitted that the *triglyphs* are imitations in stone of the ends of those beams which, in the days of wooden construction, used to cross from side to side of the building, and project beyond the face of the timber lintels constituting the primitive entablature. And the *guttae*, what were they? Simply the raindrops gathered on the edge of the projection so as to be let fall clear of the face of the lower lintel, which we now call the architrave. Researches within our own time in Asia Minor have confirmed in a singularly complete manner the account given by Vitruvius of the origin of the triglyph and other details of the orders from timber construction. We find the Lycian peasant of the present day building his residence with its columns of tree-trunks, and entablature of squared wooden lintels, through the mortices of which project the tenons or ends of the cross beams, tying the whole together, just as we find the same parts imitated in the earliest marble temples of Greece. But why not rather conclude the wooden structure an imitation of the marble one? The rock-cut tombs of the adjoining hill-sides give the answer. These miniature temples

\* We are indebted to the kind courtesy of the lecturer and of the Secretaries for permission to publish the greater portion of this interesting and instructive lecture.

are hewn to so accurate an imitation of woodwork that you may trace all the details of the carpentry, not only in architraves pierced by projecting beam ends, but in rafter ends projecting over these and demonstrating that the *dentils* and *mutules* of the Classical cornice have their origin in the same sort of timbered framing, which we now employ to form the eaves of a cottage roof. Now, all these features, being stereotyped in marble, have been preserved as the external characteristics of the Order thousands of years after the cross beams have disappeared from the interior, and the roof has ceased to rest on the cornice. And in these particulars no one can deny that the order does embody a double untruth in stone: first by holding itself out as a form of constructive carpentry, and next by suggesting that there are beams and rafters of which the ends could be displayed in those positions. But, if we must discard all stone imitations of the forms of wooden construction, I fear it would go hard with all columnar edifices, whether Regular or Mediæval. For, originally, all columns were trunks of trees. The fillet at the neck is but a trace of the band that kept the timber from splitting above: the fillet at foot marks the place of the ferule which served the same office below. The bundle of staves to which the Gothic clustered column is likened by Evelyn is nothing new in stone. In some of the earliest Egyptian buildings, pillars are seen composed of palm stems bound together, ligatures and all wrought out of the solid by the chisel of the stonemason: and one form of Egyptian moulding, of frequent occurrence, shows in stone the crossings and overlappings of the bands by which the bundles of reeds forming it are held together. An ingenious formula for the Mediæval column—devised apparently with a view to prevent its partaking of the reproach to which the Classical shaft must submit—is found in the Stones of Venice. In this system the column is derived from the wall—is considered as a frustum or portion of wall, interrupted and gathered into one point. The base course becomes the pedestal; the wall veil, or plain face of the wall becomes the shaft, and the terminal string course and coping constitute the capital. But the difficulty is evaded, not removed: something imaginative, and in one sense unreal must be suggested, or the parts remain mere stone blocks and cylinders, without abstract grace for the eye or associative charm for the mind. The bell of the capital, no matter what be the style or order, must seem to curve with a yielding contour, as if under pressure; the shaft must taper with a swelling roundness, and the mouldings both above and below must present the combinations of convex and concave outlines, which material of different degrees of plasticity and elasticity would assume, if interposed between the heavy and more rigid members. All these are suggestions of unrealities which are just as essential to the beauty of a Byzantine as to that of an Ionic column; and which no derivation from the elements of the wall can evade or conceal, saved by pushing them a step back, and making them inherent in the formation of the wall itself.

The charge of structural falsehood, as it rests mainly on the appearances of projecting beam-ends and rafters externally; so, as regards Regular constructions within doors, is chiefly preferred against cornices hiding the junctions of internal walls and ceilings. Formerly the floors of upper storeys were supported on corbels projecting from the internal facings of the walls. These projecting members, decorated and connected with a band of associated ornamentation, constituted a real feature, resembling, inside, the same arrangement of parts which externally carried the eaves of the roof. When, in process of time, builders found it more convenient to let their joists or floor beams into the thickness of the wall, the necessity for the real weight-carrying features in stone ceased, and the corbels disappeared; but the eye, accustomed to their effect, demanded something to break the abruptness of the junction between ceiling and wall; and the modern cornice in plaster came into their place. True it is, its modillions and dentils are the semblances of things which do not exist in fact. It carries no weight; on the contrary it is in great part stuck to and carried by the ceiling which it affects to support. The real members of the structure are the walls, the joists, and the boarding which forms the flooring of the storey above. Out of these, without the help of any cornice, a rich and dignified effect may be produced, where the beams are large, and the apartment long and not over lofty, by gilding and decorating the under surfaces of the joists, as we see in some Venetian and Northern Italian interiors; and as is the fashion also in Oriental apartments, where a band of emblazoned inscription often serves the purpose of a frieze running along the wall top. But with our slighter woodwork and necessity for keeping our interiors warm and quiet, we find the coat of plaster between us and the floor above indispensable; and, having the coat of plaster there, we must either break the junction of the wall and ceiling with the

conventional cornice, or be satisfied to contemplate an interior in no respect differing from the inside of a deal box. Under these circumstances, ought we to allow our logic to be so inexorable? or fret because we cannot affirm that each member of so subordinate a composition performs a real structural function?

Such and so inconsiderable are the principal, if not the only, inherent unrealities chargeable against Regular construction. Its accidental unrealities depend, of course, on the taste or want of taste of the builder. A pediment, for example, which does not terminate a gable, but stands up like a sign-board, will offend the least educated eye; but reasonable persons will, I think, lay the blame of an anomaly of that kind on the architect rather than on the style. Other structural deceptions are incident to particular sorts of edifices. The side walls, for instance, of a great church, built in the regular manner, will, to the extent of their upper halves, in most cases, play merely the part of screens concealing the roofs of the side aisles and the upper construction of the nave and clerestory; as we see them in fact employed at St. Peter's in Rome and St. Paul's in London. Our own Bank of Ireland exhibits a structural deception of this kind, the greater part of its façade being merely a screen concealing an assemblage of courtyards and minor buildings irregularly grouped behind. This consequence of carrying out the Greek unwindowed manner, is however, nowhere else so happily reconciled with the other features of the building; and after viewing the Bank of England and the great Hall of Liverpool, the eye rests with increased satisfaction on our own, which as it is the first is by far the finest example of what may be done without material departure from the unwindowed Greek model.

The lecturer then proceeded to show that structural untruths are not confined to Regular Architecture, and he traced out at considerable length the processes by which they have grown up to the considerable extent in which they are found in some of the higher developments of the Mediæval. In the course of his illustrations he made the following remarks on the subject of flying buttresses:—

I have spoken of the tendency of the arch to spread, and of the necessity of meeting that thrust by adequate resistance. This necessity, met in the dome of the Pantheon by the effectual, but inelegant expedient of loading the flanks of the hemisphere with a weight of masonry, seems in the larger vault of St. Sophia's to have called forth the ingenuity of the Byzantine builders in the appliance amongst other expedients, of lateral buttresses radiating from the points of pressure through the lower surrounding parts, and so neutralizing the thrust by distributing it into masses which absorbed it. Whether any of these can strictly be called flying buttresses, in the sense of being carried clear over the roofs of the surrounding constructions, it is difficult from our imperfect acquaintance with the details of St. Sophia's to say. But in one of the earliest copies of the Byzantine masterpieces in Italy, the church of San Vitale, at Ravenna, the balance of the building is preserved, I can state, in at least one instance, by the true *arc-boutant*, spanning with a bow of masonry the space over two lateral chapels, and carrying the thrust from the central dome downward to the external wall. At Ravenna also exists what seems to be an unsuspected example of a Byzantine dome surrounded by flying buttresses, in the monolithic covering stone of the tomb of Theodoric. This vast block, chiselled into the contour of a low cupola, above and below, has externally, cut out of the solid, a series of what have been thought to be *ansæ* or handles, for the reception of the apparatus, by which it may have been elevated. But looking at these bars of stone radiating from the middle curve of the cupola, and each abutting on a species of pinnacle rising round the margin, a spectator familiar with Trans-alpine building can hardly doubt that what he here sees imitated in stone in this work of the sixth century are the rudiments of those important members which seven hundred years later carried northern Gothic architecture to the acme of constructive achievement. For without the aid of the flying buttress the introduction of the pointed arch would only have sharpened the upper outlines of the parts without affecting the principles of the construction. But when it was found that almost any weakening of the side walls could be compensated by erecting these external conductors of the pressure from the roof, a new set of changes, even more remarkable than those which attended the imposition of a stone covering on the walls of the Roman basilica, developed themselves both within and without the Romanesque edifice. The restriction to openings which would not materially diminish the solidity of the side wall had hitherto kept the northern interior in a state of gloomy obscurity. The necessity for increased light in a northern climate as well as the temptation to the display of stained glass, had urged to the employment of every means by which the clerestory windows could be enlarged. All that had been needed was to throw the pressure out of doors, and this the flying buttress accomplished.

Once again the revolution in internal feature extended itself downward through all the members of the composition. The wall, relieved of its old burthen, could now not only be pierced with openings to the verge of becoming a lantern of glass, but could be hollowed besides into picturesque galleries below, while its supports could be reduced to dimensions as graceful or as slender at taste or ambition might desire. Practically there was no limit, but the sense of excess to the height at which the builder might suspend his vault, or the fineness to which he might draw out its seeming supports. Under these elevating inducements, all the features spring upward in forms of graceful aspirations, and an interior was achieved which satisfied that love of the lofty and picturesque peculiar to the Gothic races. The flying buttress, the agent in these feats of construction, acquiring a development proportioned to the increased duty imposed upon it, became, itself, an object of study and decoration. Its *foible* was the point where it ceased to act as an oblique prop or shoring beam, and took the downward line of the outer buttress. Here, the ready expedient was devised of loading the point of junction with such a weight as might keep the sloping beam of masonry from slipping past its point of support; and the mass of stone erected for that purpose assumed the form of a decorated pinnacle. Stopped in its tendency to push outward, by the pressure of the terminal pinnacle, the *arc-boutant* sometimes sought to disburthen itself of the transmitted thrust by leaping upwards. This tendency again was counteracted by pushing it down by the pressure of an intermediate pinnacle, riding on its back; or pulling it down by the suspended weight of a cusped arch below; each new expedient producing a new architectural feature, and such new feature offering the inducement to further decoration. Then, as the instrument became more pliable in hands accustomed to its use, it was seen that its stride was not limited to the breadth of a single aisle. The aisles were doubled and even trebled, affording endless combinations of perspective within, while tier above tier of flying buttresses rose without, surrounding the building on three sides with an intricate, but symmetrical framework of decorated supports. The aspiring forms of the pinnacles mingling with the steep outlines of the external roof, carried the eye through a delightful gradation to where the work culminated in the spire; and the Northern Gothic church had attained its final development.

After dwelling upon the feeling of emotion and awe with which the spectator is invariably inspired on entering such an edifice, the cause of which he attributed to *structural imposition*, on beholding thousands of tons of stonework in the interior apparently unsupported, while the exterior is rendered almost invisible from the multitude of buttresses, the lecturer thus proceeded:—

Without travelling into various details of the Mediæval which may be considered open to similar criticism, it thus appears that the charge of departure from structural truth so often alleged against its Regular rival, may be retorted; and you will probably consider that if nothing worse could be said of it than that it perpetuates some elegant inaccuracies, the Regular style has undeservedly fallen into its present state of neglect and rejection.

But a much more serious charge, and the one to which is chiefly owing that disfavor which obliges me to assume so much the tone of an apologist, is grounded on the frigid and monotonous character of the works which have emanated from the Regular school during the last half or three quarters of a century. If asked to account for this retrogression, which I do not mean to deny, I must own it appears to me that it results from the art having fallen into the hands of masters too eager to distinguish themselves by the affectation of originality and by the show of recondite classical accomplishments. To be original is a privilege but rarely vouchsafed to the architect. The laws of epic or dramatic unity impose no shackles on the man of letters at all to be compared with the rigor of those which bind the artist who must express himself Regularly in stone. If he can impress with a sense of majesty, if he can elevate and at the same time expand the soul; if he can communicate a perception of elegance, grandeur and harmony, these will be his triumphs; but in proportion as he rises towards these heights of his art, he will leave individual peculiarities behind, and in the attainment of perfection pass far beyond the reach of any influence of egotism. If he have a style by which his works may be known from those of other men, it will be felt in their general impression, not offered to attention in their details; for of so universal and absolute a character is architectural perfection, such as we may conceive it, that, as in sculpture, the very test of excellence might be that the masterpiece should seem worthy to be the work of any master. But as there is no art in which excellence more demands of the master that he shall mortify the egotistical sentiment, so there is none in which the tempta-

tion is greater or the way more easy to mannerism. To understand how this is, consider that within certain elastic limits there are settled proportions for all the parts of a Regular elevation. A column with its base and entablature comprises from forty to sixty members, all having definite relative ratios of dimension and projection. A window, a niche, a doorway, all have well-defined lengths, breadths, and proportionably associated members. So of the projection of cornices, pilasters, friezes, in short of all the parts that together make up the structure. To combine these into new masses of structural and utilitarian propriety is the work of original genius. To achieve singularity in detail is the easy resource of mediocrity and vanity. It needs only to exaggerate particular parts, upward, downward, laterally, or in projection. It requires no quality but insensibility to recognized proportions, and audacity in departing from them. But the true artist will not condescend to these departures. He knows that in Regular art every detail has already been elaborated into the most refined symmetry of which it is susceptible. If he cannot achieve new combinations of masses he will be content to reproduce existing models, and rather bear the name of a copyist than purchase the reputation of having a style of his own by singularities of detail. Unhappily the architects of the period I refer to could not resist the temptation to experiments on the public taste in which they endeavoured in succession to impart the characteristics of individual manner to their art, and in proportion to their success brought it down from the position in which, while it represented all the wants, it satisfied all the tastes of the nation. The Palladian method had indeed been adapted to our condition of society and climate in a form delightful to the eye and satisfactory to the understanding. Men even of moderate ability as well as of great genius, had shown practically in their works that material existed for abundant variety in the combination of those forms and features on which the public taste was agreed. A British style had in fact been established, as characteristic as the national styles, growing out of the same Palladian revival, of Italy or France. We see it here in the civic buildings of our own city in as high a state of advancement as anywhere in Great Britain. We live, indeed, in Dublin, in the midst of great but unnoticed beauties. If our Custom House stood on the grand canal of Venice, we should soon see something in the windows of our photographers that would strike every eye as a lovely novelty. I do not dwell on other architectural features of our city familiar to all eyes, but which I wish my words could render more familiar to public perception and appreciation. For all our works of that period are those of an intellectually advanced and intellectually consistent people; and no better answer could be given to those who make the charge of tameness and monotony against Regular art than the variety, the freedom, and yet the fitness, strength, and dignity of the public buildings of Dublin of the last century. Nor is there really any want of variety in the works of the Regular School in its better days in London. Every composition of Wren's, if we except alone his greatest and his least successful one, is an original conception. Gibbs' Church of St. Martin's-in-the-Fields, is rich and harmonious as an Italian interior of the best Roman epoch, yet it is wholly and proudly English. The river front of Somerset House affords a source of endless pleasure to all who care to receive its successive impressions of solid grandeur, and open, airy magnificence. Such a style in the hands of men of ability, gifted only with the modesty of genius, might well have satisfied the aesthetic wants of an intellectual and magnificent people. But no style can endure the mischiefs of affectation. Neither can we always count on an average succession of capable men in a pursuit requiring peculiar intellectual gifts. It may be that the higher modes of genius are essentially non-competitive; and the present century has been in a peculiar manner a period of individual self-assertion. Or possibly it may be that the infusions of genius meted out to the generations of mankind have their secular periods of increase and diminution, and that after the days I have spoken of there came an ebb. Whatever the cause, the fact remains that Regular Architecture became in its later transmissions more and more cold and affected. First, it lost the hold, which indeed it had never laid with any great tenacity, on ecclesiastical building; next, it yielded to more picturesque and cheaper forms of domestic construction; and finally, when the nation was called on to provide a new home for its Legislature, it was, temporarily at least, dismissed from the service of the State.

Other influences besides the distaste engendered by a series of feeble and conceited performances contributed to determine the national will in preferring a form of the Mediæval for the new Houses of Parliament. The writings of Sir Walter Scott had given the popular imagination a chivalresque, romantic turn which found something congenial in the forms (however much it deprecated the reality) of feudalism. The labours of the Camden Society had made Mediæval

construction the subject of elegant and interesting research. The restoration of baronial and Ecclesiastical remains had become a favourite occupation of the wealthy classes. It gratified the national self-love to find that there existed a variety of the Gothic which could, with propriety, be called Old English, the spontaneous growth of an ancestral civilization. The considerations may to many seem sentimental; and in opposition to the supposed utilitarian, and strong common sense character of the nation; and it will long remain a subject for philosophic reflection that a people so practical should have chosen as the embodiment of its æsthetic feeling, a style of structure so elaborate in the fripperies of decoration that its grandeur with difficulty emerges through its littlenesses.

To others it will appear that the new Houses of Parliament are a monument of the persistency of ethnological character. There is in the Indo-Germanic races of the north of Europe a strain of Asiatic sentiment delighting in a barbaric profusion of carved ornament. The flagee work which drapes the west front of an English or French cathedral is different in detail from the carvings which cover an eastern pagoda; but the tastes to which they appeal are fundamentally the same; and a Greek or an Italian would regard both with equal repugnance. This, in its crudest state, was the taste which the Goths brought into Italy, and which the northern energy forced into reluctant fusion with the broken members of Roman civilization. It was then wholly barbaric. It possessed the exuberant life of a new faculty, covering with monsters and grotesques of its own creation everything it received from the civilization it overthrew. It seized with equal avidity on the forms of Byzantine Mosaic, of Greek tracery, of Moorish fretwork, and assimilated them all in *bizarre*, but vigorous, combinations from Aix and Treves to Palermo and the coast of Africa. All this it did before it found the outlet for its aspiring energies in the flying buttress, and the correction for its original coarseness in these parts of the world, in the more elegant instincts of the mixed Celtic populations of France and Britain. Nowhere had it mingled so happily with the flowing and graceful forms of Eastern taste, as at Venice. Northern strength and Oriental delicacy are here blended in an harmonious and refined union; but the Oriental element preponderates, and the style appears to have reached its perfection after the Gothic energy had begun to wane in Italy. The Italians proper had never forgotten their nobler traditions, and as they regained their independence, returned to Roman models. Long before the restoration by Palladio, the Italian palace had become a perfect example of simplicity and convenience, combined with the utmost strength and dignity. Then came the revival of the Orders, by common consent adopted throughout the world as the architecture of civilization; while the Mediæval, as if exhausted by its own restless efforts after something new during the Flamboyant and Tudor periods, sank into that obscurity from which we have just seen it recalled to so eminent a place in the national service. But whether this be due to a freak of national sentimentalism, or whether it be the sign of an innate sympathy with the old barbaric tastes of our forefathers, the leading intelligences of England seem to have considered the step a retrogression; and now fall back for the completion of the group of Governmental buildings on the French development of the Regular school.

We naturally ask what superiority does this form of Palladian Art possess over the variety we had already worked out for ourselves? and we naturally conclude that the superiority is supposed to consist in that feature which the French edifice possesses, and the British does not, a high-pitched roof. One sees roofs enormously and intolerably high throughout Germany and the North of France. Those who admire the feature tell us that it is designed to throw off the snow; that Vitruvius advises we should increase the steepness of our roofs as we go northward, that it is a paramount point of fitness in respect to which the French pavilion is a real roof, and the English, as usual a structural falsehood; and you may remember how Victor Hugo ridicules the idea of the man with the besom going out to sweep the snow off the roof of the Paris Bourse. But if it were not for the parapets constructed at the foot of those steep roofs to keep the snow from sliding off them, the passers-by, in a thaw, would be in danger of their lives; and I would suggest whether it be not a greater unfitness to erect a towering mass of timber and slate for the ostensible purpose of performing an office which you will not suffer it to perform, than to lay the covering of your house at an inclination sufficient to keep it dry, yet not so lofty as to dwarf the rest of the building, or withdraw the eye from what is more ornamental. The high roof is a feature to which the Italian has never been reconciled. The roof of the Italian palace has a pitch somewhat lower than our own. The white marble slabs which serve the office of slates on the sumptuous covering of the Cathedral of Milan might have been supported at a still greater height at a vastly reduced cost if the Italian eye could have re-

conciled itself to the wedge-like Transalpine outline. There is a general, but erroneous, impression that the light and brilliant character of the Frenchman pervades his architecture. On the contrary, the architecture of France, especially of the northern provinces, still partakes of the Tudesque bulkiness; and this in a conspicuous degree in its roofs. At one time the Gaul appeared to have emancipated himself from the Gothic influence; and in the east end of the Louvre combined a roof of Italian proportions with the charming colonnaded front which seems to turn away in dignified disdain from the clumsy masses of the Tuilleries; but in completing the quadrangle, he has allowed the ruder element in his æsthetic organization once more to predominate; and now, the huge old slate pavilion not only rises triumphant over the latest efforts of Regular Art in Paris, but is destined, as it would appear, to cast off the snows of Whitehall also. Let us hope that the avalanche will be intercepted before reaching the pavement, and detained in proper receptacles behind a compensating parapet.

Such being the position of Regular art in relation to our civic architecture, let us cast a rapid retrospective glance on the condition of Art Ecclesiastical. The Romanesque interior was that which the Italian revival found most adapted to receive its method of treatment and decoration. Retaining the arched roof and lateral arcades, it restored the entablature, elevating it above the range of the arches on pilasters attached to the intermediate piers, and making amends for the expulsion of the old modes of wall-decoration by a liberal use of polished marbles in variety of colour. The cupola whose base was a circle inscribed within the square formed by the intersection of the nave and transepts, it enlarged into a dome, whose base was the circle described about that square, under whose great concave all the interior was united, and the mind of the beholder at once uplifted and expanded. By such arrangements the vast features of St. Peter's have been brought together with indescribable majesty. If St. Paul's in London had at all approached its prototype in beauty of interior, Regular art might still have retained its supremacy in ecclesiastical architecture. But there are certain features in Wren's design which detract from the unity of the effect; and the absence of colour gives a frigid air to the smooth expanses of Portland stone. The devotional sentiment soon asserted its sympathy with the picturesque and solemn forms of the Mediæval, and struggled back through various efforts of imitation and compromise, until within the last quarter of a century the revived Gothic has been restored in its purest as well as its most characteristic forms. But in the effort after something new, even the pure Gothic of the twelfth century fails to satisfy the restless spirit of the age. It is, as we have seen in some of its structural details, open to objections from which the Romanesque and Lombardic modes are comparatively free. These are now pressed on our adoption, with much persuasiveness of reasoning and influence of example. Here we see a Basilican, there a Byzantine, there a Venetian design, and the variety becomes daily more incongruous; so that as regards our church-building, we may be said to stand at the present moment in almost as irresolute a posture as with respect to our civic architecture.

In ordinary street and domestic building, there exists, as might reasonably be expected, a still more motley diversity. Here the excellent good sense and practical character of the French people have preserved them from a thousand extravagances into which the unconscious sentimentalism of the English character betrays us. Under their great roofs they adhere to an elegant consistency of fabric, always solid under whatever amount of decoration, and the decoration, to whatever extent imparted, always of the definite national type. In one sense, less ostentatious than we, they cultivate their privacy, and expend a large proportion of ornament on their garden fronts. I would willingly pursue this theme, but time compels me to resume my consideration of the more serious interests of art in those structures designed to last for many generations, and tell the coming ages what were the conceptions of beauty and grandeur which the men of steam were able to impress on their palaces and temples.

An expectation has existed that possibly out of the crowd of styles placed before us, something new and characteristic of the age might be elaborated. This hope, which was very generally indulged at the time of the construction of the first crystal palace, does not seem to have any reasonable prospect of fulfilment. Iron and glass consort together too crabbedly for structural union. Acres of ground may be covered in with a transparent roof, supported on pillars, or hung, like the roadway of a suspension bridge, from catenary curves; but the result will be an engineering, not an architectural success. It seems, indeed, as if we can now as little devise a new structural method in building as we can a new system in prosody, and that as all metrical combinations resolve themselves into the old familiar succes-

sions of long and short syllables, so the materials at our disposal will not group themselves into a cover from the weather otherwise than in some of the modes already devised by those who have preceded us. And when we reflect that the new styles which have modified the originals of Greece and Rome have only arisen concurrently with the infusion of new national blood through the medium of barbarian conquest, we may well reconcile ourselves to the probable necessity that lies before us of having to select from amongst existing types that form in which our civilization must expound itself to the future.

Let us review the candidates as they present themselves for our choice. There are the three modes of the Regular; the Italian, French, and British. The peculiar dignity of the Italian is owing to the large proportion of wall to window, incident to a Southern climate. We may observe how the too close imitation of those proportions in one of the palatial club-houses of London, reminds us uncomfortably of our difference of latitude. As we come northward the windows must necessarily be larger, and to this necessity the principal differences of the three modes are to be ascribed. To compensate for their diminished breadth of wall, the French and English styles rely on a greater display of pillared support. Their main difference is as we have seen in their roofs; and, if your judgments have gone along with mine on that head, you will probably conclude that of the three Regular modes our own much-censured British is the one most consonant to our notions of beauty, propriety, and utility.

Of the Mediæval modes there are three kinds, and many varieties. The Gothic, Northern, high-pitched; and Southern, low-pitched, with a multitude of minor denominations; the Byzantine, impregnated with the Gothic, becoming Lombardic or Tudesque; with the Saracenic, becoming Venetian; and the Romanesque retaining its near affinities to the Regular, and capable of assuming either character. Of all these the one variety which is native and peculiar to England is the modification of Northern Gothic known as the Tudor; which in this group has the same claim to preference as the style of Wren has amongst the forms of the Regular. This claim appears stronger the more we consider it. In other things besides Architecture we find that what has been spontaneously evolved amongst us is generally the best of its kind for our cravings of taste and purposes of use. This consideration is the best justification for the employment of a form of the Tudor in the New Houses of Parliament. And when we come to ask what are the features which give the Mediæval structures of Northern Italy their great charm of picturesqueness, and observe that they mainly consist of belvederes, loggias, and arcades fitted for taking the open air, we will acknowledge that the large windows and well-enclosed chambers of the English Tudor, have been as happily designed for our latitude, as those beautiful but unattainable features have been for the skies of Venice. We see in the Gothic of Lombardy and the Rhine a rudeness bespeaking unsettled times, and an intimation of the fortress behind the civic exterior, from which the Tudor is exempt. These considerations should go far in sustaining the pretensions of the Tudor, though neither so beautiful as the elder Gothic, nor so solid and palatial as the Lombardo-Venetian. If then, instead of ransacking the valleys of the Loire, of the Rhine, and the Po, for a national style, we are to look for it at home in what our forefathers have already done on the banks of the Thames, the choice, at least in civic architecture, will probably be found to lie between the two candidates represented by the Palace of Westminster on the one hand, and the Palace of Somerset House on the other. If I have led you fairly to the point of selection I have accomplished my principal purpose. I do not seek to disguise my own preference for the Regular, which I am persuaded is just as capable of new forms of beauty, in combinations as yet unimagined, as it was in the days of Palladio: but whether the public taste shall ultimately fix on one or other, or possibly on some of the many rivals of both, I shall discharge a wish I have long entertained if by this review of our position I shall have turned other minds to the clearer contemplation of a subject delightful in itself and valuable to society in proportion to its power of exalting the soul and refining the intellect.

#### ROYAL DUBLIN SOCIETY.

A SCIENTIFIC meeting of this Society was held on Monday evening, the 18th inst., in the Society House, Kildare-street:

WM. BARKER, Esq., M.D., in the chair.

Mr. E. J. Reynolds read a paper "On Albumen, and some of its Metallic Compounds." He said that the chemical investigation of these compounds was undertaken about two years ago, at the request of the then President of the London Photographic Association. The object which he had in view was to make out the theory involved in the process of preparing albuminized paper for sun-printing, and, of necessity, to examine some of the chemical rela-

tions of certain of the compounds of silver with albumen. These matters were investigated with great care, and the results obtained tend materially to modify existing views regarding the theoretical points involved in some photographic processes. The author entered on the discussion of the phenomena attending the coagulation of albumen, or white of egg, and demonstrated the fact that dry white of egg, when subjected to a temperature of about 50 degrees higher than the boiling point of water, becomes totally insoluble in that liquid. Mr. Reynolds then entered on the purely chemical portion of the paper, and at its conclusion, when alluding to the activity with which some other bodies unite with oxygen, he illustrated this by pouring a liquid into the air, which immediately burst into flame on coming into contact with the atmosphere.

Professor Cameron bore testimony to the excellence of the paper, and moved a vote of thanks to Mr. Reynolds.

Mr. J. Haughton, J.P., seconded the motion, which was adopted amid applause.

Dr. Barry read a paper entitled "Notes of a Recent Visit to Queensland." He commenced by briefly alluding to the geographical extent of the colony, and its general fertility. He observed that a country presenting so many hills should have in its recesses fertile valleys, and such was the case to an extent unknown in other parts of Australia. Tobacco, rice, sugar, and arrow-root grew luxuriantly on the banks of the rivers in the vicinity of Rockhampton. The scenery of the Brisbane River was described as extremely picturesque, and many charming views presented themselves to the traveller. One settlement had a vineyard of four acres, containing 4,000 bearing vines, and acre of pine-apples, with bananas, oranges, figs, and olives. The population of Brisbane was estimated at 12,000. The Booral cotton plantation has one hundred and fifty acres under cotton; each acre produced one bale of 300lb., the value of which, at 1s. 6d. per lb.; would be £22 10s.; value of ground, £50 per acre, and cost of cultivation, £9. The Government bonus on each bale of cotton was £10, thus leaving a very ample margin for profit. The great difficulty of growing cotton arose from want of labour. A specimen of tobacco, which Dr. Barry exhibited, was grown and manufactured on the Brisbane River, 100lb. weight of which was obtained from half an acre of plants. He had visited the Red Bank Colliery, from which 500 tons of coal were produced weekly, and sold at 15s. per ton, or delivered in Brisbane at £1 per ton. The miners earned about 15s. per day. The climate was stated to be very healthy. With reference to the progress of the colony, the population was said to have increased from 25,000, in 1859, to 60,000 in 1864, or but one person to every 12,000 square miles of territory. In the year 1863, 134,000lb. of clean cotton were exported from Brisbane, valued at £35,000. In 1862, only 14,344lb. were produced, but it was satisfactory to know that it was all the result of free labour. In 1860, the quantity of wool exported was 5,000,000lb.; in 1861, 7,000,000lb.; in 1862, 8,000,000lb.; and in 1863, probably 10,000,000lb. In the beginning of 1863 there were in Queensland 34,345,901 sheep, 610,204 horned cattle, 35,625 horses, and 7,019 pigs. The progress of mining had been equally satisfactory. The Peak Down Copper Company had auspiciously commenced operations. Three gold fields had been discovered, and 823 ounces of gold exported from Brisbane. The total imports of 1862 had been valued at £1,320,225, or rather more than £29 5s. per head of the population. In 1860 they were valued at £742,230; in 1861, £967,950; while in 1863, the imports reached a million and a-half sterling. The exports of 1862 were valued at £748,519, nearly all the produce of the colony. In 1860 the revenue was £178,589, and last year would exceed £317,000. Queensland was peculiarly situated as an advantageous field for the Irish emigrant, who, under the land order system, could emigrate under very cheering prospects. Each emigrant received 18 acres, which always was valued for £1 an acre. Some land, purchased 10 years since, had been recently sold for £1,000 per acre in the vicinity of Brisbane. The Queensland Legislature voted £100,000 last year to promote free and assisted emigration. The paper entered into considerable detail as to the classes of persons who should emigrate, pointed out the fact that the capitalist could clear from 15 to 50 per cent., the labourer from 5s. 6d. to 10s. per day on the roads, and the artisan about 2s. 6d. an hour. The lecturer concluded with some observations on the habits and customs of the Aborigines, and afforded a large amount of useful information of a statistical, scientific, and social nature, the result of recent observations.

A vote of thanks having been passed to Dr. Barry, who expressed his acknowledgments, the meeting adjourned.

#### IRISH CIVIL SERVICE AND GENERAL BUILDING SOCIETY.

A GENERAL meeting of this society was held at the Northumberland Hotel, on Monday evening, the 18th ult.

W. H. NEWELL, LL.D., in the chair.

Amongst those present were:—Mr. Jacob Owen, Mr. P. J. Keenan, Mr. Henry Wilkie, Mr. A. H. Wyatt, Mr. T. Collop, Mr. F. W. Connor, Mr. J. P. Seaver, Mr. G. W. Finlay, Dr. Ryan, Mr. R. Harte, and Mr. W. Harold, &c., &c.

The Secretary (Mr. W. Daly) read the notice convening the meeting and the minutes of the proceedings at last meeting. He next read letters from Alderman Martin, accepting the office of vice-president of the society; and from Mr. W. H. Harding, notifying his acceptance of the office of trustee of the society, and expressing the interest he took in its success; and from Dr. Nedley, announcing that Mr. J. F. Lombard had accepted the office of trustee.

Resolutions were passed appointing Alderman Martin, Mr. Alexander Parker, Mr. Thomas Vance, Mr. Charles G. Burke, and Mr. Charles H. James, vice-presidents of the society; and also appointing the following gentlemen trustees:—Messrs. Talbot Owen, J. F. Lombard, and W. H. Harding.

A resolution was passed appointing twenty gentlemen as directors, fifteen of whom are members of the Civil Service. It was also resolved that the future management of the society be confided to the board of trustees and directors, and that the secretary submit the rules to the proper legal authority, to be registered in pursuance of the Act of Parliament.

#### BELFAST WATER BOARD.

ON Thursday, the 21st ult., the usual weekly meeting of this body was held in the Board-room, Rosemary-street: Dr. Dill in the chair. The other members present were:—Dr. Patterson, Messrs. Robert Greer, Thomas Gaffikin, Robert Gaffikin, John Oulton, Wm. Addison, Thos. Cunningham, and R. T. McGeagh.

The state of the basins was reported:—Clear water basin, 24 inches above top water; town basin, 19 inches above top water; upper basin, 36 inches above top water; Carr's Glen overfall, *nil*.—Sluice down.

The following report from Mr. Thomson, engineer to the works, was read:—

"Water Works, Antrim-road,  
Belfast, April 13, 1864.

"GENTLEMEN,—In accordance with your instructions of Thursday last, the 6th inst., I examined the front embankment of the town basin, and I have to report I can find no leakage in it. There is, however, a seepage through a portion of the embankment on the north-east side, where the footpath from clear water basin ascends the slope to the town basin. I understand this seepage has appeared for a number of years back when the basin was full. I intend to watch it as the water in the basin lowers, in order to find the exact level where the water percolates through the embankment, so that it may be stopped at some future day, when the state of the basin will admit of it.

"There is also a seepage through the North embankment of the upper basin, about twenty yards East from the bye-wash. It disappears when the water gets down to top water mark. At present the water is 36 inches above it, so that it must pass through somewhere about three feet from the top of embankment. The works in general are in good order and repair."

The Chairman then read the minutes of a committee which was held some days previously, when it appeared that Mr. Bateman and Mr. Lanyon, Dr. Cassidy, and Mr. S. Bruce were present. At that meeting,

It was moved by Mr. Langtry, and seconded by Mr. Cunningham, and resolved—"That this Board do now take the necessary steps to revive a bill promoted in Parliament this session by the private company, to procure a supply of water for Belfast on the terms of agreement now read, and that the seal of the Board be attached accordingly"

Considerable discussion followed on the question of the adoption of plans proposed by Mr. Bateman and by Sir John MacNeil respectively, and after some time the meeting separated, no definite conclusion having been come to.

A. M. Subra has invented a new system of foot-lights, by which much of the peril to artists on the stage is avoided, and the nuisance of fumes streaming upward in their faces obviated. A third advantage is said to be its economy, to the saving of 50 per cent. It is to be tried, we are told, at the Grand Opera of Paris.

# ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A GENERAL meeting of this Institute was held on Thursday evening, the 21st ult.:

S. SYMES, Esq. (Fellow), in the chair.

Present—Fellows: Messrs. F. V. Clarendon, W. Fogerty, Thomas Drew, J. S. Butler, C. Geoghegan, J. A. Adams, and J. J. Lyons. Students: Messrs. Richard J. Sloan, W. Stirling, J. Bermingham, jun., and R. A. Gibbons. Associates: Messrs. W. Doolin, T. Early, W. Telford, and T. A. Kelly.

Mr. J. J. Lyons (Fellow), read a report on "Competitions," published some time since by the Royal Institute of British Architects, with a view to the discussion of the recommendations contained therein.

The question of the mode of conducting "competitions," and the evils to which they are subject, having been canvassed at some length, the following resolutions were unanimously passed:—

Moved by Mr. Clarendon, seconded by Mr. Lyons: "In connection with the subject of competition designs, it having been brought under the notice of the Institute that cases had arisen in which building committees, while they required competing architects to be bound strictly by the terms of the conditions laid down by them—they (the committee) failed to fulfil their part of the contract, by either withholding altogether or reducing the amount of the premiums offered, it is resolved that the Institute do hereby express their decided disapprobation of such conduct on the part of the committee, as tending to weaken that confidence which should ever be placed in them, as public bodies, and also as calculated to degrade the architect's profession in the eyes of the public; and the Institute trusts that its members will not at any time compromise the character of this society by being consenting parties to such a course of proceeding."

Moved by Mr. Fogerty, seconded by Mr. Clarendon, and resolved: "That this meeting expresses its approval of the report on competitions just read; and requests the attention of the council to the suggestions contained in it."

## NEW PRESBYTERIAN CHURCH, BELFAST.

We have been favoured with the following description of a new place of worship recently completed in the above rapidly improving and thriving town. It was opened for service on Sunday, the 17th ult.:—

The church is a plain, substantial, and commodious structure, standing on a plot of ground on the Shankill-road, bounded on one side by Conway-street, and on the other by Wilmont street. The whole building is faced with red perforated brick, and the windows and main door are finished with Allan and Mann's moulded white brick, which form a pleasing contrast. Above the main door facing Shankill-road is a circular window, and the gable is surmounted with a handsome belfry of cut stone. The church is 63 ft. long and 44 ft. broad, and contains about 700 sittings, including the gallery. The main door, which is unusually wide, consists of two halves, which slide into recesses at each side, thus affording rapid and easy egress and ingress to the building. Passing through the central door, we come to the vestibule, which extends along the whole breadth of the church, and is 9 ft. broad, with stairs leading to the gallery from each side, the floor being flagged with Staffordshire red and black tiles. The church itself is entered by two doors leading to corresponding aisles. The pews, consisting of pine, stained and varnished, are constructed with sloping backs, the front of the seats being slightly elevated, thus rendering them exceedingly comfortable. The ends of the pews are ornamented with moulded elbows. The side pews incline to the walls at a small angle, so as to command a full view of the pulpit. We come now to the pulpit, which is unique in design. It stands in a recess, with pilasters surmounted with Corinthian capitals, supporting an ornamental arch. The plan of the pulpit is an oblong, with semi-octagonal projection, the material being an imitation of walnut wood. The platform, which has six feet of an elevation above the level of the floor, rests on ten pilasters with carved capitals. Its dimensions are 6 ft. by 4 ft. 6 in. It is enclosed with open work surmounted by a moulded railing, the interspaces of which are filled with red cloth, which give it a warm appearance. In the rear of the pulpit is a session-room on one side, and a minister's room on the other, the latter communicating with the pulpit from behind by means of a door and stairs. Immediately in front of the pulpit is an enclosed semicircular space for the accommodation of the choir, in the centre of which are the precentor's desk and chair, finished in the same style as the pulpit. The backs of the two seats occupied by the choir are hung with red cloth supported by brass rails and standards. The gallery is a light but substantial structure, surrounding the house on three sides, and supported by a beam resting on twisted metal columns with carved capitals. The cove of the

gallery, which projects over the beam, is finished in panels of plaster work, the wood work in front being divided into panels, with chamfered framing. The ceiling is lofty, and will afford abundance of air space. It is level at the tie beam, which is elevated about 6 ft. above the level of the side walls, so that a portion of it at each side has a slope parallel to the roof outside. There are ten windows below and ten above, the latter having arched heads. They are all fitted with Hartley's Quarry rough glass, which subdues the light in its passage through it, thus rendering window blinds, to a great extent, if not altogether, unnecessary. A number of the windows are supplied with hopper ventilators, which can be opened and closed with great facility. The building is brilliantly lighted with gas by means of handsome standards in blue and gold, each of which is furnished with three burners, and a corresponding number of globes. There is also a number of light wall brackets. In the rear of the church is a piece of ground on which it is intended at some future time to erect schoolrooms, with a sexton's house, and lecture-room underneath. The entire premises will be enclosed with a tasteful and substantial railing. Robert Young, Esq., civil engineer, Donegall Place, was the architect; and it is only justice to this gentleman to say, that the taste and skill he has displayed in preparing the plans reflect the highest credit on his professional ability. The builders were Messrs. McLaughlin and Harvey, York-street, who executed the works in an efficient and praiseworthy manner. We understand that the cost of the entire building will be about £1,400.

## WHITWORTH HALL, DROGHEDA.

The committee met on the 19th ult. for the purpose of opening the tenders for the proposed buildings. There were sixteen estimates received, of which, four selected amounted respectively to £2,750, £2,786, £2,996 5s., and £3,000. The committee were decided upon entering into a contract with Mr. Creaser, of Drogheda, for the execution of the works at £2,786, the amount second on the above list. We understand that doubts were entertained by the other competitors with Mr. Barre in the original architectural competition, as to the possibility of carrying out his (the selected) design for the limited amount, £3,000, and we are, therefore, requested to state that the alternative design, also tendered upon, gave the amounts corresponding with the above as £2,658, £2,650, £2,905 13s., £2,955.

## THE NEW BETHEL CHURCH, KINGSTOWN.

We have been favored with the following description of the design for Bethel Episcopal Church, Kingstown, by William Fogerty, Esq., architect, 23, Harcourt-st., Dublin, and which obtained the second prize:—

This design consists of a nave 85 ft. long by 36 ft. 6 in. in the clear, two transepts each 24 ft. 6 in. by 17 ft., a semi-octagonal chancel, vestries and staircases at each side of the transept, and a small tower and spire at the south-east angle.

The principal entrance is in the centre towards the road, and leads into a vestibule and two side lobbies before communicating with the nave, so as to provide against draughts. Separate entrances are provided to each of the staircases, which may also be reached through the principal entrance.

The greater part of the seats is placed in the centre of the nave with a passage at each side. The remainder of the ground floor sittings is in the transepts. The pulpit, prayer desk, and communion table are placed according to the usual arrangement of the Established Church.

There are three staircases, one at the side of each transept and one in the tower, leading to the galleries which are placed in the transepts and at the end of the nave. An organ chamber is provided at the side of the chancel, accessible from the gallery near.

A vestry and robing room are provided in convenient positions, with separate entrances from the outside, and water-closets attached.

The roof of nave to be open, with hammer beams and curved ribs, as shown by the section. That of the chancel to be concave in form and close boarded, an arrangement very favorable for hearing. It may be observed that, with the exception of a few light cast-iron columns under the galleries, there would be no pillars to obstruct the view and hearing from any point in the church. The walls to be built of granite with dressings of limestone or freestone. The woodwork to be generally of red pine or memel stained and varnished.

The plan affords great facility for completing a large portion (the transepts and chancel) before removing the old building.

For the exterior, effect has been sought by good proportion and effective grouping rather than by decoration. The style is the Geometric Gothic. The tower is but of small dimensions and simple outline, and as the lower part contains one of the gallery

stairs, and the upper part is required for the bell, it is not merely an ornamental feature but answers useful purposes.

The heating is proposed to be effected by hot water, and the ventilation by providing a series of flues to be carried into the tower and other points of escape for extraction of the vitiated air.

As the design above described contains no unnecessary or merely ornamental features, the author feels justified in stating that the cost would not greatly exceed the amount specified, which is unusually small for a church of such accommodation. It possesses this advantage, that the church could be erected and be tolerably complete without the galleries for about the sum stated, and those, with their appendages, added whenever the attendance and funds became sufficiently large. The accommodation without the galleries is about 700.

## WESLEYAN METHODIST CHAPEL, SANDYMOUNT.

The ceremony of laying the foundation stone of the Wesleyan Methodist Chapel, Sandymount, took place on Thursday last, 28th ult., in the presence of a large assemblage of ladies and gentlemen. The building is intended to accommodate, with gallery, about 250 persons. It is in the Early English style; 50 ft. in length exclusive of vestry in the rear, and 22 ft. in width, the vestry being also the width of the chapel, and having separate entrance. The walls are of granite (checker work); there are four windows on either side, the dressings of which are of Caen stone. The entrance porch is in the centre of gable front of the chapel facing Ashgrove-avenue; there is an ornamental circular window over same, with Caen stone mullions, &c., and this elevation is terminated by spire buttresses. The ceiling is panelled in hexagonal form, and the roof principles continued down to cut stone corbels; the height of building internally being 25 ft. The pews are placed in the centre, having a passage at either side next the wall, with carved bench ends; the pulpit and platform being at end of chapel communicating with vestry. The cost will not exceed £1,000, and is being erected by Messrs. Beardwood and Son, contractors, of Westland-row, from the plans and under the superintendence of Alfred G. Jones, Esq., architect, of Molesworth-street.

## ST. PETER'S PARISH CHURCH.

The proposed alterations and additions to St. Peter's parish church consist of a new transept on the south side, to correspond with that on the north. The floor of the church, which is at present 2 ft. 6 in. under the level of the street, will be raised to 6 in. over it. All the galleries will be removed, and new windows throughout the church substituted for the present ones. The lath and plaster ceiling will be removed, and the wood work left exposed to view. The inside of the roof will be sheeted, and the principals planed and ornamented, and all stained in imitation of oak. The transepts will be separated from the aisles by triple arches, springing from shafts of polished Aberdeen granite. The organ will be removed to a chamber which will be next the chancel, and placed on a level with the floor.

The present very unsightly front will be taken down, and replaced by a very handsome one, with a large five-light tracery window, projecting buttresses, &c. On the north side will be placed the tower, which rises in three storeys to the height of 102 ft., and is 20 ft. square, and will contain robing room, belfry, and an apartment for clock. The front will be built of uncoursed granite; string courses, mouldings, and ornamental work, in Bath stone. On the south side is placed the public vestry, and on the north and south side are the entrances to the church and galleries in transepts. There will also be an entrance at the west end, leading into Peters-row.

The present old square pews are all to be removed, and replaced by seats, arranged so that the congregation will face the clergyman; the seats will have handsomely-carved bench ends, and the seats, pulpit, and reading-desk, will be of pitch pine, stained and varnished.

The floor of the chancel will be laid with Minton's encaustic tiles, and the chancel railing will be of wrought iron of a very novel and handsome design. The style adopted is the Early English Gothic of the fifteenth and sixteenth centuries, and it is expected the cost will not exceed from £2,500 to £3,000. E. H. Carson, Esq., Architect, Harcourt-street.



H. Patterson Del.

Morrison & Co. Dublin

J. J. McCarthy Archt.

DESIGN FOR N.E. FRONT ST PETER'S PARISH CHURCH, DUBLIN.

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UNIVERSITY OF CHICAGO

## THE STRENGTH OF IRON.

CONSIDERING the novel nature of the experiment which was tried in the construction of the Britannia and Conway iron bridges, and recollecting the apprehension, and even the incredulity, with which it was regarded, not merely by the public but by practical men, it is not surprising that the complete success which attended it should have caused a reaction, in which there was as much rashness as there had before been timidity and want of faith. Wrought iron bridges at once became fashionable, and were in great demand, both for railway and common roads. Iron had done so much more than was expected that the confidence in it was almost unlimited, and the result was that numerous iron structures were erected with little or no regard to first principles or to the law of proportion which should be observed in the sectional areas of the top and bottom flanges. Many of the bridges thus built were so weak that they were almost on the point of giving way, with little more than twice the permanent load. The use of inferior iron and the employment of indifferent workmanship also helped to bring the new class of bridges into some discredit after a few years, and excited doubts and fears on the part of engineers as to what was really the strength of iron. In the case of the tubular bridges above referred to, it was originally supposed that six times the heaviest rolling load that could ever be laid upon one, after deducting half the weight of the tube, was a fair margin of strength; but ultimately the standard was increased from six to eight times the weight of the maximum load. Some engineers have, however, contended for as much as ten times, as an adequate guarantee of safety; while others took a more sanguine view of the powers of iron. Mr. Brunel, for instance, was ready to work up to one-third, or even two-fifths of the ultimate weight, which would break down the structure. At length the Board of Trade, having had their attention called to the subject, laid it down as a rule "that all future bridges for railway traffic shall not exceed a strain of five tons per square inch." This standard, however, has not given satisfaction for two reasons. In the first place, the principle on which it was based was not disclosed; and secondly, it was too indefinite to secure in all cases the best form of construction, seeing that it did not recognise the different degrees of resistance to strain which are obtained from iron, according as the forces of tension or compression are applied. As is well known, a disproportion in the top or bottom flanges of a wrought-iron girder will cause an iron bridge to yield under the pressure of little more than half the ultimate strain. Hence it was deemed desirable by the Board of Trade that the matter should be subjected to direct experiment, and this duty was wisely confided to Mr. Fairbairn, of Manchester, who has just published a very clear and valuable report.

The object which Mr. Fairbairn set before him in this inquiry was to ascertain "the extent to which a bridge or girder of wrought iron may be strained without injury to its ultimate power of resistance," and moreover to determine "the fractional strain of its estimated powers of resistance," or, in other words, the exact amount of the load which such a structure would bear with safety. Without attempting to describe the apparatus which was employed for the experiments, technically and in detail, which would indeed be useless without the diagrams given in the report, it will be enough to say that it is admirably adapted for the purpose of imitating the effect of the passage of heavy trains, both in regard to pressure and vibration. In the first instance he lowered a load quickly upon the iron beam under trial, and subsequently produced a considerable amount of vibration, as the large lever, with its load and skackle, was left suspended upon it. The beam was composed of wrought iron plate, riveted with angle irons, 20 ft. clear span, 16 in. deep, and 7 cwt. 3 qrs. in weight, the breaking weight being estimated at 12 tons. The first series of experiments, with a load of 6,643 lb., equivalent to a fourth of the ultimate breaking weight, has continued unceasingly for two months, night and day, and included about half a million changes of load, at the rate of about eight changes a minute. No visible alteration was produced, however, nor did the increase of the load to two-sevenths of the breaking weight and the multiplication of changes to a million, have any apparent effect. The deflections had hitherto varied from 0.16 to 0.23 in., but these were increased to 0.35, with a permanent set of 0.05 in., when the load was raised to two-fifths of the breaking weight, and, after more than five thousand changes, the beam broke by tension a short distance from the middle. None of the rivets, however, were loosened or broken. The injury to the beams was readily repaired and the experiments continued with a load of three tons, or equivalent to a fourth of the breaking weight. Upwards of

three million changes of load did not produce any increase in the permanent set, the temporary deflections being 0.17 in. and 0.18 in.; and it was assumed, Mr. Fairbairn says, that the beam "might have continued to bear alternate changes to any extent with the same tenacity of purpose." An increase in the weight to four tons raised the deflection to 0.20, and after 313,000 changes the beam broke by tension across the bottom web, near the plate riveted over the previous fracture.

The "moral" of these experiments is very important. It is that the extent of time and the number of changes of load are very serious elements in the question of the strength of iron bridges; and that to be on the safe side such structures must not be subjected to a violent strain equivalent to more than a fourth of the weight that would break them. Within that limit, however, they exhibit, as we have seen, remarkable tenacity and power of resistance. "Assuming," says Mr. Fairbairn, "that an iron girder bridge will bear with this load (*i.e.*, one-fourth of breaking weight) 12,000,000 changes without injury, it is clear that it would require 328 years, at the rate of 100 changes per day, before its security was affected. It would, however, be dangerous to risk a load of one-third the breaking weight upon bridges of this description, as according to the last experiment, the beam broke with 313,000 changes, or a period of eight years at the same rate as before would be sufficient to break it. It is more than probable that the beam might have been injured by the previous three million changes to which it had been subjected; and assuming this to be true, as time is an element in the calculation, it would then follow that the beam was progressing to destruction, and must of necessity, at some time, however remote, have terminated in fracture."

It is obvious from these inquiries that it ought to be a chief object with every engineer to avoid encumbering structures of this kind with the least unnecessary weight. It cannot be too strongly impressed upon all that in every additional ton that is not required beyond the limits of safety is an evil that operates as a constant quantity tending to produce rupture. The necessity for a careful distribution of material and skilful proportion of parts, so that no undue strain may rest on any portion of the fabric, follows as a matter of course.

Bringing the results of his experiments to bear on the standard of safety established by the Board of Trade, Mr. Fairbairn arrives at the conclusion that "wrought iron girders, when subjected to a load equal to a tensile strain of 7 tons per square inch, are not safe if that strain is subjected to alternate changes of taking off the load and laying it on again, provided a certain amount of vibration is produced by that process; and what is more important to notice is, that from 300,000 to 400,000 changes of this description are sufficient to ensure fracture." At the same time, it is fair to say that the beam which Mr. Fairbairn tested bore upwards of 3,000,000 changes of load, with nearly 5 tons tensile strain on the square inch. Indeed, if we make allowance for the rivet holes, and calculate the area for tension with that deduction, the actual strain upon the solid plate is considerably increased. The first fracture of the beam was due to a strain of 10 tons per square inch, and the second to a strain of 8½ tons, after sustaining 3,463,000 changes of load. Hence it may be inferred that a bridge would be safe for a long series of years with a strain of 6 tons per square inch; and none, we should imagine, will hesitate to concur with Mr. Fairbairn in thinking that 5 tons per square inch of tensile strain on the bottom of girders, as fixed by the Board of Trade, is an ample standard of strength.—*Railway News.*

## ARCHITECTURE IN FRANCE.\*

## MEDIEVAL TO RENAISSANCE.

(Continued from page 72.)

SOUTH a little farther, but more to the east, and out of the direct reach of mediæval traffic, is the magnificent church of Bourges. This is chiefly of later date than the twelfth century, but there still stand, little the worse for their 700 years' wear, the two grand portals, north and south, and in them you have the stiff archaic sculpture of the time. Bourges is now in the very heart of France, but it was, at that time, an outlying post in a barren country, and one does not look for nor find much progress there. Southward again, in the direct track of trade, we come to Poitiers—southward still of that, to Angoulême; both too well known to need much notice here. Poitiers is northern in its domical vaulting, and southern in the want of clerestory and triforium. Angoulême has the northern chevet, the Angiovine aisleless plan, and the altogether southern domes. These domes are Byzantine altogether. And now,

\* By Mr. T. Hayter Lewis, read at the meeting of the Architectural Association, April 1st.

for my last examples, we reach Moissac, Tarascon, and Arles, all in the great southern province; no trace there of northern art; no fine lights and shadows from clerestory and triforium; no boldly soaring towers; no beautifully-planned apse. We miss all these down south, but we have, instead, the bold and graceful portals and the richly-sculptured cloisters—so lavish in their decorations, so elegant in their carvings, that one almost forgets the contrast between Arles and Laon, in the wonderful interest which the carvings to these small southern churches excites.

Now I want to lead you, before we come to the great works of the thirteenth century, to examine again the course of the art-changes up to the end of the twelfth. First, then, we find Normandy, as before, still, to a certain extent, isolated in art, not borrowing from or influencing other provinces, and still keeping its own peculiar style, be the origin of it what it may. But it and its arts seem to have influenced us. Secondly, then, at the time when we had only such archaic work as we see at Durham, Peterborough, and Norwich, there had been finished a large part of the great Pointed church of St. Denis.

But the Angers Pointed churches must have been earlier still; and earlier still than those were Avignon and other Pointed vaults still farther south. We must call to mind that most of the buildings, Christian and Saracenic—and grand ones they are—where in the Easterns had a hand, as Sicily, and Egypt, and Syria, were, long before, all Pointed in their arches. In Italy, even in the north, all was strictly still Romanesque and round-arched. But, though the true Gothic seems to have been begun in France, it was only in the north that the style had taken root. Little of it is to be found south of Paris, for the Pointed arch in the southern provinces was used with no Gothic feeling. It marks, however, the influence of commerce upon art, in that the nearest to it, perhaps, is to be found in Angers, the chief town northward in the general route. Now, up to this time, it seems to me that this advance in Gothic was altogether French; at least, I know of no other place from which the style could have been borrowed: from Germany it certainly was not. All that I have ever seen or heard of it was Romanesque—Romanesque of a very peculiar and beautiful style; very Eastern much of it, and containing some of the finest specimens of plan and outline that the world has ever seen; but no Gothic was there. It did not come from England. Few of our works here are even Transition, and we cannot call such buildings Gothic.

It did not come from Italy, for nothing there is to be found that is not Romanesque. To France, too, we must, I think, give the honour of designing the great sculptured portals, such as we find in this country at Arles and Tarascon (most carefully described by M. Waring at the Institute, in 1860), and the earliest of these are at Bourges and Strasburg. Somewhat near to them in date are those of S. M. Toscanella and Verona. But these are very different in arrangement from the French—combine less harmoniously with the general mass; and, although the French and Italians of those times may have interchanged ideas, it seems to me that the French architects of Southern France may fairly claim the merit of their design, and nothing that I know is more rich and graceful.

It is clear, however, that there was, as I have before suggested, an interchange of thought between the art-workers of France and Italy, because, in addition to the twelfth century being the age of porches in both countries, we find, also, in both, the strangely conventional introduction, under the columns, of lions and other animals. This lasted in Italy to the fifteenth century, one of the most magnificent specimens being the porch at Ancona. To sum up—the French works of the twelfth century, as a rule, were more powerful than graceful—more bold than studied—less marked as a distinct epoch by mouldings, or outlines, or plans, but free in all to an extent that no age, before or since, perhaps, has known.

The architect in Provence, Auvergne, and Anjou, was a singularly unfettered man. He took for his plan the cross form or the oblong, with or without aisles, as it but answered his purpose or his funds. He turned his lower arches in the round form which his fathers used, covered his great church with the northern groin or the southern barrel vault, and sometimes with both together, and formed these groins or vaults with the Pointed arch. Then, upon that, if he wished for a bolder form, he raised the dome, with its pendentives borrowed from the east, and finished the great work by the radiating chapels which led to the glorious French chevet. And then he lavished upon the entrance to church all the efforts which sculpture could make, and which were the beginnings of that work which culminated in the portals of Rheims and Bourges. Where, too, shall we find such studies in aftertimes as these that we get in the cloisters of

Arles or Moissac? Rude they are,—rough,—not to be looked at for studies of anatomy or graceful drapery (though you may find that too), or for all the delicate refinements of the sculptor's art. But what a study there is of the men who wrought them! What lessons in stone do they teach! Walk through those cloisters; and, as you look at each capital, the mind can find a separate subject to learn from or instruct. The Greek never did this, nor did the Roman. Nor even did the men of a century later! Compare, for instance, the carving in the cloisters of St. Triphime with that of the later cloisters of the Augustines at Toulouse,—a wretched falling off. I don't say copy these rude works; but I do say, work as they worked, with our superior knowledge as a help to us, and we shall do well.

Now for the thirteenth century, the last that one can well study in France, for art ran to riot very quickly afterwards; and, though much of the after work is beautiful, almost to perfectness, yet there is so much waste, if I may use the term, in its beauty, that one can scarcely well go very deeply into it; at least I, for one, never could; and I shall, therefore, now confine myself almost to the thirteenth century, with a general glance only at the after work. The thirteenth century is the date of Philip Augustus and St. Louis—of Philip the Bold and Philip le Bel—of the conquest by the French of the English provinces, north and south—of Provence and Champagne—of the Crusade in Languedoc, and the destruction of the great order of the Templars. It reached from our John to our Edward I.—from Norwich cathedral to Salisbury, Wells, Lincoln, and Westminster—the nave of York and the Eleanor crosses.

In Germany, it gave us many of the Cologne churches, with part of the cathedral itself;—in Italy, the Baptistery at Parma, St. Francesco at Assisi, the Campo Santo and Baptistery at Pisa;—in Spain, the Alhambra. It is the great era which M. Viollet-le-Duc brings forward as the age of prodigious activity in art—when the grandest of the French works were undertaken with the most marvellous power of design and richness of detail; but done, he says, in a hurried way, so that both the construction and details were wanting in that perfect finish which characterized the earlier works; and it is the time at which the purest Pointed architecture is to be found in Europe. Of this era are the chief parts of the great French churches of Amiens, Bayeux, Rheims, Chartres, Le Mans, Strasburg, Tours, Poitiers, Limoges, Bordeaux, Toulouse, and Alby, the walls of Carcassonne, and many another work that gives life and interest to the city or the landscape. Here again, as before, we find a difference, strongly marked, between the north and the south; but the strength of the south had now died out, and all the energy of design had passed to the north. There is, indeed, much of great interest in the south: the great churches of a single plane, and of one aisle only—marvels of construction, and valuable for study for our Protestant service. So, too, there is much to be learned from the brick architecture of Toulouse and its neighbourhood—a style quite peculiar to it, and not much known. But, nevertheless, the great move in architecture and sculpture in the thirteenth century was in the north, and to their architects, I think, belongs the credit of their movement.

The change, however, in France, was scarcely so great as with us, from the style preceding; and it was, to a much greater degree than with us, a mere refinement on the century before. We find the mouldings, to a great extent, very similar in both—the foliage to the capitals very much the same; so, also, the general contour of the buildings, the sculptured porches, the lofty spires. All had been shadowed out before very much more than with us, and though they had got the start of us in the twelfth century, I think that we had overtaken and outstripped them in the thirteenth.

To begin, now, with the details, the most important point, although the most minute in any comparison of work and dates.

No one studying the subject can fail to see at once that the change of details made in France is very much less than with us. The mouldings most in use continued with them to be almost the same; and one finds the sections that were used at St. Denis, in the middle of the twelfth century used still at Chartres in the middle of the thirteenth, with very little change indeed. Yet that length of time is very similar to that between our St. Cross and Westminster—between the Norman section of the one and the elegant Pointed section of the other. So, too, with the foliage. From a very early period in the twelfth century to a later period in the thirteenth, much of the foliage of the capitals was very similar throughout; and though the later work was somewhat freer and less archaic than the earlier, yet the general form was still the same. Compare this, now, with the difference between the same buildings that I have before named, or with the heavy work of Peterborough transepts and the Chapter-house of Salisbury and York. This great adhesion to a settled type of work presents much greater diffi-

culty to any student investigating the theory of dates in France than he meets with in Great Britain, and it is somewhat dangerous to speculate too closely upon French dates from such details. It is, indeed, captivating when we find, as we do when first we begin our studies in architecture, that the mere contour of a moulding, or the turn of a leaf, will sometimes fix a building's date within some twenty years; and one is sorely tempted to theorise thereon somewhat too confidently in settling to our minds a doubtful date. But a larger study will often show that a little knowledge here, as in many other things, is a dangerous thing—not to have, but to theorise upon and the actual facts of a given proved date, will often show how much we must assign of influence to local types and peculiarities. Knowledge makes us modest in this as in all things else.

In France, however, so far as I can see, study has taken a path quite different; for details there seem to be studied by the French in quite a secondary way. I do not know a single French work which gives the detailed mouldings in any workable size.

This, however, is a digression.

Compare such of the French mouldings as I have given, and which are perfectly fair specimens, with any of our works of the same date, and the difference will be found very striking in favour of the advancement in England.

As to the capitals, the magnificent series of drawings which Mr. Scott has been kind enough to lend me, and to which I shall allude in conclusion, will show at a glance the various differences of form and foliage.

But then there comes the tracery of the windows, and I am afraid that the French had clearly the start of us there. I must, however, doubt whether they had much start of us in their sculpture. Wells cathedral was about equal in date to most of the great French churches; and the sculpture there will hold its own, I apprehend, with any. Take, as an instance, its sculpture as compared with Chartres. Comparisons, are, however, rendered somewhat difficult by the uncertainty of the dates themselves in many of the examples best known. Take, for instance, Amiens, better known and more written about, perhaps, than any other, from its nearness to our own land, and its reputed date so temptingly near to Salisbury. The latter was begun in 1220, and finished some forty years after on one plan. Amiens about the same; but the works there are said to have extended to 1272; and then again, after a severe fire, to have been renewed in the fifteenth century. Now, there can be no doubt whatever that a total change of the aisle plans took place after the main skeleton of Amiens was up, because the outline of the buttresses, clearly meant to be external, can still be seen within the chapels—this plan adding, in fact, another aisle to the whole building, and pushing outwards the whole of the lower walls. These latter, therefore, with the whole of the lower windows, aisle, groining, &c., must have been added after the general skeleton of the cathedral was finished. I think, too, that anyone carefully examining the details will say that the work externally, above the canopies of the great portals, is later, to a marked extent, than the figures below. Also, that the whole of the capitals to the traceried windows throughout are very much later than the general skeleton of the building; so are the parapets. Much, too, inside is clearly of a later date, so that until the history of this great church is much more closely written from the stones themselves than has, I think, been done, we must scarcely take it as a good foundation for a theory of date comparisons. We may, however, do something more by comparing it with other French works. I did so with Tours and Chartres particularly, and found the piers, capitals, abaci, groining, and many other parts, to be almost identical with one or other of these two cathedrals.

Now, the date of Chartres and of Tours is about the same, viz., 1250, and I do not think that we should put the upper part of Amiens at all earlier—the tracery of the windows, the parapets, and the west front decidedly later. This middle of the thirteenth century, then, affords us a most excellent standing point of comparison between Amiens, Tours, and Chartres of that date, Westminster and other English examples of the same time, Paris a few years earlier, and Laon of a few years earlier still. The result is curious, for if you take the mouldings and the general lightness of the style as evidence only, the earliest, Laon, would really seem more advanced than the other French examples. The capitals are freer at the later date, but scarcely so finely modelled I think, and most decidedly, the ornamental work of Laon, in the exterior, exceeds by far the rest. The early French work, in fact, in general shows such broad surfaces and is so little cut with mouldings, that I am constantly reminded of Mr. Burges's remark, that we must choose between colour and mouldings, and cannot have both—the French preferring the colour. It is not, however, very easy to

find genuine examples for the study of colouring in the interior of the old French churches. There are, indeed, very many and large traces of it in many places. I may mention St. Hilaire, at Poitiers, and the cathedral of Tours in particular. But it requires very great care in discriminating as to what was done at the time, or nearly so, of the building, and what was added afterwards in Renaissance times (often upon the first), when decoration was used in France most lavishly. Then all was whitewashed over, and it is sometimes no easy work to say, until we come to some decided ornament, to what date we must assign the painting.

To resume as to the comparison of dates, we may, I think, be quite safe in concluding that the Pointed style in France was developed at an earlier period there than with us, but that, in our mouldings, and our foliage, it advanced with us to a greater degree of delicacy, refinement, and beauty of details, than ever it did in France. I know of nothing in France that will equal in grace and delicate beauty the early English foliage capitals, or the beauty of the spandrels and other ornaments that we see at Lincoln or Westminster, or the Chapter-house of Salisbury and of York, for instance. The French are, no doubt, gloriously vigorous, as Mr. Scott's fine drawings here show. Their piers and mouldings, too, are bold enough, but they always seem to me to have scarcely the richness that one would expect to find in them. I mean, of course, up to and including the thirteenth century, for there was no lack of richness after—it then ran quite to riot in its details. I should not care to trouble you much with this, even were there time; for, beautiful as much of the detail is, and picturesque as much of its effects, there seems throughout to be so much in it of the artificial, that its study is soon abandoned. Much of the very late work, quite of the Renaissance, is very picturesque in outline, and the skylines of the roof afford, very often, quite wonderful studies. I give a few examples, enlarged from my sketches.

Before quite concluding, I should like to make a few general remarks on the French works:—1st, with respect to the general outline, there is no one, I suppose, who does not know the wonderfully elegant flying buttresses of Chartres, for instance, which tell so well in a section. Beautiful they are in drawing, and fine as constructive works. But the real effect, more especially at the apical ends, is by no means so good. In many cases (I noticed it particularly at Chartres itself, and at Le Mans), the buttresses are so close together, and reach so nearly to the parapets or eaves, as quite to exclude the windows and the wall-lines from most points of view. There is at Le Mans a good opportunity of comparing the effects of these heavily buttressed apical ends with the simpler form of an earlier date; for the lady-chapel there is shown projecting its simple apical outline in direct contrast with the flying buttressed end of the church; and, certainly, I could not hesitate to say that the earlier simple form was the most pleasing. Then the excessive height of the French cathedrals seems to require such depth in the buttresses as, in many cases, to obscure the side walls, as I have above described they do the apse.

Then, again, the triforium is treated, generally, in a very different way to ours. We have, as a rule, in our early work, a deep practicable gallery, lighted from the back, low in height compared with the aisles and the clerestory, and giving thus a scale to the whole of great value. The darkness, too, offers a fine contrast to the lightness of the clerestory above.

In France, as a rule, the triforium is a mere gallery in the thickness of the walls, and is glazed throughout. Great lightness is, of course, the result, but one misses much the deep shadow of our own cathedrals. This great lightness, too, has another defect—viz., that the great solid piers of the nave and choir seem too heavy for their work. This is particularly the case, I noticed, at Bourges, and the effect is increased by the want of massiveness as well as richness, in the effect of the great aisle arch mouldings. On the other side, however, the French have many advantages over our plans. No one can, I think, contrast our square-ended churches, as compared with the French apse and chevet, without feeling the superiority of the French plan.

In a few instances, as at Strasburg and St. Hilaire, Poitiers, the Italian arrangement of the apical end, raised above the Saints' Confessional, is to be found. But, in general, the French plan is strictly a congregational one, the aisle being continued round the apse as a regular path. Then, externally, we have in French works, the great crowning cornices—a feature of very great importance, and that gives a remarkably bold finish to the walls. This is found, too, in the domestic work as well as ecclesiastical, and in work of all dates. It deserves attentive study, both for detail and for general effect; and seems to supply the only want (and to my mind a very great want) which we find in the great Gothic palaces of Venice, viz., that of a great crowning cornice. Finally, we have the domical vaulting—a beautiful va-

riety of groining in itself for one compartment seen separately, but very difficult to manage well when seen in a long succession of bays.

I must say a few words now as to the French glass. Many of the cathedrals are filled with it to an extent which we really cannot understand, when we think of the many vicissitudes that France has undergone, and one sees, especially, the actual treatment of whole ranges of great untracery windows of the twelfth and thirteenth centuries, as decorated with glass of the finest character.

Usually it is divided off, as in our own early glass, into geometrical medallion patterns, with deep rich borders—the medallions filled with figure subjects, and the spandrels, &c., with a peculiar sort of plain diaper, almost invariably of blue and red.

Wherever the medallions and diapers are of much the same tone of colour, the general effect is that of a somewhat confused mass, owing to the smallness of the details. In such a case, the large single-figure lights of the later glass contrast favourably with the earlier. But when (as is usually the case) the latter have the medallions brought distinctly out by their contrast with the deeply-coloured diaper ground, the window so marked out produces all the picturesque effect of a traceried window, with the power of colour superadded. The borders are very beautiful in design, but the diaper which I have already alluded to takes very badly the place of our scroll-work. Sometimes, as at Strasburg, the glass is thick with age, that the obscurity is too great. But, in general, the effect of the cathedrals lighted by ranges of such glorious windows as one often sees in France is a thing never to be forgotten, and affords means of comparing the general effect of glass of various dates which one can scarcely find elsewhere. Of one thing I must warn the young student, in prosecuting his studies in France. He will find that many churches ancient or restored, have the vaults and masonry strongly lined with deep white or red lines. In very many cases this is really old, in the vaults especially; for there, the spaces between the ribs, being filled with chalk or light stone in irregular lumps, were plastered over with a thin plaster and lined. I think that this was done as a means of decoration, and a legitimate one. It certainly has a very good effect in general.

But the French architects of the present day often make a point of plastering over the masonry, wherever irregular, of the walls, with similar plastering, so closely resembling stone as to be very deceptive, and then lining it over in regular courses, quite irrespective of the actual joints of the masonry. I saw a ludicrous example of this at Saumur, for the piers had been jointed at different heights at the sides, and were often at a wide distance apart at the angles. Used properly, the showing the actual lines of the stones has an excellent effect, better, in fact, than one could expect. There is a striking proof of it in part of the Early arcade at Le Mans, where three of the arches only have been thus lined, the rest retaining their old coat of whitewash. The difference is wonderful.

I now come to the fine series of capitals lent to me by Mr. Scott. In his lecture at the Royal Academy, he brought forward very prominently their general characteristics as being chiefly derived from Byzantium. You are quite aware that the French foliated capitals are very different from ours. We seldom see in France such beautiful and elegant work as we do here; but then the French is, as a rule, bolder; and I know of nothing in other countries quite like them in general design. They are, as Mr. Scott describes them, Corinthianesque, but not mere bad imitations of Corinthian. One seldom sees, for instance, the cauliculi at all. There is one instance from my sketch at Le Mans; and one finds them in early examples, as at Caen, for instance; but very rarely indeed in thirteenth century work; and, although the general outline often suggests its Corinthian origin, yet these capitals, as a class, may fairly be ranked as genuine French work in design. Yet I quite agree with Mr. Scott's idea as to their Byzantine origin, and (after comparing notes with him) find that I do so from a different point of view altogether. Mr. Scott was struck with the general resemblance of the French capitals to the Byzantine rendering of Roman work, whereas I had invariably classed them as Byzantine owing to their peculiarity of sculpture.

There is a mannered style of manipulation found in nearly all the Byzantine work that I have seen which is rather difficult to describe, but is very evident in most examples. The lines are cut in very sharply and squarely; the eyes of the leaves and other points wanting emphasis are drilled in deeply, and the whole effect is that of a wish to give us much sharpness as possible, so as to bring out the work when seen at a distance. This gives a certain kind of stiffness to the work, but it is most so in the subordinate parts, the general curves and outlines being often as graceful as they are bold. Of course, these details of execution are not to be found throughout. The French school was evidently soon an independent one, pre-

serving only in parts the traditional style of work. But it is so clear that I feel no doubt whatever, looking at the matter from quite a different point of view to Mr. Scott, that Byzantine influenced French art, as I believe it did all other art, down to the thirteenth century at least. The French school soon then formed quite an independent style of its own, as you may see by the drawings of the Sainte Chapelle. I must, however, in fairness say, that there is a good deal of French work of by no means the high character that one usually sees, simply because one does not care to draw from bad examples. Much of the work, even at Chartres, for instance, is very coarse and poor.

I have alluded in this rapid sketch to ecclesiastical architecture only; for, to notice architecture in its domestic or military phases would have been too great a task for this short space. But I must remark that the same feeling for bold, horizontal, crowning lines, is shown even more in secular than in other works. You find the great crowning cornices used with a wonderfully good effect. Take, for instance, the Hotel de Ville, at Bourges. It tells most capitally as a finish to the florid enrichments of the front, which would, in fact, be strangely overcharged without it. So, also, the door and window openings are often spanned by a bold, straight lintel, carried, perhaps, through the whole front, with no attempt whatever to disguise it in any way by an arch. It is simply a plain, straight piece of stone, clearly strong enough to do its work, and contrasting well with the arches of the other openings. This horizontality is a strong feature throughout French Gothic, and seems to pervade it even to the design of their most upright features—the pinnacles and spires.

To sum up. Whilst English Gothic has its own great beauties—such as its delicate and graceful foliage, its splendid suits of mouldings, and its beautiful Decorated work, with all the elegance of the Flamboyant without its extravagance; and, whilst I hold that the beauty of such works of ours as Westminster and Lincoln, Salisbury and Wells, cannot be exceeded, it must be granted that the French has likewise beauties in its Early art that ours want. The great rose windows, the bold capitals, the grandly-sculptured portals of the north, and the Romanesque work of the south, may all be claimed by France as her own. This is as it should be. Art varies with the climate and the race; and far be it from us to wish that it should be otherwise, or that such differences should not produce peculiar beauties in each land.

One word I must say as to the men to whom we owe them—the architects. These men of old are honoured still in France. The relic in all Rheims most noteworthy, perhaps, is the incised tomb of Libergius, the architect of its great church. That survives the stormy times that saw the monuments of St. Denis broken to powder, and as you walk up the wide new street which will soon afford a fitting entry to the cathedral, you will see that it is named after its architect. Can any one—can we above all—looking at such works as his, believe for one moment—the lowering theory constantly put by the clever author of the "Handbook of Architecture," (and my very good friend),—and they were not the products of genius and study, such as were sculpture and the painting, but merely advanced products of the technic art?—putting, in fact, the men who adorned the portals with their figures of stone, and decorated the shrines with colour, above him who designed the whole. To me it is a marvel that the gifted author I have mentioned could think, for a moment, seriously that the designers of these glorious works which fill their beholders with wonder, and admiration, and awe, could be other than amongst the highest, in the fulness of their intellectual power.

And now, in bringing to a close this sketch, which must, from its nature, be somewhat bare, I cannot avoid saying a few words as to the country of which I have been speaking. I have travelled as much as most men, in most European countries, but in none have I found as an utter stranger, a more kindly welcome than in France. A mischance may sometimes happen (and where in life may it not?) and sometimes one may meet with a surly neighbour, or ill-tempered host; and sometimes, possibly (though it has not fallen to my lot) one may meet with a lingering trace of the feeling that France and England are not quite friends.

But set out on your travels with a full intention of pleasing and being pleased—adapt yourselves to the customs of the land, and respect them when they differ from ours, and I know of no place, save our own land, where you will meet with more kindness, more thorough friendliness, than you will in gay, sunny France.

NATIONAL GALLERY OF IRELAND.—The attendance of visitors during the week ending 23rd April was 5,115. Total since the opening, 1st February, 89,960.

## ON THE PRINCIPLE OF IMITATION AS APPLIED TO THE DECORATIVE ARTS.\*

(Continued from page 69.)

BUT at the root of all art lies the love of imitation. To this feeling the fine arts owe their existence. Without some notice of it, therefore, it seems, no theory of the fine arts could be perfect. This love of imitation, or of representing objects by their images, whether exemplified in the tendency to imitate or in appreciating works of imitative art, is, no doubt, an original powerful sentiment or instinct of our minds. We love imitation for its own sake—not only as a means, but as an end. Apart from and beyond the pleasure which we receive from such an object, for example, as a portrait, in recalling the features of the "distant or the dead, the loved or the lost;" there is a pleasure in tracing the resemblance between the original object and its image; a pleasure which may be traced to the same source, whether it be found in poetical imagery, in a dramatic representation, in a picture, a statue, or a simple imitation of marble.

But this love of imitation is not always associated with the highest qualities of the mind. It may be indulged in numerous instances where no original idea is expressed, or where that idea is to be found in the subject of the imitation. All such examples employ the mechanical more than the intellectual powers, and cannot therefore rank so high as works of art. They do not suggest great thoughts, but they may possess great beauty, and they may yield a rational pleasure in suggesting interesting relations between the imitation and the thing imitated.

Now, this imitation in the fine arts must be distinguished from reproduction, as well as from imitation effected either by organic or mechanical means. One receives no impression of beauty from the resemblance which the apples on the tree bear to each other. Nor would he be struck by seeing a table with a vase on it reproduced by another table and another vase. But let a painter produce these objects on his canvas, they would receive a new virtue, which, to use a popular phrase, would attract and please the eye. Where the deception is complete the pleasure is gone, because there is no image—nothing to judge of—nothing to compare.

Having thus indicated what imitation in the fine arts means, we come, as proposed under our second head, to state some cases in which deceptive imitations are admissible as contrasted with others which belong to a different class.

But I must first explain that when, in the course of this discussion, I employ the terms deceptive or deception, they must be understood in a qualified, not an absolute sense. Where an object is an actual deception it can obviously afford no pleasure as a work of art, although it may give pleasure from its intrinsic beauty. Suggestion, not deception, is the object even of that art which is purely imitative. Some objects, however, admit of, or demand, more perfect imitation than others.

We purpose now to test, by a few illustrations, how far we are justified in making these imitations actually deceptive in their character, or so deceptive as to produce an illusion.

Such deceptions in that highest art which adopts human life for its subject, can scarcely be said to be possible, and so far as possible would, if practised, meet with universal reprobation. The technical and merely imitative elements would be found to obtrude themselves offensively in works where they ought to be kept in a subordinate position. But there are other and more palpable reasons for our dislike. You cannot certainly imitate a living, breathing, sentient being so as to deceive permanently, but you may succeed in producing a momentary illusion. You may model a figure in wax to imitate, with tolerable exactness, the human form and features. You may colour the skin. You may cover the lay figure with clothes. The finely-moulded contour may charm for an instant, under the belief that you look at real flesh and blood. You approach—you touch—the spell is broken—"you start, for soul is wanting there." It is a corpse—a coloured piece of corruption. This is no subject for a vulgar deceptive imitation truly. The nearer the approach made to the reality in such instances the more offensive. Our dislike to such objects is founded on the same principle of our nature which makes us consider the ape as the ugliest of animals, because it most resembles man. The wax figure is too like life, for it only awakens a painful sense of its absence.

The general condemnation awarded to coloured statuary, although partly due to habit and fashion, may be attributed to the feeling eliminated by the test which we supply. A deceptive imitation should not be attempted where, from the nature of the thing, or the impurity of the material, it cannot be rendered

\* Read at the Society of Arts, April 6, by THOS. PURDIE, Esq.  
† See "Essai sur l'imitation dans les Beaux Arts." By Quatremere de Quincy.

perfect. I may mention as examples of this principle, the coloured friezes in the Greek court of the Crystal Palace; the coloured carved Madonnas one meets in all Roman Catholic countries, with which few of our countrymen will be found to sympathise. I can hardly exclude from the catalogue the tinted statuary shown at Kensington in the last exhibition. Of course, no attempt was made with these statues to imitate nature, but what was done, if not a step in that direction, seemed to reduce the marble to the level of wax. No doubt there are other reasons for the feeling which we assume to exist, of which two may be stated. 1. The colouring of statuary is an application to one art of the resources which properly belong to another; and 2nd, Sculpture has held the highest place in art, because it appeals to intellect alone, and not to the senses. The colouring of statuary, by introducing a sensual element, at once degrades it from its high position. We not merely tolerate, but admire statuette in china coloured to the life with tolerable exactness. These, however, cannot produce an illusion, so there is no chance of their creating the feeling of disgust engendered by wax figures.

But this disgust and annoyance at the disappearance of an illusion is not universal, even where the human figure is concerned.

Did any one ever feel disappointed at discovering the figures on the ceiling of the Parisian Bourse to be paintings merely? Did any one ever experience feelings other than those of admiration at the inventive talent displayed in those designs, the marvellous imitative power and command of the materials of art which could produce such works? The means in this case are equal to the end. These pictures are, however, imitations, not of men, but of sculpture, and as such successful. Great as designs, and executed with such exquisite skill as to fulfil all the conditions of the material which they are intended to represent.

Such works as these, the numerous painted *bassi relievi* and other similar works in the Louvre and elsewhere, and paintings of De Whitt and his followers, receive from the world generally, notwithstanding the denunciations under which they labour in common with all deceptive imitations, the meed of approbation which they so fully deserve.

How stands the case as to landscape? Framed pictures we may pass over as affording no illustration of our subject. It would be a rare talent which would enable one to paint a landscape so as actually to produce an illusion when placed within a few yards of the spectator. But no illusions are more perfect than those of the scene painter. Are panoramic painted views, such as those of London, as seen from the top of St. Paul's, or of Paris as seen from the Pantheon, to be forbidden delights in order to satisfy the requirements of this new theory, because possibly the spectator may have difficulty in persuading himself that he is looking on a flat surface? I have seen, as everyone may have seen who has visited sunny Italy, what might have been a dismal court-yard changed into a paradise by the skill of the painter. In the foreground, instead of a blank dreary wall, wood and water and green fields. In the distance, a picturesque range of mountains, with the sunlight striking through the gorges and tipping the far-off summits with its golden radiance. But who, on walking towards those mountains and finding they were merely painted on the boundary wall, not fifty yards distant, the wall itself being built so as to form their rugged silhouette, experienced other emotion than that of pleased surprise at the skill which could produce so marvellous an effect by means of painting. And are we to be told that all such art is base and inadmissible? "What! because thou art virtuous shall there be no more cakes and ale, and shall not ginger be hot in the mouth?" Must the pent-up denizens of our cities be compelled to gaze on a blank dreary gable, or into a dismal court, when he has a desire to look on brighter and more lively things, or to dwell among the horrors of Erebus, when the painter's brush, like the wand of a magician, may transform the scene into the Elysium fields?

Now I know it will be asserted that such art as I describe is not high art. Let me admit the truth of the assertion. I have already said that art is great only as it employs the intellectual faculties. The laws of perspective are well known, and the application of them is so far mechanical. But all men are not Wilkies, nor Paul de Roches, nor Turners, nor Roberts, luckily, or else we should have everybody producing works of high art, with nobody to buy them. It is to be feared that in such circumstances the only employment for an artist would be akin to that of Vishnu—the contemplation of his own perfections, an occupation, profitable it may be, for gods in whom humility is no virtue, who neither eat nor wear clothes, nor beget children, but not for men who do all three, and who, to be estimable, must be humble withal.

But no reasonable man would deny to an artist the right of exercising, for his own profit, and for the pleasure of his fellow men, such talents as God has given him, merely because they are not transcendent as those of the great masters we have named.

The fact is, as I have already indicated, this crusade against deceptive imitations, though neither essentially pre-Raphaelite nor Medieval in its character, is a phase of the fashion which has exhibited itself, and is running its course in architecture, painting, and religion. Strange practical paradoxes into which theorists are sometimes dragged! Into what adhesive and traitorous quagmires of delusions and absurdity are men frequently carried when they take to ride stiff-necked hobbies! I have seen pictures of the pre-Raphaelite school in which the imitation was carried so far as to be startlingly deceptive. An imitation of what? Literally of withered leaves and straws, painted with a greater amount of care and finish than had been bestowed, in the same picture, on the human face divine, so startlingly deceptive that it seemed as if the straw had been packed in between the glass which covered the picture and the panel on which it was painted. Yet men who denounce all imitations as sinful, who cannot find terms sufficiently strong in which to condemn the man who spends his time and gains his livelihood by imitating the delicate veining of the rich and varied colouring of a marble, exhaust the English language for words to sound the praises of a school which admits of such puerilities.

But deception is allowed in many cases besides painting. What is that which forms the charm of novel writing but its deceptive character? It would be a new style of objection to Robinson Crusoe, that no one could read the book without feeling persuaded that it narrated facts, or to Sir Walter Scott's delineations of Baillie Nicol and Dominie Sampson, that through its verisimilitude, they, the creatures of an imaginative brain, had taken their place as historical personages. What is the source of the delight we take in dramatic representations? Among all the objections which have been urged against the stage, did any one ever hear it asserted that actors in their professional capacity are deceitful above all men, and desperately wicked? Could it be said that Macready was an unprincipled scoundrel, because no one could see him perform without believing him to be animated by the passions which his words expressed? Over and above the interest of a drama which, although badly performed, may to some extent sway the feelings, the deceptive character of its representation forms its chief interest, and in its appeal to the imagination constitutes the performance of a work of art. We admire the acting of a man who personifies a passion, while we might disregard or despise one actually under its influence.

What would Carlyle say if arraigned before the bar of public opinion for the form which some of his great works have taken? If he were charged with imposing on the public the belief that his Sartor Resartus was founded on a volume he had received of Professor Teufelsdröck, from the press of Stillsweigen and Geschelschaft, of the town of Weissnichtwo. If it were stated in aggravation of his crime that he was an old offender; that the effect of the deception which in this case he had practised—to use the identical words employed in denouncing that class of imitations which we are now engaged in defending—was to cast a suspicion on the existence of his Abbott Sampson and the genuine Choonica Joceini de Brokelonda, and on every bit of genuine history afterwards encountered. Do not let it be supposed that these cases are irrelevant. They are truly in point, and they are fair illustrations. The sin which is denounced is the so-called deception, common to them all, and the consideration of it as exemplified in such cases may prepare us for its admission in those others which are to come more immediately under our consideration. It must be observed that these dramatic representations and these works of fiction, like painted marbles, deceive only those who have not knowledge or penetration enough to detect the imposition. In this case, if the deception be the crime, the balance of argument, according to the views of our opponents, is in our favour. The painting contains internal evidence to reveal its true nature, while the real character of the acting, or of such writing as that in which Carlyle indulges, must be ascertained from certain conventionalities known only to the initiated, or from extraneous sources.

Immediately we shall come to some cases where the deception is not so admissible. But before doing so let us take an example from the highest and noblest of all the fine arts—that art which appeals not merely to our business and to our bosoms, but to that region of man's nature which forms the seat of his most exquisite delights—the stomach. It has been well remarked of gastronomy and astronomy that the former is the more noble science, that a philosophic cook who discovers a new dish is a greater benefactor of his species than a man who discovers a

new star, because we have more stars than we can ever make use of, while it is impossible ever to have too great a variety of dishes. We require, therefore, no apology for drawing an illustration from so noble a science.

Let us suppose that Goldsmith's country parson, passing rich on forty pounds a year, from the produce of his garden to manufacture an effervescent beverage and dignify it with the name of champagne. I apprehend he would not be guilty of sin either against morality or good taste, in partaking of it himself, or in sharing it with his friends, if it pleased their palates. But woe to the nobleman or wealthy merchant who should attempt to palm such an article on his guests. They would receive it as a villainous compound, suspect their host of poisonous designs, and take care to have "unfortunately contracted a previous engagement" on all future occasions when they received his invitations. Mock turtle, though utterly destitute of the dignity which appertains to the original dainty whose noble name it bears, and in fact, although without aristocratic pretensions of any kind, and it may be even somewhat plebeian and vulgar in its origin and connections, is not yet wholly proscribed, and may be met with occasionally in respectable society. But let any one conceive, if he can, the position which a Lord Mayor would occupy, who, to save the contents of his purse or the digestive organs of his guests, should supply the sham instead of the real article at his inauguration banquet.

There is here, however, not a question of sin or no sin, but of consistency or inconsistency, of propriety or impropriety. In furnishing an imitation, instead of the genuine article there is, in the case I have supposed, no intention of deceiving anybody. The original delicacies are used for certain good or pleasing qualities they possess; the same good qualities you simply reproduce in the imitation, for good qualities are real things and cannot be imitated. It is even so with imitations of materials, for the same or similar motives exist for using them.

What, then, is the conclusion of the whole matter? The sin or offence, where it exists, is ever to be found in the motive. Thus the host who passes off his gooseberry and mock turtle as genuine; the novelist and essayist who writes with the actual design of falsifying history: the citizen who paints his garden-wall to make believe that he is proprietor of a vast demesne; the householder who decorates his halls in painted marble to impose on his friends and acquire a cheap dignity, is guilty of telling or acting a lie. But every one knows that such cases do not exist. In dramatic representation, in works of fiction, in all examples of imitative art, although the intention is not to deceive, the deceptive nature of the representation forms a legitimate appeal to the imagination. In imitations of favourite dishes, prepared to please the palate, and in imitations of materials to please the eye, the one class is used on account of their beauty, the other on account of certain good qualities which render them desirable. In this view neither can be considered deceptive, nor even imitative, for the beauty of the one class of objects and the good qualities of the other are undeniable realities.

(To be continued.)

The *Standard*, October 23, 1862, speaking of Benson's Argentine in the Exhibition, says—"Perfect in point of form, and good as a piece of workmanship." This splendid material is a compound of various metals, with a heavy deposit of pure Silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of Silver, at a fraction of its cost. When the Argentine and the real Silver are placed side by side, the most skillful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in Silver, viz., Spoons, Forks, Dinner Tea, and Coffee Services, Waiters, Bread and Cake Baskets, Candelabra, Dishes of all kinds, Epergnes, Claret Jugs, &c., &c., &c. A Sample Spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps; and an Illustrated Catalogue containing 300 Engravings and full Price-list of the various manufactures, both in Argentine and solid Silver, will be sent to any address on receipt of six stamps. A Prize Medal was awarded to J. W. Benson for "Excellence of manufacture, Argentine and Electro Plate." Post-office Orders and Cheques should be made payable to James W. Benson. Branch Establishment, 63, Cornhill. All communications should be addressed to the Principal Establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

## Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Can any of your readers inform me as to what was the true cause of the rapid decay of the stone in the face of the new Houses of Parliament, London; and what was the nature of the preparation which was applied in order to arrest its progress, also whether the experiment was successful? An answer to the above queries will much oblige

A CONSTANT READER.

April 26th, 1864.

## THE DUBLIN AND KINGSTOWN RAILWAY.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Innumerable have been the complaints that have for a long time appeared in the daily papers against the constant innovations, each more injurious to the public interest than another, that are being made upon this most fashionable line, and yet I have another with which I venture to trespass upon your valuable space. Truly the regulations of the Directors seem to be characterized by a want of steadiness of purpose by which they appear to be the result of an inordinate fickleness rather than a desire to accommodate the public. Take for example the terminus at Kingstown. It is not many years since it boasted of a beautiful waiting-room, affording a magnificent view of the harbour and bay, with the ticket counter, in our Irish phraseology, quite convenient. Then all of a sudden the latter was degraded to the basement story, where a solitary figure appearing in the window and dealing tickets in all directions, 1st, 2nd, and 3rd classes for both the Dublin and Bray lines, reminded one of the hundred-handed Briareus; the waiting-room disappeared, and there arose in its place a refectory, where the elite were supplied with lemonade and ices, and liquors most ambrosial, nor were the grosser beverages wanting to satiate the thirst of the hardy sons of toil. Then there was required but one touch of the magic hand of the Directors, and presto! the whole esculent establishment, champagne bottles and beer draughts, confectionary girls and barmaids, disappeared with railway speed, and there arose yet a more noble establishment, for though the cravings of the body were left unsatisfied, yet who can deny that in a reading-room and library abundant food was supplied for the mind? And now the latter beneficial institution has been numbered with the things that have been, and all things have been apparently restored to their pristine condition, but the waiting-room is only a shadow of its former self, for until very lately it had not even a seat for the repose of the weary traveller. True it is they erected a kind of glass cage upon the platform as a substitute, but in such a position that those who were waiting for the train could seldom avail themselves of its shelter. But for what purpose did they institute a separation of the sexes at Westland Row, by the establishment of two apartments, so that the tenderly-disposed benedict who arrived with his *cara sposa*, weary after a day at Todd and Burns', or Cannock's, was forced to leave her at the entrance of the mysterious ladies' chamber, and pine in solitude in another room where—but here my pen must come to a stand-still.

But the grievance that I want to bring before your notice is this. The waiting-room is placed inside the ticket gate at Westland Row. The ticket-office is closed for nearly a quarter of an hour after the departure of each train. The consequence is that a passenger who arrives a few minutes late for a train cannot enter the waiting-room until he gets his ticket, and he is kept waiting for the latter for fifteen minutes in a cold entrance where there is not even a seat. I have more than once known ladies on this account obliged to sit upon the stone steps. It would seem as if the Directors had not yet learned the real use of a waiting-room. It is not required merely for passengers who can have at most but 25 minutes' delay, but far more for those who are expecting to meet their friends, and may have to await the arrival of four or five trains in succession. The Directors appear to ignore the accommodation of such parties altogether, and by the stupid and uncalled-for removal of their waiting-room inside the platform, your correspondent has several times been obliged, on a winter's night, to walk up and down in the snow for two hours.—I am, Sir, yours obediently,

VIATOR.

## Public and Private Works.

Londonderry and Lough Swilly Railway Company (Buncrana Extension).—The terminus at Buncrana, county Donegal, is now being erected. Style "Tudor," containing booking-office, station-master's apartments, 1st, 2nd, and 3rd class waiting-rooms, ladies' waiting-room, lamp-room, refreshment-room, kitchen, and dining-room (30 ft.

by 18 ft.). The external face of walls in broken ashlar, white and red brick, and Scotch stone dressings. The architect is Mr. Fitzgibbon Louch, C.E., of Sackville-street, Londonderry. The line to Buncrana is expected to be open for public traffic early in June; and, no doubt, this beautiful watering place will become the favourite summer retreat of the people of Derry and its neighbourhood. Several properties have been already laid out in building lots for villas.

A very handsome mansion is being erected on the new road leading from Bray to the Dargle. It is about 55 ft. square and three storeys high, with most extensive offices, conservatory, &c., from designs and under the superintendence of E. H. Carson, architect. Expenditure about £4,000.

A very neat villa has just been completed at Ovoca-avenue, Blackrock, for E. Alma, Esq., expenditure, £1,000. E. H. Carson, architect; Gregory Murphy, builder.

Two semi-detached villas are in course of erection at Carysfort-avenue, Blackrock, for M. Jones, Esq. E. H. Carson, architect; G. Moyers, builder.

A cottage residence for the schoolmaster in connection with the National Schools recently erected at Glendalough, county Wicklow, has just been completed on a beautiful site overlooking the picturesque ruins of the Seven Churches, for the Mining Company of Ireland, under the direction of Mr. Charles Geoghegan, architect.

Alterations and additions are being made to Wakefield House, for Thomas Dunnill, Esq. E. H. Carson, architect. Mr. Drysdale, builder.

Plans and specifications are being prepared for the Angel Hotel, Inns-quay, lately destroyed by fire. The expenditure will be about £4,000. E. H. Carson, architect.

The house adjoining the Athenæum in Anglesea-street, is being rebuilt for the Directors of the Royal Bank, the upper storeys being intended to form extensions thereto, and the lower part designed for professional offices for letting. Mr. Charles Geoghegan, Architect; Messrs. Crowe and Sons, Builders.

The alterations and additions to the Grangegorman Penitentiary were commenced on Monday, the 25th ult., from the plans and specification prepared by E. H. Carson, architect; Henry Quinn, contractor. Expenditure about £7,000.

Three handsome cottages are in course of erection at Rathgar, for Dr. E. Hamilton, from designs and under the superintendence of E. H. Carson, architect. Mr. P. Potts, builder.

## Miscellaneous.

A MAMMOTH DOCK.—A New Orleans paper states that an enterprising firm belonging to that city and Algiers has now a mammoth dock nearly completed on the Ohio river. It is 300 ft. long, with 90 ft. floor, built almost entirely of white oak. Over 300 men have been at work on it for a long time, and three saw-mills are employed in turning out the necessary lumber and timber. This dock is to be completed and delivered by June 1st. It is large enough to take on a ship of 5,000 tons, drawing 22 ft. of water. The "Pensacola," "Brooklyn," "Hartford," and vessels of that class, can be admitted readily, or it can accommodate any two vessels of 700 tons at the same time. The cost of the dock will be over 250,000 dollars.

GALWAY HARBOUR.—The people of Galway have a cause of hopefulness for the future of the town. Mr. S. U. Roberts, C.E., having been deputed by the board to proceed to London to conduct negotiations for a loan from Government, has returned with a report which must be considered as most satisfactory. A short time ago the Commissioners applied to the Exchequer Loan Commissioners for a sum of money which would pay off the debts due to the Treasury, and leave a balance sufficient to improve the harbour. The debt due to the Treasury is £19,000, and the amount required for the reconstruction of the pier and graving dock is £50,000. The security offered has been approved of by the Board of Trade, and the whole matter now lies in the hands of the Exchequer Loan Commissioners. They have communicated to Mr. Roberts their intention of sending an engineer to report on the suitability of the works for the improvement of the harbour and the sufficiency of the security offered by the Commissioners.

DUBLIN ATHENÆUM.—A conversazione in connection with the above institution is announced to take place on Wednesday evening, the 4th inst. The programme is a varied one, and includes an address on "Light," by Dr. Cameron; a recitation by "William Scribble," Esq.; a selection of music and singing; and Mr. James Simonton will exhibit his dissolving views.

CONSERVATION OF VITAL ENERGY.—The human body, viewed as a calorific engine, is capable of doing much more work, compared with the fuel consumed, than any steam-engine. It has been estimated that the pulsations of the heart in one hour generate a force that would raise the organ of the body 22,000 feet high, with the same amount of heat applied to the best constructed steam-engine would not raise the engine more than 2,700 feet.

BRAY CHURCH COMMITTEE.—A meeting of this Committee was held on Thursday, the 28th, the Rev. G. J. Scott occupying the chair. There were also present:—The Earl of Meath, P. Warburton Jackson, Esq., J.P., and Thomas Darby, Esq., M.D. The Earl of Meath handed in £5, contribution from Lady Stamer as her annual subscription until the completion of the church. Mr. Jackson handed in £3 from A. Durbin, Esq., Huntingdon Castle, Clongal. Mr. Scott announced that Miss Hutchinson had promised £5 for carving the pillar near her pew. The committee recommended that the treasurers should apply to subscribers who had not yet paid in their subscriptions for an immediate settlement, previous to issuing a new circular. Mr. Scott was requested to write to the Ecclesiastical Commissioners, and inform them that an offer had been made of a donation of £500 towards the completion of the tower and spire, provided that the same be accepted before the 1st of July, and a contract entered into to carry out the work; also to request the assistance of the Commissioners in order that said sum might not be lost to the committee.

THE DUBLIN METROPOLITAN RAILWAY SCHEMES.—In the reports of the Board of Trade especial attention is called to two of the above schemes—to the Dublin Railway Bill (Mr. Hudson's), and the Dublin Trunk-connecting Bill (Mr. Keenan's). The Board of Trade point out that the London and North Western Railway Company is one of those proposed to be authorised to enter into contracts with respect to the making of this line of the Dublin Railway Bill; and ask the particular attention of the select committee to this—the first instance of an English Railway Company being authorized to work a railway in Ireland. In the use of the Dublin Trunk-connecting Railway Bill the Board of Trade point out that if the tunnel under the Liffey be made as it is proposed it will prove a permanent obstruction to any deepening of the river. This difficulty, however, it is said, can be overcome by tunnelling at a greater depth below the river, as has been frequently done in the case of English railways which had a similar difficulty to deal with.

The *Times* of June 11th, 1862, speaking of Benson's great clock in the Exhibition, says:—"As a sample of English clock work on a large scale, the works of this are probably the finest finished that have ever been seen in this country; no chronometer could be fitted with more perfect and carefully adjusted mechanism." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bed room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special Warrant of Appointment to H.R.H. the Prince of Wales.

## TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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## TESTIMONIAL.

BUILDERS' ASSOCIATION OF IRELAND. At a Meeting convened March 10th, 1864, amongst other subjects introduced to the Members of Council was that of "Robinson's Patent Double-action Spring Hinge for Swing Doors," manufactured by Hart and Son, of London, and it was unanimously agreed—"That we, the undersigned, consider the above Hinge superior in every respect to any hitherto in use, and we have much pleasure in recommending it to the Trade generally, as the best in construction, simple in mechanism, and moderate in price."

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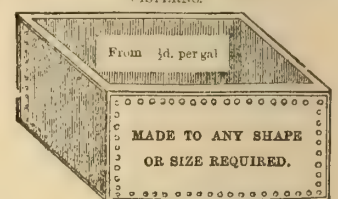
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Also ready, in 2 vols. 8vo, price £1 12s., the GENTLEMAN'S MAGAZINE for the Year 1863.

London: JOHN HENRY and JAMES PARKER, 377, Strand.

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**ON the CONSERVATION OF ANCIENT** ARCHITECTURAL MONUMENTS AND REMAINS. A Paper read before the Royal Institute of British Architects, January 6, 1862, by G. G. SCOTT, R. A.

J. H. and JAS. PARKER, Oxford, and 377, Strand, London.

# The Dublin Builder.

VOL. VI.—No. 106.

## OUR DOMESTIC ARCHITECTURE INTRINSICALLY CONSIDERED.

A GREAT improvement has been for some time conspicuous in the exterior of our domestic buildings. In the heart of our city, where whole streets are entirely devoted to the busy pursuits of merchandise, our attention has been called to the very visible alterations for the better which are being made in our shop fronts, in the decoration of which, apart from all gaudy glitter and display, at least an approach is being made to the regular system of ornamentation that forms a necessary element of the exterior of our public buildings. Architects are vying with one another in the introduction of new graces into the fronts of our city mansions, and in designs presenting an amount of novelty that at once strikes the eye of the spectator; which, while sometimes wearing an air of quiet dignity and simplicity, yet we fear too often exhibit an amount of superficial colouring and unsubstantial levity that is ill suited to the characteristics of our climate. The same remark applies, perhaps, more forcibly to some of our suburban residences. When we gaze upon a light, airy-looking Italian-built villa, with its balconies and porches, and every accommodation for *al fresco* enjoyment, with its outlines strongly defined against the clear blue sky that sometimes displays itself in this most inconsistent climate of ours, we can fancy ourselves for a moment upon the plains of Sienna, or in some picturesque spot within the bright valley of the Arno. But in the lapse of one day—sometimes of only a few hours—how is the beautiful vision dispelled! The bright sky vanishes, and a dark mist arises that carries the imagination from the pictured graces of the exotic verandah to contemplate the more genial prospects of a sheltered nook beside the “household ingle.” The incongruity of such a style of exterior during eight months out of every twelve is so striking, that the eye turns away intuitively from contemplating it.

Since then the characteristics of our climate are such as to incline us rather to indoor pursuits and habits, inasmuch as during two-thirds of our year, whether from cold, rain, or the biting east wind, we inherit an inclination to fortify ourselves within our *home*, to which may be traced the Englishman's marked disposition to consider his house his castle, we are led naturally to ask—Would it not be more expedient for the architect to devote his attention principally to the substantial improvement of the interior of our dwellings; and would not a plain and dignified exterior, in which solidity, warmth, and shelter, were the predominant features, present a more suitable appearance than mere superficial tinsel, got up to catch the eye during a few de-

ceptive weeks of brightness. And yet we find novel and startling effects every day sought after in the exterior only, by introducing brickwork of glaringly contrasted colours, from which even the roofs are not always exempted, and reminding one of the painted walls of Portici and Castellamare, while internally little alteration is sought after; and yet there there is greater need of improvement. We have heard an experienced traveller observe, that he would out of preference spend his summers in Italy and his winters in Russia, and he alleged as a reason that the houses are in both those countries constructed internally to suit the characteristics of their climates, whilst ours offer many discomforts at all seasons, and are not adapted to the peculiar requirements of our own. Let us for a few moments, laying aside all questions of external decorations, turn our attention to domestic architecture in its intrinsic condition. Should we take up our residence during the summer season at Castelnovo or Villamarina, or some place bearing an equally fascinating appellation, we soon discover that the small pointed windows, which admit abundant light beneath a burning southern sky, only serve here to render the interior dark and gloomy. The fresh air which obtains such copious access may be sometimes on a warm day grateful; but there are nights even in July and August when the wind sighs mournfully through every door and passage, and proves that in our climate May and December are not so very far separated.

We do not imply that all our houses are constructed after the Italian model. We have many varieties of character, and in exterior we have many forms of our own national architecture. But whatever may be the style that is adopted, there is a tendency to devote too much attention to mere external appearance, which may prove a lasting monument to the taste of the architect, but does not redound to the comfort of the plain-going unarchitectural tenant. If we occupy for some years a new house, constructed in the most modern style, we observe the following effects gradually taking place. The floors, which at first were smooth and close, begin to open at the joints, admitting cold blasts into the apartments, and injuring carpets. The windows and doors warp and shrink, and then a cold wind penetrates the house in every direction; the burning of large fires only increases the evil by causing a greater draught. And this will take place, more or less, no matter how well seasoned the timber of which the house is constructed. This has been the case with houses ever since they were first built, increasing to such an extent in some that they are scarcely habitable in winter. We have been asked the question—Are no steps taken by architects to remedy such defects in the midst of so many modern improvements? And we now here ask the question again.

It would appear that some simple expedients might be adopted that would work a great improvement in the interior of our houses, and it is strange that some of them have not hitherto been tried. No method

that has yet been adopted with flooring will force the boards so close together that they will not ultimately open, unless the timber be thoroughly shrunk, which is a desideratum rarely to be obtained when it is in such extensive demand. But if the boards, in addition to being cramped together, were made to overlap each other, by a rebate, or tongued and grooved into one another, even though they opened a little, no air could pass through them, and the opening could be easily filled. Oak keys might perhaps also be introduced, which would bind the whole together, and in time, perhaps, hold the floor in a state of tension. A new door, having one side exposed constantly to the warmth of a room will invariably warp. But the whole door might be bound round with an angle-iron  $\frac{1}{2}$ -inch thick, and equal in depth to the thickness of the door. This would not only hold it immovably rigid, but offer a powerful resistance to shrinkage.

The construction of our windows is radically defective, and here some improvement, or rather some total alteration, is loudly called for. It would be more easy to point out numerous defects than to discover one advantage in compensation. Not only is there difficulty and danger in cleaning them, but the manner in which they are suspended is a source of constant peril, from the liability of the cords to break. Then their very nature is such as to render it impossible for them to fit close, which in our climate is sufficient to cause their total condemnation; and if pushed up too high, they are liable to become immovably fixed. An improved description of window would form a valuable subject for a paper at some future meeting of the Institute, and we should rejoice to see some new form proposed by some enterprising architect. That which is employed upon the Continent would appear in many respects to be a better window. It is easily opened and closed, can be cleaned without danger, and, above all, can be made to fit perfectly close. Perhaps, however, some still better form might be proposed.

Another defect is in the weather-boards that are attached to hall-doors. It should be their object, not only to keep out rain, but also to prevent wind from passing underneath. This, however, they never do; for owing to the hinge coming directly opposite to the aperture that they are intended to close, they become very generally a useless appendage.

We cannot conclude without offering a few remarks upon the designing of houses with regard to accommodation. A house that is intended for a summer residence should have an east and west aspect, and not a south one, as is sometimes supposed. The sun in summer describes a wide circle from N. E. to N. W. In the middle of the day, when it is in the south, it is moving horizontally, and passes any window that faces it very rapidly; its altitude is also so great, that it will not shine far into a room. But in the morning and evening it is moving nearly vertically, and, consequently, lingers for a long time opposite an east or west window. But for a winter residence a south aspect is best, as the

sun only moves from S. E. to S. W. We have heard many complaints of the insufficiency of bedroom accommodation in many new houses; those that are in returns are generally deficient in size. The custom of building houses with returns is now almost universal; and yet it is questionable whether it is the best plan. It overshadows a considerable portion of the house; and in a terrace, where a window lies between two returns, the view is almost entirely excluded. One of the angles which they form is dark and sunless, and liable to cause damp. Where, however, they must be constructed, they should be large enough to afford rooms of a suitable size. The advantages of an abundant supply of water at the top of a house are inestimable. This will be obtainable by every house in the city spontaneously when the new water-works are completed. In the country such a supply can be cheaply obtained, where there is a small stream, by means of a water-ram. In other places a *wind engine*, which we have seen working, and which possesses great power in our stormy climate, might be employed for the same purpose.

There is no field in which there is more room for the display of an architect's talent than in that of house building; and we trust that, while the improvement of the exterior advances with giant strides, that of the *interior* may advance *pari passu* in a manner that may prove worthy of the nineteenth century.

#### THE APPROACHING NATIONAL EXHIBITION

The works for this truly national undertaking are being pushed rapidly forward, and have been completed in many places. The machinery court has been for some time ready for occupation, and contributions are being rapidly sent in. Several English firms have sent in specimens of the machinery that are employed in various departments of art and manufacture, the contemplation of which, when at work, will be very interesting. Amongst these may be enumerated machines for the manufacture of wool and flax, some of the latter from eminent firms in Belfast, and looms of various kinds, also a variety of turbine water wheels. Amongst contributors from our own city in this department are Messrs. Courtney, Stephens, and Co.; Messrs. Pim, Brothers, and Co.; Messrs. Kennan and Sons, of Fishamble-street. Specimens are also rapidly pouring in for the manufacturers' department, which has been portioned out into separate divisions. The centre aisle will be devoted to large glass cases, articles of woollen and linen manufacture will be displayed at opposite sides, and a third department will be devoted to the display of ironmongery and various kinds of furniture. Amongst the latter will be exhibited a magnificent gilt pier table manufactured by Messrs. Dockrell, of George's-street. The galleries will be reserved for the exhibition of articles of a miscellaneous character. In the building used as the agricultural museum there will be specimens of the various branches of ship and boat building. One of the most attractive features of the whole exhibition will be the fine arts department, for the display of modern paintings, to which the whole of the northern aisle will be devoted. In addition to the works of our own artists numerous first-class paintings have been sent from England, and from the Continent. All will be ready in time for the opening on the 25th, and the exhibition bids fair to be one of the most successful that has ever been held.

The Statistical and Social Inquiry Society require a Lecturer on Political Economy. The office is tenable for three years.

#### CITY OF DUBLIN STEAM PACKET COMPANY.

The usual half-yearly meeting of the proprietors of this company was held on Friday last, at the offices, 15, Eden-quay.

WILLIAM WATSON, Esq., in the chair.

The report says:—

"The directors, in making their seventy-second half-yearly report to the proprietors, submit the accounts and statement of debts, credits, and effects of the company on the 1st of March, in pursuance of the Act of Parliament. The balance to the credit of profit and loss for the half year is £33,614 5s. 2d. One of the company's vessels has been provided with new boilers and a complete overhaul, and the repairs of the others have been duly attended to; the cost of effecting them being included in the expenditure of the half year. Considerable progress has been made by Messrs. Laird, with the lengthening and improvement of the Llewellyn, the engines have been repaired throughout, the new boilers are nearly ready, and the vessel will be fit for service in the present half year. . . . The directors have recently concluded a new agreement with the Great Southern and Western Railway Company for the conveyance of English through traffic, the London and North Western Railway, and other companies, being also parties to it. The public will, by means of this agreement, be provided with equal facilities for through booking by the several lines of communication through the ports of Dublin, Waterford, and Cork; and the arrangements are so comprehensive, that they will be at all times available to any other companies who can offer an interchange of traffic. A bill, promoted by the London and North-Western Company, in conjunction with Irish railway companies interested in the traffic of Dundalk and the new port of Grenore, has been recently passed by a Committee of the House of Commons, with the object of legalizing arrangements with steampacket companies for the sea part of the transit. . . . Several bills have been introduced into Parliament, with the object of providing a connexion between Kingstown pier and the railways to the interior of the country, as well as with each other. Two of these projects contemplate the construction of a large central station in the vicinity of the Bank. Another of the bills would, if sanctioned in its present form, interfere for a considerable time most injuriously with the navigation of the river, and also for ever prevent any further improvement of the channel. The directors have, however, had the satisfaction of recently learning that the commissioners of the Ballast Board have been successful in effectually preventing any interference whatever with the navigation; and they have further taken care that any tramways which shall be laid down on the public quays shall be free to all alike. The mail packet service has been carried on throughout the half year regularly within the proposed time; the average of the passages of the Channel has been rather less than those made in the corresponding period of the previous year. It is satisfactory to be able also to state that no accident of any kind has occurred since the last half-yearly meeting. Notwithstanding the report of the Select Committee of the House of Commons on Holyhead Harbour, the remainder of the year was allowed to pass without the commencement of the works recommended as being necessary for the accommodation of the public and of the packet. The heavy gales of November and December having again called for further urgent application on the part of your directors to the Lords of the Treasury, their lordships were pleased to sanction the expenditure of £20,000 for the works proposed to the committee in connexion with the lighthouse pier, with the object of affording shelter to the mail packets in their approach to the intended new arrival berth. These works, if completed in the way described to the committee, of which there is some doubt, will contribute to the convenience of the public and to the safety of the vessels. But, although the sanction of the Treasury was officially given so far back as the 2nd of January, for the immediate commencement of the works, no great progress has yet been made; considerable further delay must therefore take place before the accommodation will be improved for the public. In conclusion, the directors recommend the payment of a dividend of three per cent, free of income tax, out of the profits of the half year, after the allocation of one per cent on the capital of the company, on account of the original Parliamentary contingency fund; and of the further sum of £9,450, on account of the insurance fund, which has been invested in Government stock, together with the dividends on the previous investments, as required by the company's Act of Parliament."

The time for lodging tenders for the erection of the Lunatic Asylum at Downpatrick, has been extended to the 3rd proximo.

The London Architectural Exhibition is now open at Conduit-street; also the Exhibition of Sculptors.

#### FALL OF A CHIMNEY NEAR MANCHESTER.

A MELANCHOLY accident is recorded by the *Manchester Guardian* to have happened at Greenfield, Saddleworth, owing to the fall of a new chimney which was being erected, by which seven persons were killed in an instant. The chimney was originally designed to be erected to a height of 50 feet, but owing to the foundations being considered somewhat insecure, the height was subsequently reduced to 40 yards. The brickwork had been almost completed, and the top only remained to be placed on, when, on Tuesday, the 10th, about midnight, when all were locked in sleep, it fell with a terrific crash, which was heard for miles round about. Great consternation prevailed, the whole neighbourhood was aroused, and the alarm bell rung. It was then discovered that the chimney in its descent had cut right through a small adjoining house, by which seven of a family were killed on the instant. A building seldom falls without giving some premonitory warnings, nor were they wanting in this case, and had precautions been taken the calamity might have been perhaps averted. A coachman who lived in one of the houses had a most remarkable escape. His suspicions were aroused from watching the chimney from time to time, and in order to set them at rest he cut a long stick on the night of the catastrophe and fixed it between the side of the chimney and a wall close beside it, by wedging its ends slightly. He desired a watchman to call him in case it fell. It did so about ten o'clock. He replaced it, and at half-past eleven it fell again. He had only just made his escape when the whole structure descended, and demolished the house which he had just left. The cause of the failure is attributed to its having been constructed on a pile foundation, but it would seem strange that this method, which is generally adopted for security in bad foundations, should have occasioned disastrous results in the present instance. More practical information is wanting on the subject.

#### CITY PROGRESS.

THE Collector-General's Report for year ending Dec. 31st, 1863, has just been issued; the following appears therein:—

"Building and architectural improvement continue to progress. In Great Brunswick-street an extensive sugar refinery is being erected at an enormous cost—it is the first enterprise of its description in this city. A concern on the Royal Canal, which remained a ruin for many years, called 'Mallet's Folly,' has been reconstructed, and is now an extensive flour mill. Near Newcomen-bridge, on the canal bank, another dilapidated concern, occupying a large space of ground, has been taken, and is being fitted up to carry on iron works. The Grand Canal Company contemplate, according to rumour, additions to their premises at James's-street harbour. Improvement is perceptible in North King-street, Henry-street, Mary-street, Crane-street, and Rainsford-street. Some old houses have been taken by the eminent firm of Guinness and Co., for a further extension of their vast concern. In Mayor-street, East, some new houses have been erected. As regards the sanitary state of the poor localities, little is to be said of a satisfactory or encouraging character. The splendid sewerage now in progress through the city, will, in a great degree, be nugatory, if the owners of houses in these localities be not compelled to make drains to the main sewers. Amongst the many architectural buildings in course of erection, are the Provincial Bank, College-street; the Union Bank of Ireland, College-green; the Colonial Insurance Office, Upper Sackville-street; and the London and Lancashire Life and Fire Insurance Office, Westmoreland-street. The Dublin Exhibition Palace and Winter Gardens are now near completion, and will be unexcelled for beauty and design. One of the most important of all the improvements is the establishment of the Metropolitan Cattle Market. Ship building is reviving, and the largest sailing vessel ever built in Dublin was launched recently. Its length is 220 feet, and it is to be succeeded by 'ocean' steamers, as large as any which swim on the waters."

#### IRISH RAILWAY RETURNS.

Name of Company.	Week Ending.	1864	1863
		£	£
Cork and Limerick Direct ..	Apr. 29	223	193
Cork and Brandon ..	May 7	416	434
Cork, Youghal, and Queenstown ..	6	653	493
Dublin and Belfast ..	8	1452	1328
Dublin and Drogheda ..	Apr. 29	224	167
Dublin and North ..	May 8	1546	1544
Dublin and Drogheda ..	6	9272	9329
Great Southern and Western ..	6	1112	1068
Grand Canal Western ..	6	1632	1919
Irish North Western ..	8	1632	1919
Waterford and Limerick ..	6	1123	1368

## ON THE PRINCIPLE OF IMITATION AS APPLIED TO THE DECORATIVE ARTS.\*

(Continued from page 86.)

WE have thus considered a few cases in which the deceptive character of the objects seems to be unobjectionable. But when we come to discuss the question of false jewellery, we find that it stands on altogether a different footing.

Precious stones are worn not for their beauty alone. If they were so, then the false would serve the purpose equally well, and no stigma would attach to their use, for they are quite as beautiful as the real, and, indeed, it is difficult to tell the difference between the two, for even connoisseurs are apt to be deceived in such matters.

Gems are worn on account of the dignity they confer as objects of cost. Hence the counterfeit meet with condemnation from all persons of education and refinement. A woman who wears false jewels intends that they should pass for that which they are not. She is a pretender to a rank and position to which she has no claim. She is guilty of a vulgarity—an impertinence—a sin if you will—from which every one with sense and propriety would instinctively shrink.

There is a palpable fallacy contained in an argument which places in the same category imitations of objects which are used solely or chiefly on account of their beauty, and those which are used solely or chiefly on account of their suggesting ideas of cost. A fancy wood or marble is an example of the former—a precious stone, of the latter. You may deceive by making an article which possesses little real value resemble a costly one, but to speak of deceiving as to beauty is a simple absurdity. The appearance of cost and value may exist without the reality—the appearance of beauty and the reality are one and the same thing.

Such a thesis as that which we have been disputing could not be maintained consistently throughout, so we find it stultified by the admissions of its author. "Gilding," he says, "has become, from its frequent use, innocent. It is understood," he says, "for a film merely, and therefore is allowable to any extent." I cannot admit the abstract justice of the doctrine contained in this passage, for it would go far towards justifying any practice, however absurd, which might happen to have the sanction of antiquity, and it is certainly altogether at variance with the principle on which imitations are condemned by the same author. According to this doctrine, gilding must at one time have been wrong. But that which is originally wrong can never be made right by repetition. On the contrary, it is common to hold that what is here advanced as a palliation can only serve as an aggravation of the offence.

It is hoped that we have already found sufficient justification for using imitations of materials, such as fine woods and marbles, in all legitimate situations; but this passage, if we could avail ourselves of it, and if justification were needed, would afford all that could be desired, for the use of these imitations has been for a long period so common, that however deceptive they may be, they will seldom, if ever, pass for aught else than what they are.

These remarks on gilding betray a total misconception as to what decoration really is. Decoration is a thing of surface, not of construction, although the construction will frequently indicate what the decoration ought to be. You have no more reason to suppose that a thing is solid gold because it is gilded on the surface, than to suppose that a lady is silk because her outer garment is composed of that material, or that you would find the downy surface or the delicate tints of the peach at whatever point you may intersect it. The apology, therefore, tendered for gilding is not only superfluous, but of a character which could not have been accepted had an apology been necessary.

This brings us to point out, as proposed to do under the third division of our subject, the qualities which give their value to decorative appliances. These, which we name in the order of their importance, are—1st, beauty; 2nd, durability; and 3rd, costliness.

We have just been speaking of gilding. For its employment we require no other apology than the possession of the above-named qualities, and in this respect it stands on precisely the same footing with almost all other decorative appliances, cement or plaster, metallic coatings of bronze, silver, or gold, paint, silk, veneers in wood, marble, or freestone. Our principle is of universal application. A lady makes the dress which is to be seen of silk, her under garments of a cheaper and less showy material. You veneer a plain, inexpensive wood with one of a richer hue and of a more expensive quality. You coat your brick or rubble walls with

cement, with paint, with ashlar stone, or with marble. They are understood to be mere coatings, thicker or thinner as the case may be. Zinc is coated with bronze, bronze with silver, and silver with gold, and in doing this we simply follow a natural instinct and the example which Nature herself has given us.

We shall now try how far stucco and scagliola, or painted imitations of marbles, possess these three qualities of beauty, durability, and expression of cost.

First, as to stucco. It seems to be felt necessary that some expedient should be adopted for adorning the unsightly brick buildings of which such a town as London is chiefly composed. This is effected by the material under discussion, either by an entire coating, or by means of projecting facings, thus adding force to the outlines and principal features, and contributing to the composition those elements of light and shade so essential to the beauty of the architecture, and in which brick buildings are generally so deficient. It certainly is not the fault of bricks that they are not ornamental, seeing they can produce such buildings as the Ospedale Maggiore of Milan, the Certosa of Pavia, or even such examples of street architecture as those recently erected in Cheapside, which are now daily arising around us. But the ornamental bricks, or terra cotta, used in the construction of these buildings, being simply moulded as is the stucco or cement, are liable to precisely the same condemnation. Brick architecture of such a character would leave nothing to be desired, but it is to be feared the expense will interfere with its general adoption. The expedient usually resorted to for getting rid of the dull uniformity and flatness of brick erections, that of bands, lozenges, and squares of various colours, seems to me as barbarous as the tattooing of the savage, and of precisely the same nature. The lines and forms seem to destroy the contour of the building by substituting stronger markings than those which are presented by the solids and vacuities. They withdraw attention from the principal architectural features—from the form and outline of the building which give it character and expression, and in which, as in a face, the beauty is chiefly to be found.

Stucco, then, supplies a want—in cases where stone is not to be had, or where it is too expensive for general use. In regard to its possession of the three qualities we have named: in beauty it is nearly equal to stone, because it admits of the same identical forms, and if properly treated the difference between the two surfaces is scarcely appreciable; in durability it is, of course, inferior to stone. But such beauty and such durability as it does possess are absolute qualities, and in regard to these stucco does not occupy the position of an imitative material, for it is obvious that beauty and durability do not admit of imitation. As to expression of cost, stucco expresses more cost than plain, unadorned brick, and less than stone. It is, therefore, a less noble material than the latter, so that its use will be restricted by the conditions to be afterwards stated.

We may here remark, in passing—although not quite *apropos* to this part of the discussion, and although forming, it may be, an *argumentum ad hominem* rather than a general argument on the subject—that so long as stucco remains unchallenged as a decorative appliance for interiors, it will be difficult to show why it should not be employed—subject, of course, to conditions—on exteriors also.

Scagliola and painted imitations of marble stand on precisely the same footing. Their beauty arises from various sources. One of these is inherent, due to the colour shades and veining, which, constituting the loveliness of the real object, are found, only in a less degree beautiful, in the representation. The second source of beauty is the taste, skill, and ingenuity displayed in the execution of the imitation, which the practised eye at once detects, while a third class of beauty may be discovered in the deceptive character objected to, and which forms, we hold, a legitimate appeal to the imagination. No doubt such imitations are wanting in beauty of the highest class, they do not engage the greatest faculties of the artist, they do not suggest great thoughts, but such beauty as they do possess is derived from sources which are quite legitimate.

In durability they are, of course, much inferior to real marbles, although greatly superior to most other styles of painting in use for internal decoration. From the smoothness of the varnished surface they are easily cleansed, and at the end of thirty years will be found to have suffered less from tear and wear than plain paint would have done in a third of that time.

As expressive of cost they are of no mean value, though from their inferiority in this respect to the originals, they will be excluded from use in many cases by one of the conditions I shall specify.

I now proceed to lay down and illustrate the last division of my subject—the conditions which ought to regulate the employment of surface coatings. These are—

1. That they be not employed to imitate a material where the original itself would be out of place.

2. That no object be painted or otherwise made to imitate one material which, from its form, construction, or application, is obviously or necessarily composed of another.

3. That no inferior surface coating be employed where we should expect one more expensive, and no imitation where we are entitled to find the real material, or where the discovery of an imitation would create disappointment.

Every one may supply himself with illustrations. For example; as to the first condition. Imitation marble should never be used on such positions as ceilings, where the construction is obviously a wooden one; nor on shop-fronts in crowded thoroughfares, where the real material would be destroyed as soon as exposed, and where it would therefore be out of place.

In illustration of the second condition, we may mention that elaborate delicate carvings should not be painted to represent granite, nor iron columns like wood or marble where these materials are unfit for the duty in the way of support or otherwise, which the iron had to perform.

In regard to the third condition. We have said that decorative appliances are valued for three qualities—their beauty, durability, and expression of cost. We may assume that the rank or wealth of the person who owns a work of art, or who makes use of a decorative appliance, will not alter our estimation of its value or fitness, so far as these are imparted by the two first-named qualities, beauty and durability. Our ideas on these points may be said to be absolute, except in so far as they are liable to be changed with regard to beauty by the influence of fashion.

But the third quality we have named is to be considered in a different light. The fitness or unfitness of a work of art, or of a decorative appliance, considered with reference to expression of cost fails to be determined by the rank, wealth, and social position of the person who owns or makes use of it.

The question involved, then, in the discussion of the third condition, under which we assert that imitative appliances may be used, is perhaps, in this view, not strictly æsthetical. We shall give one or two illustrations of our principle.

If we should find in the cottage of an agricultural labourer a figure, say of the "Dying Gladiator," we should receive it as an evidence of great taste, although the statuette should prove to be of zinc electro-plated with bronze. Such an object would be out of place in the possession of a rich collector; but, if I mistake not, few connoisseurs even would be sufficiently purist in their tastes to object to the same figure in bronze plated with oxidised silver. If I might venture to express an individual opinion, I should say there is no more beautiful appliance in use at the present day for coating bronzes. Probably even a zinc bronze-electroplated figure, if large and applied to a useful purpose, such as holding a light, might be found unobjectionable in a similar situation. In a nobleman's mansion, or even in a royal palace, our feelings would not be shocked if we were told that the gold dinner service we were admiring was not solid gold, but silver gilt, while we should feel it to be the essence of meanness if the noble or royal possessor had resorted to the cheap expedient of having dishes only plated on nickel instead of genuine silver. One admires the beauty of the colossal statues which adorn the throne-room in the Residenz of Munich without regarding the material of which they are composed. No doubt our respect for them would be much enhanced, whatever we may think of the wisdom of the monarch who had them cast, if we were made aware that they were solid masses of gold. But as no one probably ever indulged in this belief, so nobody was ever disappointed when told that the substance is bronze, and the gold which meets the eye a superficial coating merely. Perhaps the mind may be the better prepared for the gilding of bronze by the knowledge of the fact that its colour is but a lacquer, the bronze itself but a hollow sham, a pretender to solidity, representing bones, flesh, and skin; when it is skin *et præterea nil*. If the idea of a figure being mere skin and bone exposes it to contempt, what is to be said of one which is skin only without even the bones.

I have thought it necessary to direct attention pointedly to this custom of coating a common cheap metal with metal more attractive, as well as more expensive in the view of ascertaining whether it is a practice which can be indulged in with propriety, and on what principle; because it is not merely an important branch of the general question we are

\* Read at the Society of Arts, April 6, by THOS. PURDIE, Esq.

considering, but because it involves important material interests and has been treated at considerable length by various modern writers on art who are recognized as authorities, and who have arrived at what seem to me to be false conclusions on the subject.

The third condition which I would impose on the use of deceptive coatings, and which I will now repeat, seems entirely to meet the case.

That no inferior coating be applied to a surface where we should expect one more expensive, and no imitation where we are entitled to find the real material, or where the discovery of an imitation would create disappointment.

This mode of viewing the subject brings us back to the question which we have already so far discussed—of worthiness or unworthiness, of propriety or impropriety.

We have a right to expect that everyone will support with dignity the rank and position which God has assigned him in the world. No man can do this who resorts to shabby and cheap expedients in his ordinary business even, much more in matters of taste and ornamentation. But shabbiness and cheapness are relative terms. We do not expect our bourgeoisie to veneer their walls with real marbles, although we have all seen such finishings. In kings' houses in all parts of Europe they exist. The interiors as well as the exteriors of the old Venetian palaces were so decorated. In the residences of many even of the smaller German potentates, and in the mansions of the wealthier of our own citizens, a few examples are to be found. One has, therefore, a right to expect our own royal residences and public monuments to be decorated with the noblest materials. One could scarcely be reconciled to the idea of having the noblest apartments in the palaces of the Queen of England decorated with painted imitations of rich materials. Our opponents may condemn such incongruities wherever they are found, and in any reasonable terms they choose, for there is no doubt in such positions they would be worthy of all condemnation. If costly materials and costly works of art are to be found anywhere, surely it ought to be in the palaces of that monarch on whose dominions the sun never sets. Genuine gooseberry and mock turtle at a lord mayor's feast would seem absolutely virtuous by the comparison.

Even these rules, however, will not admit of too rigid application. In many instances the work, from want of previous arrangements, is put into the hands of the decorator in a state which leaves him little choice in the matter. Besides, the use of such decorative appliances as a painted imitation of marble frequently affords the means of introducing a mass of rich broken colour in situations where a flat uniform tint would be ruinous to a composition. Of these means even Raphael did not scruple to avail himself in the decorations of the Loggie. The use of such appliances may therefore be occasionally justifiable, where too rigid an application of our rule would exclude their use.

In fact, we cannot, in all matters of taste, establish such unchangeable canons as those which settle the principles of morality. In matters of taste there are many things essential, and there are many things of little moment. Within the region of æsthetics there is a vast debateable land where individual preferences have free scope for exercise. Within this region it is impossible to ignore or set aside the influence of fashion, whose code for the time being, is as inexorable as the laws of the Medes, though, unlike those laws, it is ever inconsistent and ever changing.

In matters of personal adornment deceptive expedients have always been less or more in vogue. The Greek ladies, jealous, it may be presumed, of the beauty which they discovered in the low foreheads of certain of the inferior animals, and anxious to rival it in their own persons, invented a species of wig to conceal the upper part of the forehead, and bring the hair as nearly as possible down to the eyes. The faces of the Roman ladies, having been properly softened and prepared by means of a bread poultice plastered over their features at bed time, were daily, after it was washed off with asses' milk, brought by means of paint to rival the hues of the lily and the rose. In these days of ours we complacently accept the improvement in our personal appearance effected by the operations of the dentist, and do not grumble at their deceptive tendency. Perhaps their manifest usefulness may in some degree leaven the vanity which frequently induces the patient to submit himself to the operator. In the style of dressing her hair, although woman has found out many inventions since the time of the Greeks, still must her flowing locks be rendered fuller and more flowing by foreign aid. Fiction has still to be added to the fact that she may realise her ideal, though that is not the ideal of 2,000 years ago.

We are not so tolerant of paint. It is not easy

to define that principle which admits of a lady making herself more charming by adding pounds of hair to the supply which nature has bestowed upon her, and which denies to another, animated by precisely the same amiable motive, the privilege of making up for nature's deficiencies by the use of rouge. Perhaps if the paint were applied after the manner of the Cherokee Indians, so as not to deceive anybody, it might satisfy the æsthetical scruples of some of our friends of a certain school.

Sir Joshua Reynolds says in one of his Royal Academy discourses, "If a European, when he has cut off his beard, and put false hair on his head, or bound up his own natural hair in regular hard knots, as unlike nature as he can possibly make it, and after having rendered them immovable by the help of the fat of hogs, has covered the whole with flour put on by a machine with the utmost regularity; if, when thus attired, he issues forth and meets a Cherokee Indian, who has bestowed as much time at his toilet, and laid on with equal care and attention his yellow and red ochre on particular parts of his forehead and cheeks, as he judges most becoming; whoever of these two despises the other for this attention to the fashion of his country, whoever first feels himself provoked to laugh, is the barbarian."

Now, no doubt there is a right and a wrong in most of these matters, which may be discovered when the search is worth the trouble, but it does not follow that what is right now must be right in all time. We speak not here of fashions which change without apparent reason.

Ten years hence it is possible that gold and silver, now so highly prized as decorative appliances, may, in consequence of a depreciation in the value of the precious metals, have become vulgar and commonplace; but the great principles which ought to guide the artist or decorator will ever remain the same.

In the region of man's inner nature lies a mine, inexhaustible to him who can trace the deep workings of the human heart and embody them in visible form. There must the artist seek the principles which are to guide him in the exercise of his profession. "Custom, the Queen of the World," has a vast dominion, and her subjects are slaves. But these are the unthinking and vulgar. The man of original independent genius will disdain to wear her fetters, or to sacrifice essential principles at her command. Somewhat he may concede, in matters non-essential, out of deference to the powers that be. But as deep answereth unto deep, he will ever intuitively recognise permanent and intrinsic excellence, and in all matters where essential principles are infringed, will adjure the transient fashions of the day.

### ON THE RESISTANCES TO BODIES PASSING THROUGH WATER.\*

THESE resistances comprised the plus resistance, or that concerned in moving out of the way the fluid in advance of the body; the minus resistance, or the diminution of the statical pressure behind any body when put into a state of motion in a fluid; and the frictional resistance of the surface of the body in contact with the water.

The plus resistance of a plane surface one foot area, moving at right angles to itself in sea water, was considered to be

$$R = \frac{64 \cdot 2 \times v^2}{2g},$$

and the minus resistance was one-half the plus resistance.

For planes moving in directions not at right angles to themselves, the theoretical resistances were, for the plus pressure—

$$S = \frac{a}{r^2}, \text{ and } R = \frac{S \cdot 64 \cdot 2 \cdot v^2}{2g},$$

the minus pressure being one-half the above; where  $R$  was the resistance of the inclined plane;  $a$ , the area of the projection of the inclined plane upon a plane at right angles to the direction of motion;  $r$ , the ratio of the areas of the projected and the inclined planes; and  $S$ , the area of a square-acting plane of equivalent resistance with the inclined plane.

But, besides these theoretical resistances, the experiments of Beaufoy showed, that when the inclined planes were of moderate length only, the plus resistance was considerably in excess of the above; so that when the slant lengths of the planes were to their bases in the proportion of

2 to 1, 3 to 1, 4 to 1, and 6 to 1,

the actual resistances exceeded the theoretical, as

1.1 to 1, 1.98 to 1, 3.24 to 1, and 6.95 to 1.

The author proposed a method of approximating to these additional resistances, by adding the constant

\* Read by Mr. G. H. Phipps at a recent meeting of Institution of Civil Engineers.

fraction of one-seventh of a square foot, for every foot in depth of the plane, to the quantity  $S$  previously determined, which empirical method he found to agree nearly with the results of Beaufoy's experiments.

The resistances of curved surfaces, such as the bows of ships, were adverted to, the method of treating them being to divide the depth of immersion into several horizontal layers, and then again into a number of straight portions, and to deal with each portion as a separate detached plane, according to the preceding rules.

The question of friction was then considered. The experiments of Beaufoy were referred to, giving 0.339 lb. per square foot as the co-efficient of friction for a planed and painted surface of fir, moved through the water at 10 ft. per second, the law of increase being nearly as the squares of the velocities, viz., the 1.949 power. The author was, however, of opinion, that a surer practical guide for determining the co-efficient of friction would be, by considering all the data and circumstances of a steamship of modern construction, moving through the water at any given speed. The actual indicated horse-power of the engines being given, the slip of the paddles being known, and the friction and other losses of power approximated to, it was clear that the portion of the power necessary to overcome the resistance of the vessel might be easily deduced. By determining approximately, by the preceding rules, the amounts of the plus, the minus, and the additional head resistances, and deducting them from the total resistance, the remainder would be the resistance due to the friction of the surface. By this process, and taking as an example the iron steam-ship *Leinster* when perfectly clean, and going on her trial trip 30 ft. per second in sea water, her immersed surface being 13,000 square feet, the co-efficient of friction came out at 4.34 lb. per square foot.\* Beaufoy's co-efficient of 0.339 lb. per square foot at 10 ft. per second, would, according to the square of the velocities, amount to 3.051 lb. at 30 ft. per second. The difference between this amount and the above 4.34 lb. might be accounted for by a difference in the degree of roughness of the surfaces.

Other methods for the determination of the co-efficient of friction were then discussed. One, derived from the known friction of water running along pipes, or water courses, was shown to be considerably in excess of the truth. It was founded upon the observed fact, that at a velocity of 15 ft. per second the friction of fresh water on the interior of a pipe was 24 oz. † per square foot. Applying this to the ship *Leinster*, and increasing the friction as the squares of the velocities up to 30 ft. per second, the above friction would become 100 oz., or 6½ lb. per square foot, which, acting upon 13,000 square feet of surface, would absorb, at the above speed, no less than 4,395 horse-power; while the total available power of the engines (after deducting from the indicated 4,751 horse-power 1-10th for friction, working air-pumps, and other losses, and 1-5th of the remainder for the observed slip), was only 3,421 horse-power; thus showing an excess of resistance equal to 974 horse-power, without allowing any power to overcome the other resistances. The assumption of 25 oz. being the proper measure of the friction per square foot, at a velocity of 15 ft. per second upon the clean surface of an iron ship, seemed to have arisen from the opinion very generally entertained, that there was no difference in the amount of friction in pipes and water-courses, whether internally smooth, like glass, or moderately rough, like cast-iron, and that the surfaces of ships were subject to the same action. The comparatively recent experiments, in France, of the late M. Henry Darcy were in opposition to the above view, and showed that the condition as to roughness of the interior of a pipe modified the friction considerably. Thus, with three different conditions of surface, the co-efficients were:—

- A. Iron plate covered with bitumen made very smooth, ... 0.000432
- B. New cast-iron, ... 0.000584
- C. Cast-iron covered with deposits, 0.001167

The friction was, therefore, nearly as 1, 1½, and 3.

As there appeared no reason to doubt the correctness of M. Darcy's experiments, even in pipes the notion of the friction being uninfluenced by the state of roughness of the interior could no longer be entertained. The 25 oz., previously mentioned as the measure of friction per square foot for the interior of pipes and water-courses, could not, therefore, be regarded as a constant quantity, applicable to all kinds of surfaces; but from the author's calculations it appeared to come intermediately between the co-efficients of the surfaces B and C, given in the above scale as at 15 ft. per second.

A	would give	13½ oz.	per square foot
B	"	20	"
and C	"	40	"

\* Since the paper was written, the accuracy of the above co-efficient had been confirmed, very nearly, by an examination on another vessel, the *Atrato*, of different type from the *Leinster*, the calculations of which were given in an appendix.

† For sea water this quantity must be increased as the specific gravity, or as 62.5 to 64.2.

Besides, there was another cause for an excess of friction in pipes and water-courses over that upon ships, even when the surfaces were equally smooth. It arose from the circumstance, that where the velocity of water in a pipe, or open water-course, was spoken of, the meaning was, its average velocity; while the velocity of a vessel through still water meant what the words implied, namely, the relation of the vessel's motion to the fluid at rest. If the case were taken of a water-course of such width, that the friction of the bottom only need be considered, with an average velocity of flow of 15 ft. per second, the friction upon the bottom would be equal to 25 oz. per square foot; but according to the rules generally used, an average velocity of 15 ft. per second corresponded to a surface velocity of 16.66 ft. per second, which was the velocity with which a vessel should pass through still water, to give an equal friction upon its sides. According to Beaufoy, the velocity of 16.66 ft. per second would produce a friction of .932 lb., or 14.91 oz., where 15 ft. would only give 12.2 oz. The difference between the 14.91 oz. and 25 oz. (equal to 10.09 oz.) must, therefore, be set down to the different degree of roughness of the surfaces in the water-course and the vessel.

Taking then 4.44 lb. as the friction per square foot of a new iron ship, moving through the water at a speed of 30 ft. per second, it would be found that this was equal to the 1.207.06th part of the plus resistance of a plane 1 ft. square, moving through the water at right angles to itself at the above velocity. Also, as the resistance of both planes increased according to the same law of the square of the velocities, the ratio of 1 to 207.06 would subsist at all velocities.

The ratio was as  $\frac{64.2v^2}{2g}$  to 4.34 lb. =  $\frac{1}{207.06}$ . Call-

ing the ratio  $r$ , and the whole frictional surface in square feet  $s$ , and  $S$ , as before, the area of a square-acting plane of equivalent resistance, then

$$S = s \div r = s \div 207.06$$

As an example of the application of the previous deductions, the performance of the steamship *Leinster*, on her trial trip, when going through sea-water at a speed of 30 ft. per second, was referred to.

In this case—

$m$ , the area of the immersed midship section was ...	336 sq. feet.
$d$ , the draught of water, ...	13 feet.
$r$ , the reduced ratio of the slant length of the bow to the projection, ...	10 to 1
$r'$ , the same for the stern, ...	10 to 1.
$r''$ , the ratio of 1 square foot of square-acting plane to 1 square foot of frictional surface, ...	207.06 to 1.
$v$ , the velocity in feet per second, ...	30
$w$ , the weight of a cubic foot of sea-water, ...	64.2 lb.
$f$ , the area of the frictional surface, ...	13,000 sq. feet.

Calling  $P$ , the Plus, or head resistance;  $M$ , the Minus, or stern resistance;  $A$ , the Additional Head resistance;  $F$ , the Frictional, or surface resistance;  $S$ , the area of a square-acting plane having an equal resistance with each of the above; and  $R$ , the total resistance;

$$\text{Then, } P = \frac{m}{r^2} = S = \frac{336}{100} = 3.36 \text{ sq. ft.}$$

$$M = \frac{m}{r'^2} = S = \frac{336}{100} = 1.68 \text{ ,,}$$

$$A = \frac{13}{7} = S = 1.86 \text{ ,,}$$

$$F = \frac{13000}{207.06} = S = 62.78 \text{ ,,}$$

$$S = 69.68 \text{ ,,}$$

$$R = 69.68 \times \frac{64.2 v^2}{2g} = 69.68 \times 900 = 62,712 \text{ lb.}$$

$$H \text{ (realised power)} = \frac{R}{lb.} = 62,712 \times 30 \div 550 = 3420.66 \text{ H. P.}$$

$$H' \text{ (gross power) including the slip and other losses,} \\ = 3420.66 \times \frac{100}{72} = 4751 \text{ H. P.}$$

Thus, by ascertaining the value of  $S$  for any vessel, which was entirely independent of velocity, it would be easy to determine the power necessary to propel it at any required speed, or, the speed being given, to find the corresponding power.

$$\text{Generally } H = V S \frac{64.2 V^2}{2g} \div 550 \quad (1)$$

Or, because for sea water 64.2 was very nearly equal to  $2g$ ,

$$H = \frac{V^3 S}{550} \quad (2)$$

When the slip and other losses were in the same proportion as in the *Leinster*—

$$* H' = H \frac{100}{72} \quad (3)$$

When the gross power was given, and the velocity was required—

$$\dagger V = \left( \frac{72}{100} H' \times 550 \right)^{\frac{1}{3}} \div S^{\frac{64.2}{2g}}$$

The author then proceeded to examine the question of the influence of form in reducing the resistance of vessels.

It was argued that, in vessels of similar type to the *Leinster*, where nine-tenths of the whole resistance was due to friction, and only one-tenth to considerations involving the question of "form," no minor modifications of the latter could have much effect in diminishing the total resistance. The case of other vessels of different type, more bluff in the bows and not so fine in the run, was adverted to, and a particular instance was discussed where the inertial resistance was supposed to be equal to one-fifth of the total resistance, and the slant length of the bows to the base to be as 6 to 1. If such a vessel were altered, so as to make the above proportion  $8\frac{1}{2}$  to 1, the improvement would only diminish the total resistance by one-tenth.

In opposition, however, to this view, the author referred to several ships, the particulars of which were given in the discussion upon Mr. Armstrong's paper on "High Speed Steam Navigation" (Minutes of Proceedings, Inst. C. E., vol. xvi.). These vessels were the *Riflemen*, the *Teazer*, the *Dwarf*, the *Magnet*, the *Flying Fish*, and two vessels by Mr. Scott Russell. By moderate improvements in the bows and run of the above vessels, the resistance was diminished to degrees varying from one-half to one-ninth of the whole, a considerably greater improvement than could be accounted for upon the principles of calculation in the paper.

Without attempting to solve the difficulty, the author threw out, as a suggestion for examination, whether, as nearly all the above vessels were propelled by screws, the improvements noted might not be referable to an improved action in the propelling instrument brought about by an alteration in the hulls of the vessels; and the question suggested itself, whether, if the resistance of the vessels in question could have been ascertained by means of a dynamometer applied to a towing-rope, the improvement would have been so great as when shown by the diminished power of the engines?

#### ARE PROFESSIONAL ENGINEERS WANTED?

ACCORDING to the Town Council of Preston they are not! That intelligent board, at a meeting held last week, and report pretty fully in the local *Guardian*, were considering whether the plans and sections of the new waterworks should be submitted to Mr. George Emmett, of Oldham, and whether afterwards they should call in Mr. Rawlinson to inspect before the works were proceeded with. It appears that some delay had taken place in regard to the plans for the Lee Green reservoir; there was some difficulty about the foundation. The Water Committee had decided to submit the works to Mr. Emmett, of Oldham, which was the point for the Council to approve. There appears from the discussion a very strong objection to this gentleman undertaking the superintendence of the work. Personal dislike had something to do with this disaffection on the part of the members of the Council; but it was admitted on all hands that Mr. Emmett was not an engineer. Several, however, agreed that he was able to carry out the works honestly. One of the economical aldermen argued from the pennywise and pound-foolish policy with a keenness which sharpened the drowsy wits of his brethren around him. Thus said Alderman Coultsate: He should like to know some of the advantages to be derived from this competent engineering skill. Was it the payment of 5 per cent. upon the outlay, which would amount to £1,500?—This kind of reasoning "took" easily, and with the exception of a minority, who were wiser in theory, but smaller in number, this grave assembly determined to do without the assistance of a professional engineer. Now, we have no more knowledge of Mr. Emmett than is afforded by the report alluded to; but if, as is allowed on all sides, he be not an engineer, the policy of the Preston Town Council is clearly wrong. The result of indiscretion on the part of a professional engineer—ending in the recent catastrophe by which 200

persons were drowned, ought to be sufficient warning to all who contemplate the erection of these works of engineering skill. If a qualified practitioner fail, how much more probable is it that a manager who is not an engineer should do the same! From the danger to which persons are exposed in the construction of waterworks, it is but fair that the best professional advice should be obtained.—*Building News*.

#### POMPEIIAN EXCAVATIONS.

I WAS so fortunate, during a visit to Pompeii last week, as to see a house excavated. The system pursued is as follows: the earth covering the deposit of cinders having been removed, the latter are scooped out of the rooms, care being taken to preserve any frescoes on the walls. The rubbish, principally consisting of light scoræ, is carried by girls to railway-trucks. These, when full, run down an inclined plane, and deposit their contents without the city walls. When the ashes, &c., in the rooms have been removed to within about three feet of the floor, should no large objects have been discovered, operations are temporarily suspended, the entrance to each room is blocked up by stone slabs, and guards are placed over the house, for it is within this stratum of ashes and scoræ that the domestic articles, &c., are found. When matters are in this condition, the director of the work is apprised that a house is ready for final disinterment, and either he or his deputy is present when the rooms are finally cleared out. The men entrusted with this last operation, who are skilled workmen, are overlooked by four officers specially appointed to see that the work is efficiently executed, and that no articles are secreted. On the occasion of my visit, the director of the works and a select party came expressly from Naples to see the house in question disinterred. As soon as they had assembled, the order was given, and the workmen, furnished with short spades and trowels, proceeded to cast out the ashes. They had not laboured more than a few minutes before the bronze hinges of the doors were discovered, with the bolts and other fastenings; and at a short distance within the doorway they came upon a rich find of small bronze statuettes, rings, vases of earthenware and glass, curiously-shaped drinking-vessels, blazing like jewels from oxidation, and a great variety of bodkin-like instruments in bone and ivory. Upwards of fifty objects were found in this room; in that adjoining, about ten; but in the five other rooms, constituting the ground-floor of this house, nothing beyond the hinges and fastenings of the doors. The director and officers present conceived that here, as elsewhere in Pompeii, the occupants of this house, at the first outbreak of Vesuvius, had gathered their worldly goods together with the view of carrying them off, but had been unable to do more than save themselves. It is impossible to describe the great interest that attends the final opening of a Pompeian house, the contents of which have remained buried since A. D. 79, when the terrific eruption that destroyed Pompeii occurred. You see objects brought to light so fresh in many instances, that they seem to have been placed in the localities where they have been found but yesterday—objects, too, frequently wonderfully similar to those in use at the present day.—C. R. W. in *Athenæum*.

The *Standard*, October 23, 1862, speaking of Benson's Argentine in the Exhibition, says,—“Perfect in point of form, and good as a piece of workmanship.” This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of Silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps; and an illustrated catalogue containing 300 engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for “excellence of manufacture, argentine, and electro plate.” Post-office orders and cheques should be made payable to James W. Benson. Branch Establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749.

Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

\* If for fresh water  $H' \times 0.97$  = gross H. P.  
† If for fresh water  $V \div 0.99$  = velocity.

## LIGHTING GAS BY ELECTRICITY.

MANY attempts have been made from time to time to effect the simultaneous ignition of a great number of gas jets by the aid of electricity. Thus all the lamps, not alone in a single street, but in an entire district, might be lighted in a single instant of time, and in addition to the convenience of such an arrangement, an actual saving of gas would be effected, because, now, certain lamps have to be lit too early in order that others may not be lit too late. In theatres, concert-rooms, churches, &c., it is obvious that great advantages would follow on the successful employment of any system of electrical simultaneous ignition.

Hitherto this has been proposed to be effected by a wire running from jet to jet, the circuit being partially interrupted by the introduction of a filament of platinum in proximity with the orifice through which the gas issues. This filament becomes red hot when a strong current of electricity is transmitted through the wires, and thereby lights the gas. One or two other expedients have been adopted, but hitherto with very partial success. But, although the simultaneous ignition of a number of jets cannot be effected with certainty, it seems far from improbable that the ubiquitous lucifer will be superseded by very simple and elegant arrangements. At a recent meeting of the Franklin Institute, Philadelphia, Messrs. Cornelius and Baker exhibited a very beautiful method of lighting gas by means of frictional electricity, arranged for use with a bracket, two portable lighters, and a table light, all being simple in arrangement and readily kept in order. These instruments are constructed upon the principle of the electrophorus. The electric bracket is arranged with a brass cup in the form of a vase, resting upon the bracket, with a connecting piece of hard rubber. This cup is lined with lamb skin covered with silk, and contains the hard rubber electric piece which corresponds in form to the inside of the cup. A coiled covered wire connects the brass cup with a wire attached to the burner, and terminating just above the burner. In order to light the gas, the stop is turned, the hard rubber piece lifted partly from the cup, thus liberating the spark and lighting the gas. The Portable Lighter consists of the same vase or cup, with the addition of a non-conducting handle. When the brass cup is lifted from the electric piece and held to the conducting wire of the burner, the gas is immediately lighted. Another portable instrument, called the Double Air-Tight Electrophorus, consists of two metallic tubes, each closed at one end, and connected together at the other, with a non-conducting ring of hard rubber, the inside being lined with lamb skin. A hard rubber rod is placed within them, the length of one of the tubes, and fitting them so as to move somewhat freely from end to end. When the moveable piece inside is allowed to fall to one end, and the tube is raised to the connecting wire of the burner, this piece changes its place again, falling into the tube held by the hand. The spark leaves the upper end of the tube at the same time and lights the gas. The Table Light Burner consists of the same instrument arranged upon a pivot regularly attached to the pillar light. The subject is worth the attention of gas engineers here, and we feel little doubt that simple, inexpensive, and elegant little instruments of the kind we have described would soon become popular among us.—*Building News*.

**DRAINAGE AND RECLAMATION.**—One of the most complicated systems of drainage which have ever come under our notice is at present being carried out by Lord Clancarty at Tristane, on the farm of Mr. Craughwell, under the direction of Mr. William Maxwell. The extent of land to be drained is something over 100 acres, chiefly of a marshy nature, surrounding at various levels the bases of the various hillocks, forths, and knolls scattered over the country. A small lake, in reference to which there are numerous legends, is situated near the centre of the lands. Much of the land here is in a deplorable state from a want of drainage, and some of it will be more than quadrupled in value when dried. Lord Clancarty advances to his tenants, at a fair per centage, the cost of drainage, of course securing that the work should be efficiently performed. The lands here will be drained for less than £5 an acre; and the work will afford remunerative employment to every labourer in the district who applies for it. On his Ballymacward estate, Lord Clancarty also intends to give assistance in the way of drainage.—*Western Star*.

**GAS IN CASTLEBAR.**—Mr. Daniel, gas contractor, of this city, has recently fitted up gas-works in Castlebar, and since their completion, the lighting of the town has been very satisfactory.

**GIBRALTAR.**—The French papers notice a project put forth by M. Alexandre Laya, for the construction of a maritime canal on Spanish soil which is to supersede the Straits of Gibraltar, and to render "illusory the possession of the fortified rock bearing that name." The capital required is, it seems, about four millions sterling.

## ROYAL GEOLOGICAL SOCIETY OF IRELAND.

A GENERAL meeting of this body was held on the evening of the 11th inst., in the Museum Building, Trinity College:

ROBERT CALDWELL, Esq., in the chair.

The first paper read was by Mr. A. M'Alister, M.B., on "A Specimen of *Ulodendron Minus*." There was a very admirable specimen produced by Mr. M'Alister, which he had got from a colliery in the neighbourhood of Glasgow, and which he explained in a masterly and interesting manner.

Mr. Baylee and the Rev. S. Haughton said that the society should feel much obliged to Mr. M'Alister for bringing such an admirable specimen before them, for, though the fossil was a well known one, yet such perfect specimens were rather rare.

The second paper was by the Rev. Maxwell Close, "On the general Glaciation of the Rocks in the vicinity of Dublin." The paper was an exceedingly elaborate one, and gave the result of most extensive geological investigations in the counties of Dublin, Wicklow, and Kildare. The lecture was accompanied by an illustrative map, on which were marked the directions of the striations or grooves in the rocks in parts of the counties above mentioned. The lecturer gave it as his decided opinion that the striations were formed, not by the action of floating ice, but of glacier or land ice. He thought that the up-hill, down-hill, and curved currents, as well as the regularity of the groovings, were evidence sufficient to establish his statement with any observant mind.

Dr. Haughton remarked that Mr. Close had made a number of most important observations over a very large district, and had established a number of very important points. He was not, however, prepared to go the whole length with him in the cause. He thought that was an open question even yet, whether the striæ were formed by ice, or by slipping down of gravel and mud, as the land rose up out of the water.

The following gentlemen were elected fellows:—A. Gahan, Esq., C.E., Omagh, County Surveyor of Tyrone; H. Russell, Esq., Simmon's-court; R. Glasscott Symes, Esq., Geological Survey, Ireland; Sandford Palmer, Esq., Roscrea. R. H. Ellis was elected an Associate.

## ARTISTIC IMPROVEMENTS IN THE DECORATIONS OF OUR SHOP FRONTS.

We notice with great pleasure the growing disposition on the part of the citizens of Dublin to avail themselves of the knowledge and taste of our workmen in the improvements they are, with such credit to themselves, making in their premises. The old red brick shop front is giving way to the tasteful and ornamental style that may now be observed in our streets; pilasters, mosaics, and arabesques now present themselves to the gaze of the passers-by, and we have no doubt that in proportion as they are selected from good examples, or are designed in good taste, so will they influence the taste of the people at large: there is great truth in the old saying relative to the force of example, and we look forward to the time when Dublin will be renowned for its shops, as it is at present for its public buildings. But while the exterior is improved the interior is not neglected, and of this we have a very good example in the recent improvements at Messrs. Waterhouse and Co.'s, jewellers, Dame-street. This firm has added an extensive gallery and show-room to their establishment, and the decorations have been carried out with taste and neatness. The Greco-Roman is the style used, and the delicate tints and graceful forms show a thorough knowledge of the style and its applications. We think it a matter of justice to state that the decorations have been executed by Mr. John Brenan of Aungier-street. For the additions above mentioned Mr. John McCurdy was the architect, and Mr. Halston the builder.

## PRIMITIVE WESLEYAN METHODIST SCHOOLS,

SOUTH GREAT GEORGE'S-STREET.

THE ceremony of laying the foundation stone of these schools was performed on Friday, 6th inst. by John Hayes, Esq., in the presence of a large assemblage.

The outward appearance of the building will be plain and unimposing, without any attempt at outward effect, the style being the Early English. The schoolroom will be 80 feet in length by 34 in width, and 16 feet to the springing of the roof, thereby affording ample space for proper ventilation. The principals of the roof will be of open timber, springing from plain cut stone corbels, and internally the height from the floor to the roof will be 30ft. The arrangement in the design for lighting, which is next in importance to ventilation, considering the awkward situation of the building, is admirable, there being three large lancet-shaped windows arranged

for each end, no side lights being practicable. The internal fittings of the schoolroom will also be most conducive to convenience, and in connection with this it may be mentioned that there is space set apart in the plan for a neat library room, to be erected at some future day. The material of which the building will be composed is of stone, with brick facings to the windows. Its capacity of accommodation will be to the extent of 500 children, and the estimated cost, including purchase of ground, about £1,500. The designs are by Mr. Joseph Maguire, architect. The contractors are Messrs. William Crowe and Sons.

## THE KINGSBRIDGE TERMINUS, GREAT SOUTHERN AND WESTERN RAILWAY.

THIS terminus (of which we give an illustration) presents a highly-ornamented front of hewn granite, consisting of a central building, two storeys in height, 107 feet in width, with two wings, each extending 53 feet, beyond which the ornamental portion projects 17 feet. The basement storey is of the Tuscan Order, rusticated and corniced. The second is composed of eight three-quarter Corinthian pillars, and two pilasters at the extremities. Between these are handsome windows, with alternate arched and angular pediments, resting on pillars. At the bases of the pillars are newels supporting an elegant balcony. The entablature is adorned with lions' heads and carved modillions. The wings exhibit a rusticated basement, having two Ionic pillars on either side of an entrance, and, above, a campanile and cupola. In this building are the offices of the secretary and superintendents. The entire premises being on the ground level, the greatest facilities are afforded for access to the platform, the iron and glass roof of which covers an extent of more than two and a-half acres. Mr. Sancton Wood was the architect.

## ELECTRIC HOUSEHOLD BELLS.

In a recent journey to Paris (says Mr. W. H. Preece, C. E., in the *Telegraphic Journal*), nothing struck me so much as the extensive use which our neighbours make of this new application of that wonderful science which serves our public and private wants to such a marvellous extent. Electric bells are used everywhere—in private houses, in public institutions, in merchants' offices, in ordinary shops, in cafés, and restaurants; all the large hotels—the Grand Hotel, the Louvre—are most completely provided with them; indeed, they have become a general domestic necessity. Enormous posters advertise them to the Parisian public. Large shops are devoted to their supply alone. They must, sooner or later, be introduced into England, for we can't long remain behind our neighbours across the water in an article of such advanced principles and of such domestic, and everyday use. A gentle pressure upon a small button effects all that is required. The electric force that rings the bell steals noiselessly along the wire; there is no strain; but the bell gives forth its warning sound as though it were rung by the stout arm of some invisible sprite. How is this effected? We require a battery to generate the electric force, wires to convey it to the bells, buttons to bring it into play, bells to be sounded, and tablets to indicate the room from whence the impulse emanated.

CHIMNEY SWEEPING BY CLIMBING BOYS.  
TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—It is now twenty years since the Chimney Sweepers' Act was passed, notwithstanding which, I find that the inhabitants of your city are in the constant habit of using climbing boys. I could give instances of children having been stolen from their parents, and sold to chimney-sweepers. I knew a man who, when six years old, was stolen from his home; his poor mother, after searching over the country, but in vain, returned to her home, and died broken-hearted.

It has been given in evidence before a select committee of the House of Commons that girls have been employed in this inhuman system. They have been so used in London, Windsor, Greenwich, Witham, Barnet, Uxbridge, Stockport, Manchester, and Macclesfield.

Let those who are mothers reflect what would be their feelings, if by any unfortunate event their own children should, at the age of from six to eight years, after being nurtured with much care and affection, and when their dread of darkness is often in full operation, be brought into such a situation, as by brutal and unfeeling violence, to be forced into the rough and dark recesses of a foul chimney, and that morning after morning, and from year to year, which is the case with many. Could they endure the reflection





From the Dublin Street

TERMINUS OF THE GREAT SOUTHERN AND WESTERN RAILWAY.  
KING'S BRIDGE  
DRAWN BY J. H. B. FOR THE DUBLIN BUILDING SOCIETY

that nearly all their remaining days, commencing from that early period of life when too young to defend themselves from the cruelty of their oppressive taskmasters, were to be dragged over in a degree of filth and wretchedness exceeding that of any other class, and their night passed on a bag of soot or a bundle of dirty straw, as is often the case with these unoffending and injured children. And let every mother consider that, so long as she encourages the present cruel system, she may unthinkingly, but grievously, be adding to the sufferings of some poor innocent child, who may have been decoyed away from a parent as affectionately tender as herself, and that she may possibly be affording a temptation to some unprincipled villain to deprive her of her own offspring; for so great is the difficulty of procuring a sufficient supply of children for this odious employment, that the most unjustifiable means have often been used to obtain them.

There surely cannot be any pretext for exposing our fellow-creatures to suffering, danger, and death, when the most angular chimneys can be altered and adapted for the use of the machine at a trifling expense; and it is now an established fact, that if the machine is properly used, and the chimney constructed according to Act of Parliament, it will not only subject parties to less dirt in their apartments, but will clean a chimney more effectually than if swept by a climbing boy. The pains which the chimney sweepers have taken to mislead and disgust the public with regard to the use of the machine, are only to be equalled by the confidence with which their statements have been received.

The remedy of the evil is in the keeping of the people, by at once resolving to make use of the machine only.

WILLIAM WOOD.

Bowden, near Manchester.

OBSERVE.—As all persons allowing a boy to sweep their chimneys are liable to a penalty, attention is requested to the following abstract of the Act of Parliament, Vic. 3 and 4, c. 85:—"And be it enacted, that from and after the 1st of July, 1842, any person who shall compel or knowingly allow any child or young person under the age of 21 years to ascend or descend a chimney or enter a flue, for the purpose of sweeping, cleaning, or coring the same, or for extinguishing fire therein, shall be liable to a penalty of no more than ten pounds, and not less than five pounds."

We feel called upon to express our sympathy, in the strongest terms, with the Manchester Society in their endeavours to repress the crying evil which forms the subject of the above letter. We feel convinced that the reason it has been suffered to continue so long, in violation of law, and to the outrage of all feelings of humanity, is from the strenuous efforts that have been made to conceal the barbarous cruelty that is exercised in connection with such a practice; and that, were the details which have been published by the Manchester Association made generally known, society would rise up *en masse* to procure its instantaneous suppression. We who are reared in the lap of luxury know little of the hardship that must be endured to provide for us our most commonplace everyday comforts. The very calico that forms such an extensive item for our clothing; the sugar with which we are wont in so many forms to soothe our palate is prepared for our use under the whip of the cruel taskmaster, where, amid poisonous swamps, and beneath a burning southern sun, the swarthy son of Canaan drags through his wretched existence, and toils, and sickens, and dies, unpitied and uncared for. We think little of the sufferings that are endured by the hardy mariner in conveying to us over thousands of miles of a stormy ocean the dainties that we place upon our breakfast-table. But all the social evils, all the cruelties that have ever been inflicted for the maintenance of our enjoyment sink into insignificance in comparison with the suffering which we unwittingly sanction under our own roof. On a cold and dark winter's morning, long before daylight, when we are fast locked in sleep, a shivering, half-naked urchin is forced into a cavity only fourteen inches by nine, and thirty or forty feet in height, where, with elbows and knees indented by the sharp masonry, he must work his way up, with nothing to support him but the angles of the stones, by which his flesh is lacerated, and scarcely able to breathe in the sooty cell into which he is wedged. There are none to witness his sufferings—there are none to pity him—we stand off from him with aversion; and yet this wretched atom of humanity has feelings just as strong and tender as our own; he can feel pain and misery just as acutely as we can.

An affecting appeal has been published by the Manchester Society, to which we have been requested to give publicity as far as possible, and containing a detail of suffering and of cruelty, that few are aware of being enacted in our streets, perhaps in our own houses. It commences by stating that although nearly a century has elapsed since a committee was formed, at the instigation of that distinguished philanthropist, Jonas Harvey, to institute measures for the relief of climbing boys, yet that unfortunately their exertion proved abortive owing to the fact that the wretched creatures were for the most part either orphans, or stolen, and under the power of brutal masters. Acts of Parliament that were passed on several occasions, the last so late as the year 1842, were attended with little better success, and the practice of subjecting these friendless children, often only eight years of age, to the most cruel treatment was not only adhered to with pertinacity, but even winked at and countenanced by magistrates. The author of the paper describes a chimney which was formed of two flues connected by a horizontal shaft, the lower flue 30 feet in height, the upper one 25 feet, and the horizontal shaft 25 feet long, and the section of the flue only 14 inches by 9, a common form of chimney; and he goes on to state:

"That the reader may understand the real nature of the work often imposed upon the climbing boys, I begin with two cases, which will at once illustrate the danger and cruelty of the employment.

"I have seen and conversed with the boy who has swept the chimney which I have described. His description of the process is almost too horrible to listen to. To effect his object he must crawl along the horizontal part (A to B) on his elbow and side, with his face very near to the soot through which he must pass. In this painful position he has to make his way four or five times back to angle A before he can remove the soot from angle B. At length, after passing through angle B, he ascends the perpendicular shaft C, 25 feet high, when the soot falls down nearly blocking up angle B. The boy must then force a passage through this angle, and through the accumulation of soot which impedes his return, and which he must push behind him with his feet so as to clear a way for his body. He must then resume the labour of removing the soot by degrees to the angle A, so that it may fall into the grate below. There are hundreds of chimneys in the country of this description, many indeed containing two or more horizontal parts, thus greatly increasing the danger. This chimney has been erected more than ten years. There are several others in the same city of similar construction, and though the horizontal part may not in all cases be so long from angle to angle, all are very difficult to pass through.

"The second case presents a somewhat different form of danger, the reality of which, in the instance now to be stated, was too readily proved by the result.

"In order to save expense, many chimneys are constructed as follows. One perpendicular flue is made to serve two fireplaces, the second fireplace at some distance off being connected by a slanting flue with the perpendicular one. In February, 1855, George Topham, of Goole, master sweep, sent his son up a chimney, of the above description. The boy soon returned, saying the heat was so great that he could not breathe; his father beat him and again sent him up. The lad returned a second time saying he should be suffocated, but, after another beating, he was compelled by his father to make a third ascent. The result was that when the poor child got beyond the junction of the two chimneys, becoming unable to breathe, he fell down the perpendicular chimney into a bricked up fireplace in which was a large lodgment of burning soot. The people of the house, alarmed at the boy's disappearance, at last opened the old fireplace where the unhappy lad was found *burned to death*. At the inquest, a verdict of manslaughter was returned against the father, who was committed to York Castle.

"In February, 1861, I was taken into a house in Foregate-street, Chester, where a boy had been forced up a chimney, the entrance into which was only 6 in. by 12 in. An architect and a friend who accompanied me both measured the entrance. The inside of the chimney was of the usual dimensions, but surely no argument is requisite to prove that the forcing of a child's body through such a passage was an act of atrocious barbarity.

"A boy sweeping a chimney in Boundary-street, Oxford-street, Manchester, got so wedged in that he could not get down. The neighbours became alarmed, and a labourer was sent for, who had to make three openings in the chimney before he found the almost suffocated child.

"Dissolute parents often sell the labour of their children, when five years old, for an annual payment. These unfortunates are frequently under the control of journeymen, men of drunken habits and brutalized minds, who, to save themselves, often inflict bitter sufferings on the children.

"From facts given in evidence, there is not a doubt that young girls have been employed habitually, and in considerable numbers, in chimney sweeping. Among other towns where this shameful barbarity has been practised, I may name the following:—Hadley, Barnet, Witham, Uxbridge, London, Windsor, Nottingham, Manchester, Macclesfield, and Prescot.

"Cases of suffocation in chimneys, of which there are many authenticated accounts, also occur in horizontal flues, with sharp and contracted angles. To understand this better, it will be well to accompany the young chimney-climber in a flue of this description.

"The chimney cloth being fixed, the boy puts on his climbing cap, drawing it well down below his chin, to prevent inhaling the soot. From the grate he begins to ascend the flue by pressing the sides with his back, elbows, and knees; and, having advanced some distance in an upright direction, he comes to a right angle. The flue is then horizontal for several feet. With some effort he passes the first angle, and proceeds slowly forward with his face downwards on his elbows and knees, till he arrives at the second angle, which he endeavours to pass by bending his back. This being prevented by the projecting angle immediately above him, he turns himself half round, and by much exertion gets his head and shoulders into the upright part of the flue, which is now perpendicular to the top. Having accomplished the ascent, he slides down again, and on attempting to turn the angle, finds it blocked up with a larger accumulation of soot than impeded his progress before. He endeavours to displace the soot by driving it along with his feet; but in his efforts he becomes imbedded in it. He struggles awhile till the soot accumulates fast round his head; his breathing becomes difficult: and in the greatest anguish he makes a desperate effort to return, but all in vain: the upper angle of the flue bears hard upon him, he becomes completely powerless, until at last, in an agony of suffocation, he utters a few stifled groans, and expires!

"In the present century there are thirty recorded cases of climbing-boys being thus suffocated, ten who have been smothered in rubbish while 'coring' chimneys, seven that have been burnt to death in flues, and four that have been killed from falling from the tops of chimneys—fifty-one in number. The places where these defenceless boys have fallen victims to the climbing-system are as follows:—London, Edinburgh, Dublin, Belfast, Waterford, Manchester, Leeds, Wakefield, Nottingham, Hull, Hereford, Preston, Dunfries, Deal, Keighley, Clapham, Harrow, and Goole."

After observing that "Even as I write, I read in the newspaper before me that a sweep, named Patrick Tension, aged about 14, has been smothered in one of the chimneys of the Cork county gaol: if the law be thus set at naught in an establishment under direct magisterial control can it be a matter of surprise that it should be violated by private individuals?" the author concludes in the following forcible words:—

"From every class of the community the appeal now made ought to meet with a ready response. To the mothers of England, however, it cannot but come home with special force. Who among them would not shudder at the bare thought of seeing the fair children on whom such treasures of love and anxious care have been expended, consigned to the merciless control of men alike brutalized in thought and feeling, to be employed throughout that period, which by many is deemed the happiest of human existence, in the most loathsome occupation; rising into life with no pleasant memories of the past or joyous hopes of the future; their present portion only ceaseless and unrequited toil, with no brighter prospect before them than a life of crime, with criminals as their only associates, and a prison their destined home?

"Much may doubtless be accomplished by improved legislation, but the true remedy, after all, is to be found in an enlightened public opinion, so clearly indicating stern hostility to this atrocious system as to render its continued maintenance impossible. Most thankful shall I feel if this brief appeal should, in the smallest degree conduce to a better state of feeling, and thus aid the cause to which much of my thought and time have been devoted."

The author also describes at some length the machine which is now extensively employed for sweeping, and proves that it performs the work much more efficaciously than could be done by any boy.

# INSTITUTION OF CIVIL ENGINEERS, LONDON.

APRIL, 1864.

THE paper read was "Description of the Santiago and Valparaiso Railway, Chile, South America; with remarks upon resistances from curves on railways, and upon coal-burning locomotives," by Mr. W. Lloyd, M. Inst. C.E.

It was observed that the original proposition for uniting the capital of the republic of Chile with its chief port was made by Mr. Wheelwright, an American citizen, in the year 1850. Detailed surveys and plans, prepared by Mr. A. Campbell, an American engineer, were submitted to the Government in the following year, for the construction of a line, the estimated cost of which was stated at about seven millions of dollars. In July, 1852, an Act of Congress was obtained by a company of Chilean capitalists; and in the month of October of the same year the works were commenced. In May, 1854, the author arrived in Chile, and took over charge as chief engineer. Under his direction the works were advanced with considerable rapidity; so that in September, 1855, a length of eight miles was opened; by December, 1856, a further distance of twenty miles; and in May, 1857, the passenger traffic was opened to Quillota, a total distance of thirty-four miles from Valparaiso, but on a part of the last section the works were of a provisional character, pending the completion of a tunnel through the San Pedro hill. Thus far the line was carried out by Chilean capitalists, assisted by the Government. But its extension to Santiago, a further distance of eighty miles, was entirely executed on account of the State, who purchased the private stock at par. The first sod of the extension was turned in September, 1859, a length of seven miles was opened in February, 1861, an additional sixteen miles in September, 1862, and the whole of the line was completed in September, 1863, by the author as Engineer-in-Chief to the Government of Chile. The work had thus occupied nearly eleven years; it was believed, however, that it might readily have been accomplished in one-half the time, but for the delays and impediments arising out of the control of the authorities.

Respecting the physical features of the republic, it was remarked that the extreme width of the country seldom in any part exceeded 100 miles; yet in this distance there was a difference of level equal to about 20,000ft. In fact, the country resembled a vast mountain slope—its foot bathed by the Pacific Ocean, and its perpetual snow-covered summit lost in the clouds. The country was also volcanic, and subject to rain-storms of unusual violence. Being thus constantly liable to terrestrial disturbances, and not overburdened with pecuniary resources, the mode of carrying out such enterprises, with security and economy, was a deeply interesting study. Evidently, the first cost of construction was more important than the future cost of working, as an unusually high rate of fares would still be an enormous economy to the public, and high velocities were not demanded.

The distance in a direct line from Valparaiso (pop. 70,000) to Santiago (pop. 200,000) did not exceed seventy miles. The coach road between the two places pursued a tolerably direct course; but the physical obstacles upon this route rendered it indispensable to seek for some less obstructed means of access to the central valley of Chile. The road crossed principal ranges of mountains, 1,300ft., 1,950ft., and 2,595ft. respectively above the sea level; while the two intermediate plains had an elevation of 830ft. and 1,000ft. above the same level, and the great central plain, in which Santiago was situated, was 1,800ft. above the sea. Merchandise was conveyed in large two-wheeled carts, drawn by eight bullocks, and capable of holding two tons, and the time occupied in the transit varied from six days to forty-four days, and the cost from £1 13s. per ton in summer to £3 17s. per ton in winter, the average being about 2s. 6d. per 100lb. The opening of the line would reduce the cost of conveyance of goods to one-third, and the time to five or six hours; while passengers, instead of paying £2 each by coach, would make the journey in one-half the time at an expense of 10s.

The line, as executed, left Valparaiso at its north-east extremity, followed the coast for a distance of three miles, crossing its various indentations, or cutting through the projections of syenitic rock. This portion was level throughout, being about 12ft. above high-water mark, and in many places was defended by sea walls of massive granite blocks; but it consisted of a series of curves of small radius. Thence it diverged to the east, and passed up the valley of La Vina del Mar for five miles, with gradients never exceeding 1 in 100, and, after crossing the ravine of Paso Hondo, it reached the course of the Quilpué river, along which it ran

for ten miles, the works comprising deep cuttings in rock, heavy embankments, and considerable wrought iron viaducts, the gradients in many places being as steep as 1 in 50, so that at the eighteenth mile the summit of Lebu, which was 510ft. above the Pacific Ocean, was attained. The line then descended for two and a-half miles at the rate of 1 in 65, and for one and a-half mile at 1 in 90, reaching the Limache river, which was spanned by three bridges, at the twenty-fourth mile. For the next three miles the line ascended again at the rate of 1 in 90, to surmount the second summit of San Pedro, the level of which was 384ft. above the sea. At this point the line passed through a spur of the Andes, by a tunnel 1,600ft. in length, two-thirds of which was through granite and trap-rock, containing much water, and the remainder consisted of decomposed rock and clay, so that it was considered necessary to arch the tunnel throughout. The completion of the tunnel having been delayed from a variety of causes, it was deemed advisable to form over the crest of the hill a provisional line, by which the traffic to Quillota was carried for four years, without the slightest accident. This line was worked by one of the ordinary passenger locomotives employed as a stationary engine, and by its means 250 passengers, and 100 tons of goods, were daily conveyed up inclines of 1 in 13 and 1 in 15 on either side, surmounting a height of 150ft. from the starting point. During the suspension of the tunnel works the timbering under the wet decomposed rock became decayed; and, when attempts were subsequently made to excavate the material, it flowed into the tunnel as fast as it could be removed, until the surface of the ground, 120ft. above, began to sink. The area of this settlement was observed to be much larger than the orifice below. When the ground had sunk 10ft. a large lattice timber framework was prepared to occupy this area, and upon this brushwood was spread. The excavation below was then proceeded with, the frame rapidly disappeared, and the sides of the cavity fell in as the frame descended. A second frame, similarly covered, was then inserted, after which the miners found they were gaining upon the slip, and eventually succeeded in getting the timbers properly erected. It was then discovered that the first frame had descended to the tunnel, and had perfectly plugged up the aperture.

Beyond the San Pedro tunnel the line descended to the river of the same name, and again ascended to Quillota (pop. 10,000). This town was thirty-four miles from Valparaiso, and was situated on the Aconcagua river—one of the principal in Chile, but not navigable in any part—up the valley of which the line was carried for twenty miles. It then diverged to the valley of Tabon, crossed the Vichiculen river, and at the fifty-seventh mile reached the station of Llaillay, where the Tabon incline commenced. The characteristics of this line, contrasted with other similar works, might be gathered from the following table:—

Name of Incline.	Opened.	Length of Incline.	Total Rise.	Average Rise.	Sharpest Curve Radius.	Summit over sea.
		Miles.	Feet.		Feet.	
Allegghanny Mountains ..	1851	15	1,690	1 in 47	600	2,626
Semmering ..	1854	13½	1,323	1 in 47	625	2,887
Bhore Ghaut ..	1862	15½	1,831	1 in 48	990	2,027
Tabon ..	1863	12	1,360	1 in 46½	604	2,640

There was a maximum gradient of 1 in 44½ for a distance of 3½ miles, and upon it occurred sixteen curves or 604ft., one of 633ft., and one of 702ft. radius, for an aggregate length of 1½ mile. The railway had been carried along the abrupt and rugged sides of the mountains, at an elevation of 300ft. above the valley, the rocks towering above to an altitude of nearly 1,000ft. The works comprised two tunnels through porphyry, several heavy retained walls, a number of high embankments, and a succession of deep rock excavations. At one point the line for one-half its width was in cutting 70ft. deep, while the remaining half was formed of embankment, the slope of which extended down the hill-side to about 250ft. below the rails. In the execution of this part of the line about three thousand men were employed for two years, the greater part being miners, and a large quantity of gunpowder was used. The Maquis Viaduct, the principal work of the kind upon the line, occurred on this incline, where the gradient was 1 in 46, and upon a curve of 604ft. radius. Its greatest height was 126ft. and length 600ft. The piers constructed of cast iron columns, braced with wrought iron, resting upon masonry. The superstructure comprised four plate iron girders, each spanning openings of 100ft., and one tubular girder having a span of 148ft. The total weight of iron was about 750 tons, and the cost of the viaduct erected had amounted to about £40,000, or £66 per lineal foot.

The iron work was all obtained from England: Messrs. Kennard supplying the piers, and the Canada works the tube and girders. Out of the total length of 12 miles of the Tabon incline, 6 one-tenth miles were curved; and upon all the curves of less than 1,000ft. radius, it had been deemed prudent to lay down a guard rail on the inner side. The permanent way was formed of fish jointed T rails, 84lb. to the yard, fastened to sleepers of two kinds of native timber.

The descent towards Santiago was effected, for the first 3½ miles, with an inclination of 1 in 80, to which succeeded a gradient of 1 in 183, as far as the deep and tortuous ravine called San Ramon, along which the line was carried for 4 miles, with gradients of 1 in 55, 1 in 60, 1 in 71, 1 in 75, and 1 in 100. At the eighty-second mile the country became more open. The line then passed Tiltit, Poolpacio, Lampa, and crossed the Batueo Lake at the ninety-sixth mile, by means of an embankment, the slopes being protected by loose stone. Thence to Santiago, 114 miles distant from Valparaiso, the only works of importance were a cutting of basaltic rock at Renca, and a bridge over the Mapacho river at the entrance to the capital.

American engineers appear to underrate the effect which curvature produced in retarding the passage of trains; while English authorities differed materially in their views upon the subject. As the author believes practical data were wanting, he had himself made experiments, from which it appeared that upon a straight line with a gradient of 1 in 50, the resistance were 55lb. per ton of train, corresponding with those deduced by the ordinary mode of calculation; while upon the same gradient combined with curves of 600ft. radius, the resistances were augmented to 70lb. per ton of train. By the formula of Latrobe, the resistance due to this curvature was only 5.09lb. per ton of train. Professor Rankine's gave 12.3lb. per ton of load. These experiments appeared to show that, upon a curve of 1,000ft. radius, the resistance was double that upon a straight line; and upon a curve of 600ft. radius, it was equal to the gravity on an inclined plane of 1 in 150. Approximately, the resistance due to the curvature might be found, either by dividing the number of pounds in a ton by 0.224 of the radius of the curve, or by multiplying the deflection angle of the curve by 1.75, to give the resistance in pounds per ton of train. It should be stated that the gauge of the line was 5ft. 6in., and that the proper super-elevation had been given to the outer rail on curves.

The plant employed upon the line was upon the European system, the engines and most of the rolling stock having been obtained from England. The engines at present in use, the dimensions of which were given, were of two classes, ordinary six-wheeled passenger and goods engines, four wheels being coupled; but special engines had been ordered for the Tabon incline.

Mr. Mather, the locomotive superintendent, had adapted the engines, at a trifling expense, to burn exclusively native coal, by which an economy in the cost and consumption of fuel of about 30 per cent. had been effected. Observations as to the duty of the engines, on curves of 600ft. radii, showed that at a velocity of ten miles an hour, upon inclines of 1 in 44, ordinary passenger engines could convey a gross weight of train equal to double their own weight; upon inclines of 1 in 55, similar engines would take up rather more than two and a-half times their own weight; and upon a gradient of 1 in 50, a goods engine had drawn up four times its own weight. The application of a jet of hot water upon the flanges of the leading wheels of the engines had so facilitated their passage round sharp curves, that bogie trucks were unnecessary, provided sufficient play was allowed to the trailing wheels; while the resistance was diminished, and the tires were not so rapidly destroyed. Similarly, the application of moisture to the rails from the tender, in passing round abrupt curves upon steep gradients, the rails for the engine remaining dry, sensibly reduced the resistance due to curvature; and by the same means the break blocks in descending inclines could be prevented from igniting.

The communication was accompanied by a series of photographic views, showing some of the more important works, and by complete plans and sections of the entire line, the cost of which had amounted to about £20,000 per mile, inclusive of rolling-stock.

APRIL 26, 1864.

A paper was read "On the Structure of Locomotive Engines for Ascending Steep Inclines, especially when in conjunction with Sharp Curves on Railways," by Mr. J. Cross.

Mr. W. Bridges Adams then read an important paper "On the Impedimental Friction between

### Wheel Tyres and Rails, with Plans for Improvement."

The author thought that the chief source of destruction in rolling stock and permanent way, apart from disproportionate weight, arose from the blows and friction between the wheel tyres and the rails—that was, jumping and sliding. This conclusion was verified by the contrary results practically obtained on the main line of the North London Railway at Bow. He considered that the best mode of preventing the blow was to provide for elastic resilience immediately over the tyre beneath the wheel, and immediately under the rail, taking care that the rail joints were elastically supported by fishes of sufficient depth; a continuous elasticity which could only be obtained by discontinuous supports, as with the double-headed rail on an elastic—the flat-footed and bridge rails with continuous supports not being adapted for it; and that the rail thus elastically supported should be in itself as rigid as possible. On the North London line this desirable result had been obtained by laying down longitudinal timbers on the ordinary cross sleepers, and spacing the rail supports not on the cross sleepers, but between them; the cross sleepers being packed, and the longitudinals unpacked, so as to yield elastic action. In a lapse of nearly two years and a-half the ordinary iron rails laid on this system were undamaged, and the cross sleepers firm and unmoved, in marked contrast to the rails laid in the ordinary rigid way. He argued that the sliding or frictional movement of the tyres on the rails could only be completely guarded against by permitting each wheel to revolve separately, or by permitting the tyres to slip on the wheels, and at the same time providing for end play of the axles between the rails in such a mode that the rails might govern the flanges and keep the several axles at right angles to the rails, whether on straight lines or on curves. This had been accomplished by applying a hoop spring of tempered steel between the wheel and tyre, enabling the tyre to slip round on the wheel, or the wheel to slip within the tyre, and the tyre slightly to flatten in the case of driving wheels, and to rock laterally to fit an unequal surface of rail. These results had been practically verified on the North London and the St. Helen's lines, where Staffordshire tyres, under elastic use, had far exceeded in durability Krupp's best steel. In conclusion, he remarked that the sleepers, on foundations of the permanent way, could not be too firmly or too rigidly bedded; and that iron or stone blocks, as in the original system, chemically durable, might be advantageously substituted for timber, if elastic resilience were provided. The results of the cross sleepers, firmly packed under the elastic superstructure, where the wheel pressure was distributed over two sleepers, instead of resting on one, demonstrated the advantage of a perfectly solid foundation.

### ON THE TESTING OF CHAIN CABLES.\*

It is, no doubt, generally known that a select committee of the House of Commons is now considering a bill for the compulsory testing of chain cables and anchors of merchant vessels. This may be said to lend a passing interest to a question which, however, needs no chance help in calling for our attention.

Without entering into lengthy statistics, or calculating the number of times that the total length of all the chain cables in actual use would measure round the world, we should be scarcely mistaken in the supposition that in different parts of the globe there are, at this very moment, many hundreds of valuable lives, and thousands' worth of property, in each case dependent upon a single link of the hundred fathoms that make up the length of an average chain cable; for there are situations in which a ship is often placed wherein the cable must be literally the thread of life of the vessel. To the seamen of the present age, the iron cable, though of comparatively recent introduction, is a common everyday thing. Those of the last generation could remember the time when only hempen cables were in use. The naval men of that time were thus led to look upon chain cables as the most precious gift ever made in modern times to the mariner—to repeat the words of the late distinguished Captain Basil Hall.

Now, although we have been testing chain cables according to certain Admiralty regulations established ever since 1831, although the naval administrations of France, Russia, and other countries have exactly copied these regulations, and although Lloyd's have adopted the Admiralty test—which is somewhat more than the so-called "merchant" test—it is a remarkable fact that a difference of opinion with regard to almost every point connected

with the use and testing of chain cables still exists amongst engineers and other men of science. This differing of doctors is very strikingly shown by the Blue Book report from the 1860 Select Committee in the House of Commons on anchors and chain cables for the merchant service. One witness states that 50 per cent of the loss of life by shipwrecks are due to bad cables and anchors; another that very few wrecks occur through bad anchors and cables. One objects to the Navy proof as being too high; another as too low. One witness considers that the cross-stay does not add to the strength of the link; another that the cross-stay is a great improvement. In the same way, directly contrary opinions were elicited from different witnesses with regard to the duration of cables under wear, their re-testing, re-annealing, and other points. A similar want of agreement on these matters exists in France; and it would thus appear that several interesting engineering questions, connected with the strength, the testing, and the re-testing of chain cables, offer a fair field for a practical examination.

According to the Admiralty regulations, an iron chain cable has to consist of eight lengths, each  $12\frac{1}{2}$  fathoms long, including one swivel in the middle of every other length, and one joining shackle to each length. Neglecting the swivels and shackles, each link may be described as a cylinder, the axis of which is wound into a shape approximating to that of an ellipse. The width over all, or across the minor axis, is made  $3\frac{1}{2}$  diameters (full) of the cylindrical bar. The length over all, or across the major axis of the supposed ellipse, is six diameters. The cast-iron stud across the minor axis is made 0.6 of a diameter in the centre, and one diameter at each of its ends. This stud not merely acts as a cross-stay, but also preserves the freedom of the joints, or what may be termed the mechanical flexibility of the cable. The weights are of course exactly fixed in the government tenders. The weight of, for instance, a one-inch link stay-pin must not exceed  $3\frac{1}{2}$  ounces, and the weight, fixed by contract, of a hundred fathoms of cable, in 8 lengths, including 4 swivels and 8 joining shackles, must not be exceeded by more than 1-20th part. The experience of many centuries has determined the sizes of hempen cables for ships of a given tonnage; and, the sizes of the hempen cable being thus given, it is easy to substitute a chain cable of the required strength. Mr. J. R. Napier has proposed a formula, according to which one-eighth of the cube root of load displacement would give the diameter of the chain cable usually employed by steamers of the present form. In the Admiralty comparative table, showing the weights and strengths of stud chains and hempen cables, there is a noticeable relation between the girths of the hempen cables and the diameters of the iron employed in chain cables. The number of inches of the circumferences of the hempen cables pretty nearly expresses in lines, or twelfths of an inch, the diameters of the iron cables of equal breaking strengths. The material of the links is No. 3 rolled bar, and very good cable bolts generally cost from £1 to £2 above common bars. According to experiments by Telford, Hodgkinson, Mr. Edwin Clark, and Mr. Kirkaldy, and also according to numerous experiments at Woolwich, we may safely take the ultimate breaking strength of cable bars at 24 tons to the square inch, and their limit of elasticity, under a tensile stress, at 12 tons to the square inch. These bars would stand a pressure up to deformation of 18 tons to the square inch, and 15 tons pressure at the elastic limit. The ultimate tensile strength of a round bar of this iron would thus be nearly 19 tons. According to the evidence of the leading man of the test house at Woolwich, in 1860, this ultimate statical breaking strength is only occasionally exceeded, when it rises up to about 20 tons for a one-inch round bar, or 25.33 tons per square inch. He also stated that a great number of experiments, made at Woolwich, showed the greatest breaking strength of one-inch chain cables to be only 28.31 tons. Contrary to the popular assumption that a stud link should be, in the direction of its length, twice the strength of a single bar, this result would show a loss in strength of 28.75 per cent. According to the comparative table published by the Admiralty, the one-inch bolts should stand 21 tons 8 cwt., and the stud link therefrom, 34 tons 5 cwt.. It also appears to have been assumed (for it could scarcely have been proved by experiment) that the strength of the cable bolt, and of the link therefrom, both increase almost exactly in the ratio of the diameter of the bars. Thus, the breaking of two-inch bolts is given as 21 tons 8 cwt.,  $\times 4 = 85$  tons 12 cwt., to which two tons are added; the strength of chain therefrom as 34 tons 5 cwt.  $\times 4 = 137$  tons, and the proof as  $18 \times 4 = 72$  tons. It is, however, well known to engineers that, as a rule, a two-inch bar is not practically four times as strong as a one-

inch bar of even exactly the same make and by the same maker, and that the strength becomes less and less as the bulk still further increases. The proportions adopted by the Admiralty appear, however, to compensate for this loss, and there is very nearly the same average ratio of breaking strength to diameter in all chains from five-eighths to two inches. But, even according to the Admiralty tables, there is a remarkable amount of strength lost in forming the iron into the link. This loss of strength was well known to Sir Samuel Browne, the introducer of chain cables. He thus patented, in 1817, the straight link used in suspension bridges, and applied it to the Brighton chain pier.

There are several reasons why a portion of the strength of the bar should be lost in forming it into a cable link. The principal causes are:—1st. The mechanical shape of the link; 2nd. The crushing stress undergone by the insides of the crowns; 3rd. The deterioration in strength of the iron through its being bent; 4th. The loss of strength at the welds.

In the first place, each link is, when the cable is pulled in the direction of its length, subjected to a transverse strain at each of its ends or crowns, and is somewhat in the condition of a curved beam loaded in the middle. An originally curved beam is, with regard to bending stress, in the same condition, at any cross-section at right angles to its neutral surface, as a straight beam under the same moment of flexure. The moment of flexure of one end of a common unstayed link can be expressed in inch-pounds by multiplying half the span, or half the distance in the clear, by the load of pounds. In the case of the stayed link, however, the moment of thrust of the cross-stay has to be subtracted from the moment of the bending force. The mechanically weakest part of any link is thus at the crowns. Now, it is a curious fact, that all the writers on the strength of materials, from Professor Peter Barlow, Mr. Edwin Clark, and others, down to General Morin, in 1862, give the strength of a link furnished with a cross-stay to be equal to that of the iron of which the link is made.

In a mathematical sense, the contact between the links is only at a point, because it is a case of two cylinders touching each other at right angles. Under a load, this point will spread out to a surface of an area given by the amount of the load and by the compressibility of the iron. This surface will then probably increase, in the case of a one-inch cable under a load of nine tons, up to more than half a square inch. And thus at the ends, the softer and more ductile the iron, the sooner will it be worn away in practice, and the progressive deterioration caused by this crushing action will also be furthered by the friction.

An attempt to account for the reduction in strength through the bending of the cylindrical bar has next to be made. Wrought iron is known to be a crystallized body, belonging to the cubic system. Now Mr. Mallet, in his important work "On the Physical Conditions involved in the construction of Artillery," has shown that these crystals are not grouped amorously (or without distinct arrangement); but that they always take a certain determinate position. He has developed the law that "iron, whether in the state of cast or of wrought iron, has the principal axes of its integrant crystals arranged in the lines of least pressure within the mass" while exposed to pressure and heat in progress of manufacture. The principal axes of the crystals in a rolled bar would thus be set in a direction coincident with the length of the bar, and, from the property of malleability possessed by these metallic crystals, they would further take, under the pressure of the rolls, or the impact of the forging hammer, the longitudinal extension known as the "fibre" of wrought iron. Mr. Edwin Clark found that bars cut longitudinally and transversely to the fibre of the same plate of an excellent quality of iron, gave with the fibre a strength of from 19.66 to 20.2, and across the fibre a strength of only 16.7 tons to 16.93 tons. The ultimate elongation also of the plate in the line of the fibre was double as great as transverse to it. A great number of experiments by Mr. Kirkaldy gave somewhat similar results. He found that the difference averaged from 21.7 to 21.1 per cent., the mean difference in the whole being 9.8 per cent. in favour of the direction of the fibre. The respective ultimate elongations were also in almost the same ratios as those found by Mr. Clark. It would thus appear from these experiments, and from a consideration of Mr. Mallet's law, that both the elastic range and breaking strength of wrought iron of any given quality are, to a certain amount, dependent on the direction of the crystalline axes in relation to the strain; and further, the elasticity would be at a maximum in the direction of the principal axes of the crystals, or "line of fibre." The crystals in a bar subjected in the direction of its longitudinal axis to a tensile or a compressive stress, would thus be in the most favourable condition with regard to its ultimate breaking strength and its elastic limit. But when,

\* Paper read on Wednesday, May 4, 1864, at the Society of Arts, by Frederick Arthur Paget, Esq., C.E.

say, a red-hot bar is being bent, the principal axes of its crystals would, according to the law of cross-bending strains, arrange themselves above and below a neutral axis in the direction of least pressure within the mass; the neutral axis would probably pass through the centre of gravity of the bar, the fibres on the concave side would be compressed, and those on the curved side would elongate in the ratio of their distances from the neutral axis. The hot iron itself would be, at any rate on the concave side, under a somewhat similar influence as when passing through the last pair of rolls, but the directions of least pressure, instead of being coincident with the length of the bar, would be at right angles to tangents to the neutral axis. Much of this is, of course, founded on several unproved assumptions, but it is at any rate evident that the molecular arrangement of the iron at the crown of the link is in the worst condition for resisting the tensile and compressive strains on each side of a neutral axis that make up the compound action of a transverse stress. The late Professor Daniell's process for unmasking the fracture and the arrangement of the fibre of wrought iron, by immersing the piece in dilute hydrochloric acid, would doubtless reveal a distortion of the crystals round a neutral axis.

It would thus appear that the crown of the link is its weakest part. This is, however, very far from being practically the case. Each link has of course to be welded up, and the weld is in one of the sides, with a long scarf, in order to get a large welding surface. When we recollect that there are, in round numbers, 1,800 links, and, consequently, 1,800 welds, in a one-inch hundred-fathom chain cable, and also that the efficiency of the cable depends on each individual link, the paramount importance of the welds is obvious. In nine cases out of ten, while in use and while being tested, the links are found to give way at the sides. Breakages would, *ceteris paribus*, have a tendency to occur at the welds with good iron but bad workmanship, and in the iron, and not in the weld, if good workmanship but bad iron be employed. The uncertainty of welds is in any case well known to practical men. Mr. Kirkaldy has made some eighteen experiments on the relative strengths of welded joints in wrought iron. Some of these welds were made by a chain-maker. Only six of the specimens broke solid away from the weld, and in every case there was a loss of ultimate breaking strength averaging from 2.6 to 43 per cent., the mean being nearly 20 per cent. As with almost everything else belonging to the subject of chain cables, one of the witnesses before the Committee of 1860 raised the question whether the position at one of the sides was the best for the weld. Mr. Smale, of Woolwich, proposed to weld the link at the crown, as there would thus be more room for the smith, and any bad weld would be less hidden by the cross-stay. The crown is, however, as we have seen, *ab initio*, the weakest part of the link. Besides, if a weld at the side gave way, the other half might catch and save the cable; at the same time, however, a sudden giving way at the weld would cause an instantaneous distortion and probable rupture of the opposite side, as the sudden "run" of the cable would act with an impulsive force. In fact, when iron cables were first introduced, the welds were made at the crown, but the plan had to be given up. It is clear enough that there are, *ceteris paribus*, three weak places in a link where any effects of stress would first show themselves,—the two crowns and the weld at the side.

We thus see what a powerful element of uncertainty is brought by the uncertainties of workmanship into such an apparently simple thing as a chain cable. When, however, we remember that the very best wrought-iron of commerce is, to use the words of a well-known metallurgist Saint-Claire Deville, but a metallic sponge, like platinum, the pores of which have been simply closed up by pressure or percussion; that, in one word ordinary wrought-iron has never, as wrought-iron, been fused, it will be seen that the uncertainties qualifying the material itself are still greater. Mr. Mallet thus found that while the original hammered slab of a very large forged mass had a breaking strength of 24 tons to the square inch, it fell progressively to 17 and 16 tons at the different places of the mass, down to even as low as 6½ tons in some parts. Unless this iron had been burnt, its tenacity could doubtless have been restored, and if drawn into wire, its breaking weight might have been increased to perhaps ninety tons to the square inch—at least before annealing. An average of 188 experiments, made by Mr. Kirkaldy on rolled bars, gave a maximum breaking strength of 30½ tons, and a minimum of nearly 20 tons to the square inch. These influences of the manufacture merely on the quality of wrought iron are almost independent of the chemical constitution of any individual bar. For instance, until it be proved to the

contrary, there are many reasons for the general belief that the cold shortness of wrought iron is due to the presence of silicon and carbon; and its hot shortness to that of sulphur. A fractional percentage of copper also makes wrought iron hot-short. In truth, there are probably no two bars or parts of a bar of an exactly similar chemical composition, or in an exactly similar state of molecular aggregation, and therefore of an exactly similar breaking strength or elastic limit. Even these are only a few of the elements of uncertainty in structural materials. But when we further take into account the varied strains of extension, compression, distortion, twisting, and bending, to which mechanical structures are more or less subject; that the work done by a gradually applied load is doubled if this load be applied suddenly; that the impulsive strain of a moving load is generally more or less intensified by vibration; and that the varied shapes and arrangements intended to receive these strains must be often as much fixed by financial as scientific considerations, then the reason that the best engineering practice makes the ultimate strength of a wrought-iron structure from four to six times the working load must be even popularly evident. But these factors of safety are not sufficient. The structure must be tested as searchingly, and as far as is consistent with safety—as far as is possible without injuring the material and its relation to the structure. In our case this limit is, in the main, given by the limit of elasticity of wrought-iron under extension, as this limit is less for wrought-iron than that of compression. It is also self-evident that the mode of testing adopted ought to approximate as nearly as practicable with the kind of stress the object is intended to undergo in practice. It is also evident that if circumstances allow us to exceed this limit, if, in fact, we can push the test as far as the breaking strength of a portion, or of an individual piece of the object, we shall obtain the safest amount of information about its qualities. In this way guns and plates are both tested to destruction. In order to test the probable performance of rails under a moving load, a certain number, taken from a lot, are broken by a falling weight, the distance between the supports and the height of fall being fixed by contract. The French test their railway carriage axles in a somewhat similar manner. There is no test so good as a blow for detecting a false weld. In Sweden they do not confine themselves to the usual gunpowder proof for gun barrels, but two or three sharp taps with a hammer are given along the breech, which have an immediate effect on a bad weld. All the whistle chains for the carriages of the Royal Swedish Artillery are tested by letting the loose end fall from a height double the length of the chain, after being attached to a weight. The anchors for the French imperial marine are tested by being dropped from a determined height for each size. The axles for the carriages of the Messageries Générales and the Imperial Artillery are tested by the impact of a falling weight. All the swords and sabres for the army are tested by striking the blades on a block of wood. When we advance from details to considerable structures, we are, of course, obliged to very carefully confine ourselves within the limits of elasticity. After loading a railway bridge with the greatest passive, or perhaps impulsive load that would ever come upon it in practice, the deflection, and the permanent set, if any, are both carefully noted. As a boiler is subjected in practice to a complex train of mechanical and chemical forces that are always striving to break their bonds, its ultimate strength is made from six to eight times the working stress, and it ought to be periodically tested to half its working pressure. Its extension under this pressure is sometimes—and should always be—measured by the volume of water that is pumped in by pressure after the boiler has been filled; while the permanent set is determined by the difference between the volume pressed out by the contraction of the boiler when the pressure is withdrawn, and the volume of the water that remains in the boiler after the test—allowance being of course made for any slight leakages and sweating at the joints. In first-class locomotive works the deflexion and permanent set of the steel springs are always tested in an apparatus for the purpose. It may here be remarked that, although the designs of all the successful wrought iron structures ever built have been based on the assumption of a limit of elasticity, nevertheless the relation of the permanent set of wrought iron to its ultimate resistance under a given load, is still a subject of some discussion. We have, on the one hand, the testimony of Professor Eaton Hodgkinson, who says that "the maxim of loading bodies within the elastic limit has no foundation in nature;" and, on the other hand, some appear to believe that iron is even improved by breaking it under, at least, a tensile stress. Mr. Hodgkinson found that a rod, 10 feet long and of one square inch section, took a perma-

nent set of 0.0005 of an inch under a static load of less than 1½ tons. Mr. Edwin Clark obtained very similar results. Such a microscopic set, however, could be referred to the elongation caused by the heat generated by the internal friction of the particles, or to the probable fact that these bars were also new; and it is conceivable that they might have taken a slight permanent set, just as new ropes take a permanent set, without injury, when the strain is first applied. There are, indeed, very few forms of wrought iron in which its internal particles are not, *ab initio*, subject to some mutual strain. At any rate, these elongations were very slight, and increased uniformly up to tensions varying from about 10 to 15 or 16 tons on the square inch. Beyond these strains the bars elongated in an irregular manner, until they at last broke. At the same time, as Dr. Rankine remarks, the demonstration by Mr. E. Hodgkinson that a set is produced by a strain much less than what would injure the specimen, renders the determination of the proof-strength a matter of some obscurity; but Dr. Rankine points out that the best test now known is the not producing an increasing set by the repeated application of a load. Some years ago, Mr. Loyd, of Woolwich, made certain experiments which have been cited as proving that a breaking strain does not injure iron even when this strain is four times repeated; or rather, that after breaking a bar into, say, two pieces, the two pieces are thereby made stronger. In, for instance, experiment 2, the 1½ bar marked C was found to break with 33½ tons, with a stretch of 9½ inches in 54 inches; a piece of this bar then broke at 35½ tons, with a stretch of only a quarter of an inch in 36 inches; another piece of the bar, 24 inches long, was broken at 37 tons, with a stretch of one inch; and at the fourth and last breakage was found to give way at 38½ tons, but without any stretch at all. Results of a similarly delusive kind, obtained by Professor Walter Johnson, were communicated by him to the United States government in 1845. He found that by heating a bar to a temperature of 400° Fahrenheit (or the temperature of steam at about 250 lbs. pressure), and stretching it permanently for about 6½ per cent. of its length, it, on being broken, gave an ultimate breaking strength about 20 per cent. higher than a portion of the bar that had not been heated and stretched. He therefore supposed that, to use his own words, "the value for useful purposes, added to a bar of iron by thermo-tension, when the increase of both length and tenacity is taken into account, may be safely set down at 26 per cent. of its original value. It sometimes exceeds 30 per cent. On a single cable, 100 fathoms long, made of iron 2½ inches in diameter, weighing about 15 tons, and attached to a line-of-battle ship, the gain, in true commercial value, would not probably fall short of 600 dollars." A machine was made by the American government, in order that the Professor might apply his principle of "thermo-tension" directly to chain cables, but as nothing else ever appears to have been heard about the matter, we have thus, as usual, lost another of the lessons always taught by scientific accounts of scientific failures. The pitch chains of the old engines of the Great Britain are stated, by Mr. Guppy, to have been stretched one-eighth of an inch while at a low red heat. This was, no doubt, an excellent method for testing the soundness of the work. Captain Blakely also stretches the hoops that are shrunk on his guns. This is done on a mandrel, and while the rings are at a red heat; but it is stated that only one-sixth of the breaking strain of the cold metal is applied. The action of the mandrel also probably rearranges the crystalline aggregation which had been disturbed by bending the ring from a straight slab. The red heat of iron is only visible in daylight at a temperature of 1,077 deg. Fahr., and the heat used by Professor Johnson was only from 400 to 500 degrees. But the "gain of length"—the permanent set, in fact—of from 5 to nearly 7 per cent., sufficiently shows that the bars had either been broken or were close upon fracture. His results, in fact, merely anticipated those of Mr. Loyd. The breaking strength of his bars was doubtless increased, but with a proportionate diminution, perhaps, indeed, a complete destruction, of their elasticity. They were rendered harder, for what is the hardness of a body but the resistance of its particles to any temporary readjustment? The longitudinal elongation was accompanied by a lateral contraction of the cross-sectional area that would reach its culminating point at the part where fracture happened to take place. Exactly the same argument, founded on similar experiments on cables themselves, was used before the 1860 Committee, in order to prove that cables are not injured by a breaking strain; but a mere statement of the progressive diminution of the elongations would have detected the fallacy.

The apparent increase of ultimate strength through successive breakages, thermo-tension, and much of the high static breaking strength acquired through

cold rolling, and cold hammering, even through wire drawing previous to annealing, are referable to an increase of hardness, to an increase of the difficulty of gliding to and fro, to a resistance to the intermobility of the particles, to, in one word, a diminution of elasticity. If the numerous experiments that have now been made on iron do prove anything, it is that the breaking strength does not indicate the quality—the breaking strength must be taken conjointly with the elongation. The true measure of the mechanical value of wrought iron is simply the sum of the products of the successive loads and the increments of elongation—in other words, the resilience of the bar or the deflection of the beam, or the work performed in producing the stretch or deflection. We thus see the value of Poncelet's symbols  $T_1$  and  $T_2$ , advocated with such ability in England by Mr. Mallet. Upon the just balance of strength of fibre, or high breaking strength, and extensibility or ductility, depends the mechanical or structural value of iron.

(To be continued.)

## Correspondence.

### THE KINGSTOWN STEAMER.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—May I be permitted to avail myself of the medium of your widely-circulated paper to offer a few remarks relative to this most fashionable and agreeable medium of communication between our city and Kingstown. Having read with much satisfaction the remarks of your correspondent, Viator, in your last number, relative to the grievances that have so long been inflicted upon the public by the directors of the D.K.R., I have only to say that I can most heartily endorse the whole of them, and that having for a long time suffered patiently under them, I was at last driven to try the marine passage, and certainly the liberal arrangements made by that company for the accommodation of the public form a most agreeable contrast to the discomforts arising from each new arrangement of the railway line. Not only is the accommodation excellent, but the courtesy of the captain to every one has been such as to render him worthy of a lasting tribute of respect. Then the cheapness of the fares, the luxury of being enabled to walk about, recline, exchange open air for shelter if it rains, combined with the beautiful scenery of the bay, offer such a combination of attractions, that it is a wonder that any one would hesitate for a moment in choosing their mode of travelling to Dublin. It is strange that a Kingstown steamer has not been thought of long before this. But why do not the directors hasten the building of the second steamer? They are losing every day that they do not place it on the line, and I am informed by a person who lately visited the yard of Messrs. W. and W., that there were not six hands employed at it. Surely they could have bound down the builders by contract to have it finished in proper time. If some steps are not taken to accelerate matters I greatly fear that the prospect of a second steamer will be this year as distant as ever.

I must just say two words with regard to a few matters, which, although trifling, are complained of by the fair sex, to whose voice the directors, with their usual gallantry, will I am sure pay every deference. The first year that the Kingstown steamer began to run, the engines were heated I believe with coke, and in consequence the voyage was performed without a trace of smoke. Now, a thick black rosy column pours forth from both funnels, and pours forth soot which descends most disagreeably into the faces and over the white bonnets of the fair. I have myself seen a shower of snuts descending, and, although belonging to the sterner sex, obliged to have recourse to soap and a towel on my return home.

But if smoke from the funnel of a steamer is unpleasant, how much more so is it when it issues through a pipe from the mouth and from the interior of a male animal. In fact, the ladies have a downright antipathy to it. To reassure them on that head a notice is put up that smoking is strictly prohibited in the saloons and promenade decks, and that a smoking saloon is provided for the accommodation of those who cannot consider any enjoyment perfect unless they have a yard of pipe clay projecting from their mouth. But latterly I must say that smoking has become so prevalent on the second-class promenade deck and in the saloon that it is the rule rather than the exception. No doubt the captain, with his usual benevolence, is unwilling to take any steps which will in the least curtail the enjoyment of any of his passengers, but when they show a disposition to indulge in a selfish pleasure to the discomfort of ladies who may be near them, it becomes a stern duty to remind them of the courtesy which is due to the fair sex, in which, unfortunately, many show themselves

lamentably deficient. My reason for writing is from a desire to see the prosperity of the company advanced as rapidly as possible, knowing the anxiety of the directors to accommodate the public, and having myself reaped the benefits of their liberal arrangements. I should not, out of a sense of gratitude, utter a word which might seem like a complaint against a company so justly popular, did I not know that ladies have been deterred from travelling from the cause I mention.—I am, Sir, yours very truly,

C.E.L.E.B.S.

## Public and Private Works.

Two new warerooms, each 66 by 33 feet and 22 feet high, have been just completed for Mr. John Lambert Jones, proprietor of the well-known establishment trading under the style of Arthur Jones and Son, in the carpet and general furniture trade, at St. Stephen's-green, from designs, and under the superintendence of Mr. Carson, architect. Mr. Moyers, of South Richmond-street, builder. These improvements, together with the four rooms, 50 ft. by 30 ft., built a year before, render the establishment most commodious, and equal to the best in the United Kingdom. Also three of the adjoining houses, Nos. 136, 137, and 138, St. Stephen's-green, have had their lower stories converted into shops, the design being handsome and unique. They are by the same architect and builder. The expense of the whole will exceed £5,000.

Six houses are in course of erection at Frankfort-avenue, Rathgar. Joseph Maguire, architect; T. Brophy, builder.

Alterations and additions are being made to Ashfield House, Harold's-cross, for H. L. Fry, Esq. Joseph Maguire, architect; E. Cahill, builder.

A dwelling-house with shop is in course of erection at Ball's-bridge. Joseph Maguire, architect; F. O'Donoghue, builder.

A splendid fountain has been erected at Curraghmore, Co. Waterford, the seat of the Marquis of Waterford. The water can be thrown from the *jet d'eau* to a height of upwards of forty feet. We learn that the figures which adorn this gigantic fountain formed a prominent feature at the Paris Exhibition, and were purchased for £3,000.

Two semi-detached villas are being erected at Sandymount; the external face of walls in red brick, with white brick dressings. Joseph Maguire, architect; John Grant, builder.

The contemplated improvements in the interior of Ennis Church include an open-work of timber, and the substitution throughout the entire body of the structure of fittings of varnished wood, in the modern style, for the present awkward and ill-contrived seats. The gallery is to be remodelled, and it is intended to erect a tower on the northern side, to contain an entrance porch and stairs communicating with the gallery: the present porch will be added to the length of the church, and a number of sittings obtained thereby. As to the exterior of the venerable fabric, very little can be attempted in the way of decoration; it is proposed, however, to remove the present coating of plaster, and when the stonework is exposed, and carefully trimmed and pointed with cement, it may reasonably be hoped that a considerable and beneficial effect will be produced. These improvements are to be carried out by the Ecclesiastical Commissioners.

We understand that the Knights' stalls in St. Patrick's Cathedral are being furnished by Mr. R. B. Boyle, of 82, Marlborough-street, in this city.

Tenders are invited for sundry repairs and alterations to the Bride-street entrance of the Albert Chapel.

## General Items.

H. C. Selous' grand paintings of "Jerusalem in her Grandeur," and "Jerusalem in her Fall," are now on view at Mr. Lesage's gallery. They are 14 feet by 10 feet each, and contain over 200 highly finished figures.

Mr. John Leech's "Sketches in Oil," from subjects in "Punch," now on view at Cranfield's gallery, will well repay a visit.

The International Hotel at Bray will be re-opened on Monday next, the 16th inst.

E. Chaloner's next sale of timber takes place on Friday, 20th instant, at the Brunswick and Toxteth Docks, Liverpool. Catalogues at office of this paper.

The spirited lessee of the Queen's Theatre announces the engagement of Mr. Henderson's Dramatic Company. Their first appearance will be on Monday evening next, in Burnaud's Burlesque of "Ixion, or The Man at the Wheel." In consequence of the expense attendant on such an engagement, the prices for admission are advanced.

St. Peter's at Rome is estimated to have cost £14,000,000.

## THE METROPOLITAN RAILWAY.

The following is the evidence of Mr. Barton, C.E., before the Committee on the Railway Bills:—

"In conjunction with Mr. Hawkshaw, he had laid out the line the subject of the bill before the committee; Line No. 1 would be a short branch from the Liffey branch of the Midland Great Western Line to the North-wall; Line No. 2, a line from the Liffey branch higher up, passing under the canal (which should be raised nine feet, and could be so raised without interfering with its traffic); the line would pass under Eccles-street and join the Midland line at the Broadstone; No. 3 Line would run from the Broadstone through a very low class of property, cross the river near Essex-bridge, between it and the Four Courts, and enter the central station at Parliament-street; No. 4 Line would leave the Great Southern and Western line above its terminus, run under Thomas-street, behind High-street in an open cutting, and so on to the central station; Line No. 5 would continue the line now terminating at Harcourt-street, and run through the Liberties to the central station; No. 6 would commence near the river Dodder, where it would leave the Dublin and Kingstown line, pass through the Pembroke township, by Beggar's-bush and the canal to Harcourt-street station; there would be a branch from the Dublin and Wicklow line to Leinster-road, Rathmines, also a branch from the Dublin and Kingstown line to the south quays, and tramways along the quays; altogether the lines would be eight miles in length; there would be good approaches to the central station; cabs could be driven to the arrival and departure platforms; the centre of the central station would be opposite South Great George's-street; the centre of Mr. Barry's line would be opposite the Metal-bridge; the traffic of the latter station would greatly increase the traffic over Carlisle-bridge; that of the central station, nearer to Parliament-street, would send the traffic over Essex-bridge, which bridge it was a part of the project to lower; there were good gradients throughout, and no engineering difficulties existed; the total tunnelling would be only 900 yards; there would be no junction in a tunnel, and the tunnel gradients were practically horizontal; the worst gradient on the entire line would be 1 in 80; on Mr. Barry's line there would be gradients of 1 in 50; by means of spur lines the goods and cattle traffic could be sent from any point to any other point on any of the lines without passing through the central station; the leading mercantile men of Dublin were in favour of his line; anticipates that if the proposed communication be made there will eventually be sailings from Kingstown of a cattle and goods traffic intended for the Holyhead route; the total estimate for works was £353,527, and the total, including land and houses, was £649,526.

## OUR PUBLIC STATUES.

"In statues, we have something new, I'm sure, Who ever yet beheld one like Tom Moore? And there's a novelty, you must confess, In Crampton's Monument, though hard to guess The name of that great Vegetable Yoke; High-Art might call it a high-art-ichoke. Against the sculptor, here no shaft we aim, By all accounts, he's not at all to blame; 'Twas not intended in the street to mount. But, for an ornamental garden fount, Where botanists about the plant could fight, Its class define, and set inquirers right. Now Goldsmith's statue well adorns its post, Each sighing sizar may look up and boast; Burke's pedestal is waiting in the row, Let's hope, not long, to be in *statu quo*; But should subscribers fail, we must agree, That none can leave the blame on Mr. G. 'Tis new, to see a public statue rise To living man's great worth and enterprise; But William Dargans are so very few, We mark their rarity by something new; Blunt generous man, who's blunt has been broadcast To serve his country in her needful past; His effigy in life's the minor part To what shall ever live in Irish heart."

"Could great St. Patrick visit now this land, With Swift to show him his cathedral grand, Well might they stare, the building to behold, Looking as fresh as in the days of old, Preserved by Guinness in its antique style; In pristine beauty lives this ancient pile; Knights of St. Patrick, men of high degree, Look down a moment from nobility, Behold a commoner with noble claim, And grace your order with his humbler name.—

Scotb's "Everything New."

## Miscellaneous.

**THE SCULPTURE FOR THE PEDEMENT OF THE NEW PROVINCIAL BANK** in College-street is described as a singularly clever and dignified composition. The important central feature is a seated female figure intended to represent the genius of Banking, flanked on the right hand by a figure intended to embody the spirit of Commerce and Manufacture as represented by the British merchant, who offers his gold with the one hand, while with the other he points to his merchandise; and on the left by a graceful female figure, representing Agriculture, who offers "the fruits of the earth." The lower angles of the pediment—that trouble and vexation of all sculptors—are cleverly filled with figures easily and naturally disposed: behind the merchant a sturdy servant, intended to illustrate that portion of this country's wealth which is in the form of muscle and sinew, is stooping to receive a bale of goods from a negro, who represents the raw producer. The figures behind Agriculture are those of farm labourers, one of whom is engaged in shearing a sheep, illustrating one of the contributions of agriculture to our manufactures; while the other is engaged in reaping. It is being executed by Mr. Lynn, a rising young artist, whose group of Achilles and Lycan gained for him the gold medal of the Royal Academy in 1858, and will be remembered by many of the visitors to the exhibition of that year.

**RAIN ON THE ATLANTIC.**—The Atlantic Ocean includes an area of twenty-five millions of square miles. Suppose an inch of rain to fall only upon one-fifth of this vast expanse. It would weigh three hundred and sixty thousand millions of tons; and the salt which, as water, is held in solution in the sea, and which, when that water was taken up as vapour, was left behind to disturb its equilibrium, weighed sixteen million more tons, or nearly twice as much as all the ships in the world could carry as a cargo each. It might fall in a day; but occupy what time it might in falling, this rain is calculated to exert so much force—which is inconceivably great—in disturbing the equilibrium of the ocean. If all the water discharged by the Mississippi river during the year were taken up in one mighty measure and cast into the ocean at one effort, it would not make a greater disturbance in the equilibrium of the sea than would the fall of rain supposed. And yet, so gentle are the operations of nature, that movements so vast are unperceived.

**ARTIFICIAL PARCHMENT.**—This parchment is made by dipping thick paper in diluted sulphuric acid. This process increases the strength of the paper, makes it translucent, and gives it the exact appearance of parchment, which it has in a great measure replaced from its superior cheapness. According to Professor Calvert, the same process applied to cotton cloth very much increases its thickness and strength. The cotton thus prepared is technically known as "blanket."

**A "MODEL" LODGING-HOUSE.**—There is a tenement house in New York city having 68 rooms, 8ft. by 10, containing 78 families of 144 adults and 138 children, 11 dogs, and 43 cats.

**ROMAN AQUEDUCT.**—The remains of a Roman aqueduct, eight metres in length, have just been discovered at Vichy, on the Boulevard de l'Imperatrice. There can be no doubt of its antiquity, as the walls are built with that famous Roman cement which the moderns have not yet been able to imitate. The aqueduct is supposed to have been made to convey water from the Allier, as it is precisely on the spot which is supposed to have been at one time the bed of that river.—*Galvani.*

**ANCIENT PAPER.**—In eastern countries, paper was manufactured from indigenous fibres long before it was introduced into Europe in the eleventh century. According to Colonel Sykes, for 2,000 years paper had been made in China—never from rags, but always from fibre. The manufacture of paper from pulp has long been established in India, and considerable quantities are made from fibre, but not generally of a good quality, their thick ink not requiring so fine a paper as is used in Europe. The manufacture was probably introduced from China across the Himalayas.—*Maclean and Cameron's Paper Trade Review.*

**PHOTOGRAPHS BY ARTIFICIAL LIGHT.**—At the Society of Arts on Thursday evening last, Dr. Grace Calvert, F.R.S., in the concluding lecture of his course of Cantor lectures, called attention to the metal magnesium, exhibited specimens of wire made from it, and showed the brilliant light which its combustion affords. This light is so intense, and possesses to so great a degree the qualities of sunlight, that the photographs can readily be taken of objects illuminated by it. At the conclusion of the lecture several successful photographs were taken in 30 seconds by Mr. Claudet, of Theed's bust of the Prince Consort, in the ante-room of the society's lecture hall, the first ever taken in London by means of this illuminating agent, and they elicited considerable interest among the audience.

**NEW DEVICE IN ORGAN BUILDING.**—Mr. Barker having been commissioned to build an organ for the Church of St. Augustin, at Paris, intends to introduce there a new device, in which, by the aid of electricity, the communication of key with pipe, at present a cumbersome and complicated piece of business, is replaced by something simpler.

**MAGNETIC TELEGRAPHIC STATION AT CAPE CLEAR.**—The British and Irish Magnetic Telegraph Company have stationed a steamer at Cape Clear to intercept the American mail steamers, and thus expedite the transmission of messages from that point. Arrangements have also been made for reporting vessels passing Cape Clear for owners and consignees, and for placing orders on board.

**SOLVENT FOR OLD PUTTY AND PAINT.**—The *Journal of Horticulture* gives the following as a solvent for old putty and paint:—Soft soap mixed with solution of potash or caustic soda, or pearl-ash and slaked lime, mixed with sufficient water to form a paste. Either of these laid on with an old brush or rag, and left for some hours, will render the putty easily removable.

**MACHINE FOR PRINTING CARTES-DE-VISITE.**—A new machine has just been invented for printing cartes-de-visite. The advantages gained by it are as follow:—It prints by means of a new process, without ink, and without pressing or drying; it requires no special knowledge or material strength—a child can work it with ease; the portraits always remain clear and distinct; and the price of the cartes is little more than that of the pasteboard, as the machine does away with the cost of workmanship. The speed with which the machine can be worked is prodigious—throwing off no fewer than 100 cartes per minute, with the clearness of lithographic impressions. If, as we are assured, the price of the machine is moderate, we predict for M. Leboyer, its inventor, complete success; for before long printers and lithographers will, no doubt, wish to possess this charming little press.—*Paris Trade Journal.*

**METEOROLOGICAL REGISTER FOR APRIL.**—From the register kept in the Ordnance Survey Office, Phoenix Park, it appears that the mean barometer was 29.895 inches, compared with 29.816 last year. The mean temperature was 50.1 inches, compared with 47.6 last year; mean dry bulb, 51.1, compared with 48.6 last year; and the rain-fall 792 inches, compared with 1,170 last year. The highest barometer was on the 8th, at 9:30 p.m.; the lowest on the 1st, at 9:30 a.m. The warmest day was on the 23rd, and the coldest on the 28th. The greatest rain-fall was on the 4th, when, in the course of 24 hours, 3.45 inches were registered. The mean ozone for the month was 4. The east wind blew for eight days.

**THE NADAR BALOON.**—M. Nadar announces that he will shortly make another ascent in his balloon, the Geant, somewhere on the Mediterranean, and that he will attempt to cross the sea.

The *Illustrated London News*, November 8, speaking of Benson's Watches in the Exhibition, says—"Ranged around the base of the clock were the Watches which Mr. Benson exhibited, and which have been universally admired for the beauty and elegance of the designs engraved upon them. The movements are of the finest quality which the art of horology is at present capable of producing." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's Illustrated Pamphlet on Watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, Prize Medallist, Class 33, Honourable Mention, Class 15; 33 and 34, Ludgate-hill, London. Branch Establishment, 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

**NEWCASTLE AND RATHKEALE.**—A special meeting of the directors, shareholders, landed proprietors, and others interested in the success of this undertaking, was held on Friday in the Courthouse at Newcastle West, to take into consideration the provisions of "An Act for the Amalgamation of the Waterford and Limerick Railway Company, and for authorising the Waterford and Limerick Railway Company to work the undertaking of the Rathkeale and Newcastle Junction Railway Company, and other purposes."

**LAUNCH AT RINGSEND.**—On Thursday last a substantial and well-built lugger was launched from the patent slip and building yard of Mr. Michael Scallan, Ringsend, the dimensions of which are as follows:—40 feet keel, 45½ over all, 14 feet beam, 9 feet deep, and burden 40 tons, builders' measurement; the frames doubled and double fastenings. The keel was laid on the 1st March.

**THE O'CONNELL MONUMENT IN ENNIS.**—We have received a photograph, by Simonton, of Grafton-street, Dublin, of Cahill's statue of O'Connell, for the Ennis monument to the Liberator. The photograph is one of the largest we have seen, and is itself a triumph of art, and one of the strongest evidences of the progress and perfection of photography. The likeness of the Liberator is most striking, so that the statue, which we have not seen, must be an admirable work of sculpture. O'Connell is represented standing on a pedestal, in an oratorical attitude, arm extended as if addressing an assembly. The statue is, we understand, chiselled out of limestone, and will last, without suffering from the ravages of time, for a thousand years. The artist, Mr. Cahill, of Mercer-street, was, we understand, a pupil of the celebrated Hogan, and, judging from the photograph of what the original must be, we would say that Mr. Cahill has produced a work which entitles him to take high rank amongst his brother sculptors.—*Clare Journal.*

[We (*Dublin Builder*) have been favoured with a view of the O'Connell statue, alluded to by our contemporary, and heartily agree with him in the degree of merit to which our fellow-citizen, Mr. Cahill, is justly entitled. The figure, we may add, is cut from one block of limestone, and stands about ten feet high. The block weighed upwards of ten tons. A photograph may be seen at our office].

**ANCIENT LAWS AND INSTITUTES OF IRELAND.**—Between the years 1853 and 1863 Parliament has granted sums amounting to £8,600 for the expenses of the Commission for the publication of the ancient laws and institutes of Ireland. The work appears to be making satisfactory progress.

**PROPOSED SALE OF THE BELFAST AND HOLYWOOD RAILWAY.**—We understand that negotiations have been all but completed for the sale of the Belfast and Holywood branch of the County Down Railway to the Holywood and Bangor Company. The amount of the purchase money is £150,000, to be paid by £50,000 in hand and £5,000 a year. A meeting of the shareholders in the County Down Company will be called to consider the terms of agreement of the directors, and if their consent is obtained the line from Belfast to Bangor will be in the hands of one company.—*Northern Whig.*

The Exhibition of Manufactures, &c., in connection with the Royal Dublin Society will be opened by His Excellency the Lord Lieutenant on the 25th inst.

A copy of the first edition of Shakespeare, 1623, sold the other day at Messrs. Puttick & Simpson's for £53. It was very imperfect, but had the merit of being a very large copy, with rough leaves, measuring 13½ in. by 8½ in.

The annual meeting of the Provincial Newspaper Society was held at the Crystal Palace, London, on Wednesday, the 4th inst. Mr. Hartnoll, of the *Kentish Mercury*, occupied the chair. There were upwards of forty members present, many of them from distant parts of England, and others from Ireland and Scotland. After the election of officers and the transaction of the business of the society, the members dined together.

## TO CORRESPONDENTS.

H. C. Athlone (you will find the illustrations in Nos. for June 1st and 15th, 1862).—I. M., Wexford (you will find Swinburn's the best suited for the description of work you mention).—A SUBSCRIBER, Paisley (you are liable to be sued for the amount, as sufficient notice was given from time to time as to the proper party to whom all payments were to be made).—B. L., Limerick (We hope to see you personally next week).

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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## THE EXHIBITION OF 1864.

TWO great events, fraught with results of the highest importance as regards Ireland's future prospect, have been celebrated during the past week—the laying of the first stone of the Whitworth Hall, at Drogheda, and, on the day following, the opening of the Royal Dublin Society's Exhibition. We have had many exhibitions of art and manufacture in our city during the last fifteen years: in some a predominance has been given to the fine arts, and life-like imitations of the works of the ancient masters by our native artists have been displayed, contrasting strikingly in their severe dignity and sombre shading with the brilliant hues of the modern schools. The great industrial theatre which was, eleven years ago, by the patriotic liberality of one individual, thrown open to receive specimens of the newest works of art from all quarters of the globe, established triumphantly the fact, both that Ireland was rich in native resources, and her articles of native manufacture were worthy of a place beside the best examples of English and foreign industry. But it has been the object of the Royal Dublin Society to render the present Exhibition a peculiarly Irish one, as stated in the address intended to have been delivered to the Viceroy, who has ever been foremost in encouraging every work that was calculated to benefit our country, and whose absence on such an occasion can never be sufficiently regretted: "its object is to display the existing state of manufactures in Ireland, to note the progress they have made, and to discern what capabilities the country and the people possess for the development of new departments of industry." There is now no doubt that the Royal Dublin Society will be eminently successful in this threefold object. That the Irish as a nation are interested in such an Exhibition, and recognise its utility, has been abundantly shewn in the hearty manner in which manufacturers throughout the country have responded to the call of the committee. Much praise is also due to the members of the travelling deputation, to whose indefatigable exertions is to be attributed the success which has been already achieved. It would be premature at present to discuss the question of industrial progress, or of the probable development of new resources; but there is no doubt that it will be closely considered in its every bearing by those who have displayed so much energy in organising such an exhibition. The most practised hand labour will be found in many cases to have been either in part or wholly superseded by machinery, and slowly and gradually the labour of the operative is yielding before the irresistible advances of the "vapour giant." Many arguments have been brought forward against the innovations of machinery, on the ground of its throwing hands

out of work, but the progress of the march of intellect cannot be stayed, and the employment of machinery has not, after all, been attended with the injurious effects that have been anticipated. Whether we turn our eyes on agriculture in its varied operations, or upon the works that are carried on in our cities for the manufacture of articles for our necessity or comfort, we will find that even in three years the employment of machinery has been constantly on the increase, and that the efforts of scientific men have been mainly devoted to its improvement. The result has been, not that a less number of hands have been employed, but that a much greater amount of work has been turned out, and that the hands have been employed in a more agreeable and less fatiguing kind of labour. For example, articles of work that could not be obtained unless at a high price when executed by hand labour, can now be produced infinitely faster by the sewing machine, and, while the number of hands employed has not been diminished, new and elaborate specimens of work are produced that could not have been executed on the old system.

Amongst the latest novelties of the present day we may mention that of the application of electricity to the ringing of household bells. The inconvenience of the present system of bell-hanging has long been felt in large establishments, where there are many rooms, and where the bell-wire has a great distance to traverse; the wires, when long, are likely to stretch, the cranks will often go out of order, and the defects cannot be repaired in many cases without pulling down the plastering of the walls; where there are a multitude of bells, also, the servant must be endowed with a musical ear, not common to housemaids, to recognise from what room the summons comes. These evils have been completely remedied by the "electric bells," which have been extensively adopted in the large hotels in Paris, and are generally coming into use in our own country. It would not be within our limits to enter into a description of the invention, the effect of which is that on pressing a button like an ordinary bell-pull, a corresponding bell is caused to ring, and continues ringing as long as the button is pressed in, while at the same time an index is lowered, shewing the number of the room from which the call comes; but the system may be seen at work at the warerooms of Messrs. Hodges and Sons, No. 16, Westmoreland-street, who are agents for it in this city, and it will well repay a visit.

The manufacture of massive works of iron is steadily on the increase, and we noticed at the Exhibition a splendid specimen of a portable engine from the Hive Iron Works, Cork, the first that has ever been made in Ireland. A very novel kind of engine, termed a gas engine, is exhibited by Messrs. Edmundson, of Capel-street, the motive power being coal gas mixed with air, and exploded by means of an electric spark; it is said to be capable of effecting great economy in cases where motive power is only required at intervals, by obviating the consumption of fuel which must take place with a steam engine more or less while it is at rest.

Many improvements will also be found to have been made in the construction of buildings, their furniture and fixtures, and in their lighting and ventilation. An example of the latter is afforded in the Exhibition Building itself, which, owing to the admirable arrangements adopted by the architect, Mr. Joseph Maguire, did not occasion the slightest feeling of oppression even when thronged to the very utmost. Some beautiful specimens are to be seen of chimney-pieces and grates, and in kitchen-ranges economy of fuel, coupled with increased facility for the execution of every kind of culinary operation appears to have been studied with great success. It is much to be regretted amidst so many useful inventions, that some effort is not made to produce a new and improved form of window. In our last number we had occasion to notice the inconvenience, awkwardness, and danger arising from windows as they are at present constructed. It has become this week our painful duty to record the death of an old man, at Kingstown, cut off in one short half-hour, while endeavouring to clean a sash upon the outside. Were a small prize offered for a design for an improved form of window, it would prove a worthy object of competition.

We have noticed in these remarks those instances of Irish progress which fall most properly within the province of the DUBLIN BUILDER. It would not, however, be fair to pass over altogether in silence that branch of industry for which Ireland has been pre-eminently distinguished—the culture and manufacture of flax. To describe the vast improvements that have been effected in this department, and the happy results that have attended the labours of those who in their care for the welfare of Ireland have devoted their time and energies to its development, would in itself require a separate essay; but no words could exhibit the extent of Irish resources in this, her peculiar province, so faithfully as will one visit to the Society's Exhibition, where the stands which compose the linen department (less showy but fully as instructive as those of the centre hall) display the great variety of forms into which flax can be manufactured, in their specimens of the enormous produce of the factories of the North.

If it will be shown by the Society's Exhibition that the progress of Irish manufacture, in spite of many adversities has been onward and upward, the capability of the country for the development of new departments of industry, will also become a fertile theme for speculation. The resources of Ireland in a geological point of view have been as yet but imperfectly developed. Our island has in many places been proved to be rich in mineral resources, and although it may never be in a position in this department to compete with the sister country, yet the progress which mining operations have made is very encouraging, and much is yet to be expected.

Let us couple with the effort which the Royal Dublin Society has made for the promotion of Irish welfare, the noble gift which, with the same object, Mr. Whitworth has presented to the people of Drogheda, while

stating his conviction, based on an experience gained in a lengthened career in England, that there is employment to be found for the Irish in their own country; and who will listen to the infatuated cry that has been raised for emigration? How long will Irish labourers and mechanics, able to earn for their families a comfortable maintenance at home, suffer themselves to be deluded by the mis-statements of interested parties, and to be spirited away by the crimps of Transatlantic misrule, to a country where their only prospect, did they but know it, is to perish amidst fatal swamps, or under the murderous fire of civil strife, deluded under false promises to swell the ranks that are devoted to universal carnage! Would that the crowds that day after day throng the decks of our Liverpool steamers would take the lesson which those who are devoted to their interests seek to impress upon them, and shake off the blind infatuation by which they are hurried off to scenes of bloodshed, how few, alas! ever to return. Yet the flower of our land are passing away; vast tracts of agricultural district have been left empty, and the English and Scotch element have quietly taken their place. There is yet a bright prospect for Ireland if her people will but devote themselves steadily to develop her native resources, and we trust they will pause ere they suffer themselves to be hurried away from the land of their fathers and of the associations of their youth, and consider what may be done at home, as set forward by the truly national Exhibition of the Royal Dublin Society.

#### THE WHITWORTH HALL, DROGHEDA.

THE ceremony of laying the foundation stone of the "Whitworth Hall," in Drogheda, took place on Tuesday, the 24th ult. A committee, consisting of the Mayor and a number of gentlemen connected with the town, was appointed on the 28th of Dec. last, to carry out the arrangements in connection with the erection of the building, the gift to the townspeople of Benjamin Whitworth, Esq., a native of Drogheda, and now one of the wealthiest merchants in Manchester. One of the first steps taken by the committee was to offer prizes for the best plan. Several architects of known eminence competed, and the committee had to make choice from a number of really beautiful designs. A very handsome design by Mr. Barre was selected, and tenders advertised for. On Tuesday, the 19th ult., no less than sixteen tenders were laid before the committee, but almost all of them were in excess of the stated amount, £3,000. Mr. Thomas Creaser of the Mall, builder, after a careful consideration, was declared contractor for the building of the Hall, at the sum of £2,786. His tender being the lowest but one, the preference was of course given to a local man. Mr. Creaser lost no time in commencing the work. The plot of ground so kindly and liberally given by Mr. St. George Smith is admirably suited to the purposes. It is situated on the left side of Laurence-street, going toward Laurence-gate, that fine old ornament of the town, and faces the Bank of Ireland, Belfast and Hibernian Banks.

"The general arrangement of the building is divided into three sections.—The front, consisting, on the ground floor, of the principal entrance and vestibule, with waiting-rooms, each 20 ft. by 14 ft., off same, the upper floor, consisting of the minor hall, a room 42 ft. by 20 ft.; and the basement, occupied by two rooms, intended as a coffee-room and smoking-room separately, or may be used together as one, having a sliding partition provided for the purpose. Porters' apartments are also provided in front of basement, with boiler, &c., fitted up in kitchen for the use of the establishment. The centre consists of the great hall, or the assembly room, 80 ft. by 42 ft.; and in the rear retiring rooms for performers, &c., and cellars for storage of seats. The inclination in the ground (there being about 8 ft. fall from front to rear) made it necessary to adopt a special treatment, by raising the ground floor of front building, and ascending six steps into vestibule, by which means ample head-room has been provided for the apartments underneath. In addition to these are six other steps the whole width of vestibule, rising to lobby at en-

trance to great hall, and to staircases at each side to upper floor. The difference of level is thus equally divided, height of stories is obtained, and the length of staircases decreased. The entrance to the rooms in basement is either by the principal inner staircase, or by external stairs in front, provided to form a distinct approach to this portion of the establishment, without entering the main building at all. By shortening the staircases, as above referred to, intermediate areas are obtained, by which the front rooms of basement are lighted from both sides, windows are obtained for porters' apartments, for the end of great hall, and for the staircases themselves. Lavatories and water-closets are provided for basement in the front, to be erected under footpath and arched over. The apartments for porter are kitchen, bedroom, and closet. The minor hall is intended as a room for lectures, chamber of commerce, or library, &c. It is lighted by the three large windows in front, and is to be 20 ft. high. It is approached by the two staircases, with large lobby, which also forms the entrance to the gallery. The great hall, or assembly room, shewn seated, has a clear space of 80 ft. by 42 ft., of which 16 ft. deep is appropriated to an orchestra or platform. It affords accommodation on the ground floor for 609 persons, and on the gallery 90. The ceiling is proposed to be a groined cove, having a radius of about 9 ft., corresponding with the curve on plan, the height to be 36 ft. to centre. The lighting is by twelve coupled windows."

Early on the morning of the 24th the town began to assume a lively, stirring aspect. The leading drapery and grocery establishments were closed, in order, as stated in the announcements last week, "to celebrate appropriately the auspicious event." Flags, belonging to the various trades, hung from the windows in the principal streets, and lent a gay and festive air to the old town. The scene just before twelve o'clock was quite exhilarating. The trades' flags were mustered in West-street, some of them looking exceedingly handsome in the bright rays of the sun, and the gentlemen having charge of the arrangements were actively employed.

On arriving at the site for the Hall, The Mayor, Mr. Whitworth, Mr. St. George Smith, and the members of the Council, left their vehicles, and ranged themselves on the foot-path, while Mr. Charles Farley, of West-street, took a photograph of the whole scene from an opposite window.

An address was read by the Mayor, presenting the thanks of the clergy, corporation, merchants, traders, and workmen of Drogheda to Mr. Whitworth, for his noble generous gift of a town hall.

Mr. Whitworth replied as follows:—

"Mr. Mayor and People of Drogheda,—I am sure I have been overwhelmed with the reception you have given me this morning. Had I known you were to make such a stir as this I would not have had courage to have met you. It is far beyond anything that I could have hoped or wished for. I present the building, of which I am now about to lay the first stone this morning, with the very best intentions. It will be a building that you can call your own, where all sects and parties can meet without bickering or strife that so sadly have prevailed in this country, and which are still a source of more injury to the country than anything that can be named. For this alone is the building that I now come to inaugurate. My object will be to find profitable employment for the people, for I should like to see the tide of emigration to America stopped in the only way that it can be stopped, and that is by finding employment for them in their own country. From what I have seen of the Irish character, I can say that Irishmen are always able and willing to work where they could get employment, and I have no doubt at all that we will find others from England, who, although at present a bit prejudiced, will follow my example when they see the success of my efforts—and of this success I have not the slightest shadow of doubt. For the next few years there will be a great scarcity of labour in England. The cotton trade has been disorganized, and the workmen have been scattered in all directions. Our difficulty, after a while, will be to find workers at any wages, and I believe that not more than three-fourths of the cotton factories will ever be fully employed, for want of hands. This will, therefore, be a splendid opportunity for us to commence operations here. I am sorry to say that there are too many out of employment in this country, and I have no doubt that, were a large number of works established, it would materially increase the commercial prosperity of the working classes, and you will all, without exception, be glad to see it. I shall be always in favour of giving a fair day's wages for a fair day's work. Some of my friends in Manchester have said to me—"If you go over to Drogheda, you will have nothing but combinations the moment you get to them." But I would not believe anything of the sort. I believe the people of Drogheda will see that it is their interest to work with me and not against me, and that they will help me in every way they can, as I intend to do with them.

I beg to return you my sincere thanks for the manner in which you have received me, and I trust that the hopes expressed by Mr. Chadwick will be more than realized."

A bottle containing some coins, local newspapers, and a parchment scroll was then placed in the cavity beneath the stone. The scroll contained the following inscription:—"The foundation stone of the Whitworth Hall was laid by the donor, Benjamin Whitworth, Esq., of Manchester, the 24th day of May, 1864. W. J. Barre, architect; Thomas Creaser, builder; Henry McConnell, clerk of the works; James S. Healy, hon. secretary of the committee."

The stone was then lowered, and

Mr. Whitworth, amid the cheers of the assembled crowd, having adjusted it, said: "I declare this stone well and duly laid." He then proceeded to remark that, as soon as the building was completed, he would have it transferred to trustees for the people of Drogheda, and it would be their own fault if they did not make use of it.

The procession then re-formed, and proceeded through Laurence-gate, and along the road a distance of half a mile to Greenhills, for the purpose of turning the first sod of a weaving-shed and cotton factory, which Mr. Whitworth proposes to erect. The site, which is situate at the foot of a hill, was decorated with flags and banners, and covered with a dense throng of spectators. Mr. Whitworth having arrived on the ground, cut three sods successively from the sward, wheeled them severally along some planks laid for the occasion, and deposited them, amid much cheering, at the further end. He then said he hoped, before nine months had elapsed, he would have the pleasure of meeting them there again, or many of them, to open this building. If a supply of cotton could be obtained from any quarter, they would find employment for all able to work, for he knew they were willing. He hoped that not only would Drogheda, but the whole of Ireland, be benefited by this movement, and that the people would not be driven out of the country for employment, as it could be found for them at home. He trusted they would soon see the stream of emigration entirely stopped. They should work together, and if so, they would make progress. He could then do much for them all.

A banquet was given in the evening to Mr. Whitworth in the Mayoralty Rooms. About 150 gentlemen were present. After the toasts usual on such festive occasions, the interesting proceedings of the day were brought to a close.

#### NEW CLOCK FOR ST. PATRICK'S.

THE princely restorer of St. Patrick's venerable Cathedral has ordered from Mr. J. W. Benson, of London, a musical clock, which is to be placed in the tower. The following description has been sent to us:

The size and great power of the clock may be inferred from the fact that the dials of copper on which the time will be shown are eight feet in diameter, and that the main wheels are each five feet in diameter. The hours will be struck on a bell weighing one ton and a-half, and the tunes played on nine other bells, varying in weight from five cwt. to twenty-five cwt. The pendulum measures upwards of fifteen feet in length, oscillates once in two seconds, and has a weight or "bob" at its end of upwards of two cwt. For the information of the learned in such matters it may be added that the double lever is reproduced here in combination with a new pin wheel escapement. The clock goes eight days. The framework is solidly made of cast iron, constructed in such a manner that any of the principal parts of the mechanism can be removed in case of need without disturbing the remainder. Its present repertoire consists of four tunes, simple and well marked, which will be performed at intervals of three hours, day and night, viz., at three o'clock, a.m., and at three o'clock, p.m. The clock having struck the hour in like manner to the generality of church and public clocks, will play "Adeste Fideles" twice, with an interval of one bar between the parts. At noon and at midnight it will play the air "Martyrdom" twice, with two bars interval. At nine o'clock, morning and evening, it will play the "Sicilian Mariners' Hymn," and at six, a.m., and six, p.m., "Rosseau's Dream," both airs, as in the former instances, being repeated. The melodies are set, and will be performed at the rate of 56 Maelzel's Metronome for each crotched in the music.

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42, MABOT-STREET.

## ON THE TESTING OF CHAIN CABLES.\*

(Continued from page 99.)

THE Navy test for chain cables is stated to be the result of a number of careful experiments by the late Sir Samuel Brown, and it was adopted by the Admiralty in 1831, when chain cables were fairly established in the royal service. The test adopted by the French Navy is almost exactly the same, and in Russia and the States it is exactly the same, as both those countries use our own measures and weights. Every chain cable is proved by a gradually applied stress of 630 lbs. for each circular one-eighth of an inch of the area of the bolt of which the cable is made, or 11·46 tons to the square inch on each side of the link.

Assuming that a link is subjected in practice to a tensile stress, and as the proof strength is generally fixed at double the working stress, this would correspond to nearly  $5\frac{1}{2}$  tons on the square inch. There is thus a very close correspondence between the working stress assumed for chain cables and the Board of Trade limit of 5 tons to the square inch, imposed about 16 years ago, for both the tension and compression of the wrought-iron of railway structures. The chain cable of a ship is also evidently subjected to impulsive forces. It is true that a ship, when struck by a sea, in most cases merely lifts the weight of her chain, the catenary curve of which thus acts as a kind of water-brake; but a very heavy sea must occasionally bring a sudden pull on the cable, and in shoal water the sudden strain must be almost solely taken up by the resilience of the cable, or rather by the deflection of the series of beams composing the cables. Much security is, however, afforded by the fact that a cable is generally only strained during a brief interval of time. But few cables can stand a sudden nip at the hawse-pipe; and we thus see that lateral as well as longitudinal strength is occasionally required in a cable.

If two one-inch diameter cable bars of average quality, and, say, each ten feet long, be put into the hydraulic press generally used for testing cables, the following appearances will probably be observed:—If new, they will take a very slight set under a stress of about  $1\frac{1}{2}$  tons to the square inch, but if this stress be gradually increased, and alternately eased off and put on several times, the set will not increase until the true elastic limit or proof strength of the material be exceeded. In our case this limit will probably be 12 tons to the square inch, which is thus higher by a little more than half a ton than the 11·46 tons navy test. At the Admiralty proof stress, each of the bars will have a probably total elongation of more than one-twentieth of an inch, and a permanent set of six-thousandths. Beyond this strain the set will very rapidly increase up to, perhaps, two inches, when the bars will break under a load of 24 tons to the square inch. But the phenomenon the most important in its consequences, consists in the contraction of cross sectional area undergone by the bar through the stretch. According to a theoretical investigation by Poisson, the relation of the contractions to the longitudinal elongation should be  $\frac{1}{3}$ ; and Wertheim's experiments led him to believe that this relation should be  $\frac{1}{4}$ . Cauchy, Stokes, Maxwell, Rankine, and Lamé, have also mathematically investigated this question, and have arrived at results differing from those of Poisson, which were founded on a special atomic hypothesis. But the permanent sets that show themselves in ductile bodies, like annealed iron, under very slight loads, and the so-called internal frictions observed by Dr. William Thompson in metals under tension, would cause this relation of contraction to elongation to differ for every different state of a metal. To Kirchhoff is due a remarkably important investigation carried out in 1859, into the relation of the contraction to elongation under tension of hard steel wires—which may be said to approach the nearest to the ideal of a body possessing equal elasticity in different directions. His experiments, conducted with great delicacy, gave a relation of cross sectional contraction to elongation of 0·294. As we have seen, according to the Admiralty tables, a one-inch cable bolt ought to have an ultimate breaking strength of not less than 21 tons 8 cwt. to the circular inch, or more than 27 tons to the square inch, and the link ought only to break at 34 tons. It is, however, very seldom that these strengths are obtained in practice. The ultimate elongations of the bars or the cables are not stated in the Admiralty tables. General Morin relates that the fine charcoal iron, made at Guerigny by the French government, expressly for chain cables, sometimes elongates even more than one-fifth of its original length before breaking, and this amount is probably the utmost that it is possible to give to wrought iron bars.

When the cable itself is placed under the dead pull of the press, it is tested in three different ways. It is first strained up to 11·46 tons in the square inch sectional area across the double section of the link. While for about three or four minutes under this stress, the cable is subjected at different parts of its length to blows from a round-faced hammer. Different sized hammers are adopted in proportion to the size of the chain, and each fathom generally receives one blow. Each link is then carefully examined. Two or three links are broken up to detect, by its bluish tinge, if the iron has been at all burnt in the working, and also make some estimate of the quality of the iron from the surface of the fracture, and the other appearances known to engineers. Some difference of opinion also exists, both in France and in England, as to the amount of security afforded by these tests, and whether the test of 11·46 tons on the square inch, and more especially the blows of the sledge, do or do not injure the cable. In 1855 it was attempted to introduce a compulsory government test in France for the chain cables of merchant vessels. A letter was addressed by M. David, an influential chain cable manufacturer at Havre, to the then imperial minister of public works, advocating a compulsory test, from motives of humanity to the ships' crews, and of public economy. A system of periodical re-testing, for every ten or twelve years that the cable had been at work, was also proposed. The attention of the then minister of the French marine was directed to the statements put forth, and Admiral Hamelin ordered an official investigation of the question. The results shown forth in the report would appear to have proved—at any rate to the satisfaction of the Imperial administration, that—1st. "The proof test of 17 kilogrammes, or even of 20 to 21 kilogrammes per square millimetre of section of the link, is not enough either to prove the good workmanship of the cables or the quality of the iron employed; 2nd. That a higher proof than 20 to 21 kilogrammes cannot be applied several times to cables without affecting their quality; 3rd. That the differences of useful effect between different presses often lead to error with respect to the absolute value of the tension employed. . . . The sum total of these results therefore shows, continues the minister, that, on the one hand, an increase of the proof test would not be of much effect in detecting bad material and workmanship, and on the other, that it would be dangerous to increase the test. The required security can only be obtained in a well-understood system of manufacture; and therefore, besides the test in the press, it is necessary to scrupulously choose the special quality of iron required; to accurately examine each individual link after the testing; to break up any questionable link; and to choose the most skilful and trustworthy operatives." In one word, the minister of the marine did not consider a government inspection of chain cables intended for the French merchant service as a practical thing. It is to be remembered that all the chain cables for the Imperial navy are manufactured by the government.

Now there can be no doubt that the proof of 11·46 tons to the square inch is not enough of itself to test the quality of the workmanship, or, more definitely, the perfection of the welds. For this reason Mr. R. Bowman advocated before the 1860 Committee an increase of the test. It is clear that, as the sides are only tested up to little more than 11·46 tons, and as they would break as only, say 24 tons to the square inch, less than one-half the sectional area of the iron would stand the test if applied only tensionally. As, however, through the cross-bending strain at the two ends, the link slightly tends to assume the shape of a lozenge, the weld is more severely tested than would at first appear. There is a certain difficulty in detecting a bad weld, upon the nature of which some practical light has been thrown by some experiments of Mr. Kirkaldy's on bars grooved round their circumferences. The matter had been previously investigated by the writers on elasticity, but Mr. Kirkaldy was the first to practically test the question. Bars grooved at any particular part down to a given diameter, gave a much higher ultimate breaking strength than bars of a diameter all through equal to that at the reduced part of the grooved bar. The wider parts on each side resisted the tendency to draw out, and a great apparent strength was thus obtained. The extent of this apparent gain was as much as 37½ per cent. in some of the pieces, while the average gave 18·63 per cent. in favour of the grooved specimen. Here again we see the falsity of taking merely the breaking strength into account, for although the breaking strengths were thus increased, the elongation, and the contraction of area attendant on elongation, were proportionately less. It will thus be seen that a bad weld may be impaired by a strain in excess of the elastic limit due to the quality of the iron and the cross sectional

area of the solid metal, and that, although it is thus injured, it may not show signs of the injury. On the other hand, some security is given that a bad weld may be detected, from the fact that rolled iron is well known to be somewhat hardened by being hammered, and the welded-up side of the link would thus be less extensible than the opposite parallel side, and would thereby be rather more strained. It is evident, however, that though the test can scarcely be too high for the welds alone, the proof of more than fourteen tons to the square inch, proposed by M. David, would clearly be too high for the cable. M. David, indeed, stated that he tested his cables up to this amount, but it appears that the pressure he used was not accurately measured. Indeed, there is no doubt that very few cables would stand the ordinary proof if repeated sufficiently often, or if it were put on and eased off a succession of times, upon the plan shown by Dr. Rankine. As it is, the permanent set taken by cables is, on an average, from 4 to 6 feet in 90. But the best proof that this single application of the test for a short time does not injure good chain cables, is seen in the fact that it has been adopted all over the world for more than thirty years. We are, however, in a dilemma. To increase the proof would evidently be to injure the link, while the detection of a bad weld has, in any case, to encounter the difficulties just mentioned. These questions can only be met by a most careful inspection of each individual link. The quality of the iron can also be very closely tested by breaking up two or three links. The most searching test, however, are the hammer blows given while the chain is under tension. Adapting a well-known and excellent illustration, this will be at once evident when we remember that a  $1\frac{1}{2}$ -inch chain cable, made of glass, would give the same ultimate gradually-applied breaking strength as a one-inch iron cable—but it would not be likely to stand the hammer test. On the other hand, a cable of india-rubber, although not to be broken by the hammer, would at last be torn in two by the press. In fact, the hammer test approaches nearer than any other to the kind of work that will have to be done by the cable when at sea. Besides, the mere form of a chain renders it, *per se*, liable to continual shocks and jerks, and this must be encountered by a special quality of material, and that this material has really been used must be shown in the proving house.

Mr. Pope, the surveyor for Lloyd's at Liverpool, gave it as his opinion, before the Committee of 1860, that the navy test was too high, and had a tendency to injure the chain. This might be true for a chain of a bad material, but not for a chain made of iron with the high elastic limit that should alone be used for chain cables. He proposed to test a short piece to destruction, and then to test the entire chain to half the Admiralty proof. Apart from the expense and destruction of material by this proceeding, there can be little doubt that half the usual test would not detect all the bad welds, and the distinctive peculiarity of a cable consists in the fact that a single bad weld is sufficient to cause the entire loss of the chain.

As we have seen that a cable consists substantially of a series of small curved beams, it would be only a natural inquiry to ask why the sum total of their deflections, represented by the temporary elongation of the cable, and why the total permanent set should not be both registered, and be both taken into account when estimating the quality of a cable. There are, however, several influences that would greatly disturb an accurate deduction. It might, at first sight, be supposed that the defective welds would elongate in the inverse ratio of their areas of solid metal to that of the links. This, as we have seen, is not the case, and even if it were the case, the action would affect the deductions therefrom by variable and uncertain quantities. The links will also bed against each other to an amount given by the hardness of the iron. There can be no doubt that the extension must be taken into account with the breaking weight, when the quality of a bar has to be estimated. But even with bars this varies considerably, not merely in different qualities, but also, as was shown by Mr. Kirkaldy, in specimens of the very same brand. These results were also obtained under tensional stresses alone, and when we come to the combination of transverse, tensile, and directly compressive stresses to be found acting on a link, the varied ways in which these stresses act on varying qualities of iron would scarcely render the deductions from the elongations and set sufficiently trustworthy. Again, to take an extreme case, if one half of, say, 50 fathoms of cable were made of a very bad kind of iron, and the other half of a very good quality, it would be difficult to draw any right deduction from these appearances. As it is, however, the permanent set is generally registered.

There is probably no metal the strength of which is influenced in such a remarkable way by tempera-

\* Paper read on Wednesday, May 4, 1864, at the Society of Arts, by Frederick Arthur Paget, Esq., C.E.

ture as iron. As M. Baudrimont showed in 1850, the tenacity of iron is less at 100° C. than at 0° C., but at 200° it is greater than at 0°, and these results have been exactly confirmed by Dr. Fairbairn in some experiments on boiler plates, communicated in a paper to the British Association. At yet higher temperatures this tenacity is of course diminished; and Seguin has shown that iron, the tensile strength of which could be represented by 100 at 10° C., had this tenacity lowered to 90.5 at 370° C., and to 58.7 at 500° C. In the royal dockyards of Woolwich and Portsmouth the atmospheric temperature during the testing of each anchor or chain is carefully noted, although the proving houses themselves are kept at a mean temperature of 56° Fahr. by means of stoves, which also thus save the water pipes from freezing. This temperature of course falls a little during the winter and rises in summer, as the heat in the shade generally varies in England from about 76° to perhaps 34° Fahr. The action of frost on iron has not been completely investigated; and Dr. Percy recommends that some accurate experiments on the question be undertaken by the Institution of Civil Engineers. The daily observation of practical men has, however, as in so many other cases, preceded the deeper investigations of science. All workmen know that their tools, such as picks and chipping hammers, which have to undergo percussion in frosty weather, are then more liable to get broken. All chains are well known to be more subject to snap under the same circumstances. There is always a notorious increase of accidents through breakages, both in the permanent way and rolling stock, of railways during frosty weather. It is stated that during the severe winter of 1860-61, 498 rails were broken on the Chemin de Fer de l'Est, from the 11th December to the 31st January inclusive. No less than 258 were broken from the 21st to the 25th of January, during which period the thermometer descended to -7.8°, and even to -16° centigrade. General Morin relates that during the northern campaigns of the first empire the artillery veterans used to believe that wrought-iron was subject to freezing, and after the long winter bivouacs they never began their day's march without striking the gun-carriage axles in the direction of their length, and the vibration thus produced was said to "thaw" the iron. An intense cold is also said to have enabled the French garrison of Hamburg to disable the cast-iron siege guns, by knocking off the trunnions before evacuating the place. Mr. Lenox stated, in evidence before the 1860 Committee, his belief that a cable would stand a test in warm weather that it might not in cold. The crews of the fishing vessels on the coast of Nova Scotia find that the cold renders their cables so brittle that a length of hempen cable is used for the portion out of the water, while the anchor end is kept from the vicissitudes of the atmosphere by the usual average temperature of the sea. A few experiments made by Mr. Kirkaldy showed that the breaking strength of a bar is slightly reduced by freezing when a gradual breaking load was applied, but that this difference between a frozen and an unfrozen bolt is much more increased by a suddenly applied load, being 3 per cent. less when frozen. The usual way adopted by French engineers to test rails is, as we have seen to prove a percentage of the lot by means of a falling weight. Some tests were carried out a few years ago by M. Couche, on a number of rails, of very good quality, from the Anzin works. The monkey weighed 300 kilogrammes, and the distance between the supports was 1m. 10. When the thermometer varied from -4° C. down to -6° C. the weight had only to be raised, in an average of twelve experiments, to a height of 5ft. 6in. in order to break the rail; but when the thermometer rose from +3° to +8° C., then the weight had to be lifted for a fall of 7ft. 9in. Similar experiments, conducted in 1860, showed that a difference of temperature from -4° to +5° Centigrade was sufficient to greatly influence the height of fall necessary to break the rail. It is not unnatural to suppose that the particles of iron, after being worked at a heat and allowed to cool and set at a medium temperature, should, when that temperature is lowered, get into a state of mutual strain; or that any initial mutual strain should be thus intensified. The toys made of suddenly cooled glass, known as Prince Rupert's drops, are exaggerated instances of a similar action. The outside portions of a bar of whatever size, would evidently cool and consequently contract first of all. The inside portions would also at last cool, but, having kept the outside portions distended, when the inside does cool, it then becomes a question, to be determined by various circumstances, whether it would pull the outside shell into a state of compression, or whether the outside shell will draw the inside into fissures by tension. A somewhat similar explanation is given by Mr. Mallet of the rents caused in the interior of very massive forgings, and this state is probably always induced by the conditions of

cooling in a small bar, but with, of course, a smaller range both as to size and temperature. In any case, it is apparent that a ductile, elastic material ought to be less affected by these doubtless complicated conditions of tensile and compressive strains. It is, therefore, probable that a hard, harsh, iron would be more affected by frost than a soft ductile iron, and also that the breaking strength of both qualities would be less affected by cold than their extensibility. It is even by no means improbable, though the fact would be difficult, or at any rate very expensive, to prove, that the breaking weight, or the elastic limit, or both, of iron, is or are different for every degree of heat. A bar is perhaps cooled down in the rolling shed the medium atmospheric temperature of, say, 52° Fahr. At a lower temperature—at a temperature, for instance, of 32° F., its static breaking weight is increased, but its power of elongation under stress is probably diminished. At, say, boiling point, its breaking strength is diminished, but its power of elongation is increased. These remarks to some extent meet the results of Baudrimont and Fairbairn. Unfortunately, Baudrimont has not recorded the elongations, and his experiments were made on wires only one millimetre in diameter when at a temperature of 16° C. Dr. Fairbairn did find that the elongations of plates increased very closely with the temperature, but his experiments are not sufficient in number to be taken as conclusive; and, as Dr. Percy remarks, many more experiments are required on the action of frost on iron. If it could be shown, for instance, that the crystals of iron expand to different degrees in their different axes, this would probably, *per se*, meet the scarcely-to-be-doubted fact that iron is rendered brittle by frost. As the chain cables of a ship are alternately exposed to the utmost extremes of atmospheric temperature, this question is here of peculiar importance.

The question as to the re-testing of cables that have been in use for a certain time is yet unsettled, but the inquiry is of scarcely less importance than that of the first testing. There are many applications of wrought iron in which it is subjected to impulsive stresses, often more or less accompanied by vibrations, and in which, nevertheless, the detail or structure has to conform to certain narrow limits of size and weight. Such is the case with most applications of chains—for instance, to cranes, inclines, forge-slugs, &c. Such is the case also, more or less, with railway axles; the axles of carriages on rough common roads; the gags of helve hammers; the porter bars fixed to the blooms whilst under the hammer; the iron wires of some piano-fortes; and many similar applications of wrought iron. The simple fact that only one-half of the gradually applied stress required to produce the proof strain will, if applied suddenly, of itself produce the proof strain (which if exceeded would injure the piece), goes a long way in explaining the matter. Where great interests of life and property are involved in the safe action of these applications of iron, the irresistible logic of facts has sometimes caused preparatory allowances to be made for these "fatigues of the metal." The axles of the London omnibuses are stated to be always renewed after having run a certain fixed mileage. This system is also carried out with the carriages of the Messageries Générales, the axles of which are changed after having run a limit of 40,000 kilometres. The Honourable the Corporation of the Trinity House entirely renews all the moorings of the light-ships every four years—one-fourth of the number yearly. This limit of time gives the measure of the perfect efficiency of a good cable, well proportioned to its work, and in constant use day and night. Cables in ordinary ships are of course much less, or rather much more slowly, subject to deterioration. We have seen that M. David fixed the time after which a cable in ordinary use should be tested at ten or twelve years. Mr. Macdonald, of the Liverpool testing-house, stated, before the 1860 Committee, that he would examine a cable after any long voyage—such as to India or Australia. The late Mr. Green, the great shipowner, explained that this was done with the mooring tackle of all his ships. An experienced pilot, Mr. G. J. Thompson, said that it should be made imperative to re-test chain cables every six years, and Mr. Smale fixed this limit at seven years. Mr. J. R. Clarke, however, the chief clerk of the store office, stated that there were many sound cables in store twenty years old. It is clear that it would be very difficult to fix a limit of time that could be applied to all classes of ships. The cables in the royal ships are scarcely so often or so severely tried by use as those of some merchant vessels. A cable might remain good for many years, and yet at last be injured in a single storm. Apart from accidents, such as abrasion on rocks, or against a sharp-cornered anchor stock, or similar causes, there are three main conditions affecting the duration of cables and furthering their progressive deterioration under wear:—1st, the friction

and abrasion at the crowns; 2nd, rust and corrosion by the sea water; 3rd, undue strains on the cable, and in excess of the compressive and tensile elastic limits of the materials. The average amount of abrasion and consequent wear at the crowns could only be determined by a statistical comparison of the deterioration of a number of cables, worked under similar circumstances, through a certain period of time. No full observation of this kind seems to have been yet made. The same appears to be the case with the deterioration of iron cables by rust and corrosion. Mr. Mallet has observed, "that the metallic destruction of corrosion of iron in sea-water is a maximum in clear sea-water of the temperature of 115° Fahr., that it is nearly as great in foul sea-water, and is a minimum in clear fresh river-water." It also appears that, the finer and more equable the quality of the iron, the slower is its corrosion. The alternative action of the air and the sea-water in ordinary cables must have some influence on their deterioration. Again, at a depth of, say 100 fathoms, there would be a pressure of nearly 17 tons on the square foot, and this pressure would search out any slight crevice, or any slightly defective weld that had escaped the test. It is at these places that the corrosive action of the water is most felt. It is a well ascertained fact that the spongy mass, of mechanically compressed crystals we call wrought iron, is porous, as water can be forced through it at comparatively moderate pressures. It is also well known that the hydrated oxide of iron we term rust performs the part of an electro-negative element when in contact with metallic iron, which is then electro-positive. When iron is rusting in the air, the moisture of the atmosphere is the exciting liquid, but this voltaic action must be greatly intensified in the presence of sea-water. I have noticed the interesting fact—which deserves more investigation than I have yet been able to give to it—that in the links of a great number of chains the wrought-iron is much more eaten away at the sides, where it is in contact with the cast-iron cross-stay. The same action was stated, in a number of the *Times* of last year, to have been observed on the wrought-iron tie-rods in contact with the plates of a cast-iron sea-water tank which burst last June at Woolwich. I had lately occasion to examine a number of old chains, after they had been cleaned, and after the rust had been knocked off with the hammer. All the cast-iron cross-stays, almost without an exception, were slack. Each link was thus temporarily reduced to the condition of an unstayed link, the ultimate strength of which, compared with a stayed link, is generally taken to be in the ratio of 7 to 9. When the cable is in use, the progress of this undoubtedly voltaic action in weakening them will be aided by mechanical causes. The rust generated between the cross-stay and the sides of the link will be more or less washed out by the surge of the cable; a sufficient longitudinal stress would cause the virtually unstayed link to collapse on the stay; the sea-water would again search out the chinks; would again decompose the material; and the deterioration of the cable thus chemically and mechanically weakened, would progressively advance in successive increments that would render its ultimate destruction a mere matter of time. This action would be, of course, more felt in a cable in constant use, such as those of the Honourable the Corporation of the Trinity House; and whether zincing, which is stated by Dr. Parry to prevent rust, would be of any use, or whether other means, which will doubtless occur to many here, might prevent, or at least modify, this action, is perhaps a question worthy of investigation by the able men comprising the Trinity Board. There is, however, no need to search amongst the mysterious forces of nature for the main cause that leads to the ultimate destruction of a cable or of any other application of iron, under like conditions. The primary cause of the destruction of a cable is simply due to the limit of elasticity of its material being exceeded. All chains are, by their very structure and special uses, subject to jerks and shocks; any country blacksmith knows that a chain that can stand a dead pull, would give way under the same weight if suddenly applied; and we all know that a careless labourer at the winch-handle of a crane sometimes breaks down a good chain by a heedless jerk. Little more than 5½ tons to the square inch, if suddenly applied, would at once bring on the proof strain of 11.46 tons; and although the dead weight of a cable is its great safeguard—so much so, in fact, that if the cable out of the hawser could be weighted at different parts of its length, this would be an advantage—yet, nevertheless, the safe load of about 2½ tons, under an impulsive stress, to the square inch, must be often exceeded in practice. The safe load under an impulsive stress is in truth rather less, as the assumption is based upon the usual notion, which assimilates a cross-stayed link to a couple of bars.

(To be continued.)

## ROYAL DUBLIN SOCIETY.

At a meeting of the above society, held at eight o'clock on Monday evening, the 23rd ult., a very interesting paper on "The present state of the sea fisheries of Ireland, and with reference to trawling," was read by Mr. W. Andrews, M.R.I.A.

GILBERT SANDERS, Esq., in the chair.

Mr. Andrews said that the paper had been suggested to him by a meeting which had been held at the Custom-house, on the 26th March last, with the object of settling the disputes between hook and line fishermen and trawlers. At all the inquiries which had been made about the east and west coast of Ireland, the evidence given on both sides was so contradictory that no decision could be arrived at between the conflicting statements. Mr. Andrews then, with the view of elucidating the question, proceeded at some length to explain the nature of the coasts of Ireland, the reasons, and the habits of the fish, with an interesting description of the boats employed in taking them. He gave a minute description of the canvas used by the Clare fishermen, and said that it was astonishing in what frightful surf those hardy fellows will land on the beach. He also exhibited diagrams of the kind of boats used by the Galway fishermen; they have but a small platform "aft," and a much smaller one as a forecabin; but no shelter whatever for the men, and therefore not at all fit for severe weather. Although it was attempted to be shewn by the line men, that the nature and soundings of the east coast were such, that the trawling boats destroyed an immense quantity of spawn and young fry, yet the habits of the different kinds of fish, and the character of the ground upon which those fish spawned, were not taken into consideration. The paper showed the nature of the reefs and ledges of the rough grounds upon the east coast where these different kinds of fish frequented to spawn, and also in Dingle and Galway bays. The nature of these coasts were such, that large trawl boats especially could not work in the depth of water shown, nor upon the kind of ground the fish frequented when spawning. The contrary was the effect of the small shore-boats using pole-trawls by seines, and especially by net-waders, which, in shoal water and on the sandy beach, constantly drew on shore large quantities of young fry. The paper then referred to the inquiry of Sir Richard Griffith at Dingle, the result of which was so completely to satisfy that official of the utility of encouraging the trawling class of fishermen, that he at once decided on the removal of the boundary line, and, from communications recently received on that subject from Dingle, beneficial effects of that decision had been greatly shown. It was shown that the fish round the west coast of Ireland were as plentiful as ever, but the means of the fishermen were so limited that boats of sufficient tonnage and capabilities were not to be had by them, so as to keep at sea in the weather necessary for the take of the different kinds of fish. This was strikingly the case with the Claddagh men, and the learned gentleman who is one of the trustees of the society for Benefiting the Condition of the Poor of Ireland, stated that if the gentry of Galway, or those interested in the welfare of the Claddagh men, would come forward to their aid with approved security, their applications for assistance would be at once attended to. He said that the present state of the fishermen was most deplorable, that there were not half enough of boats or gear, and that the poor people in the west of Ireland often contribute their blankets to be sewn together to form a sort of net; and they suffer the privation of want of bedclothes, for nights and nights, for the sake of a few herrings—whatever their share of the haul may happen to be. The London Relief Committee have been very liberal, and have assisted the fishermen greatly, at present £8,000 is distributed among the fishermen of Ireland. The learned gentleman shewed many specimens of soles, gurnets, and other fish which never grow more than two or three inches in length, and which people who know nothing about zoology would call young soles and young gurnets, which they are not. He also shewed a specimen of a sort of sponge which the fishermen in Galway mistake for spawn.

The chairman remarked that the question as to whether trawling was destructive to fishing grounds or not was an open one, and, if the Government would issue any commission of inquiry on the point, he trusted it would prove effectual.

Mr. Good, as the proprietor of a number of trawling boats, vindicated the case of the trawlers, stating that their nets never caught the spawn of flat fish or herrings, and that the herring fishery was never more prosperous.

Mr. Burke thought that limits should be placed on trawling, or the coast would be denuded of fish.

Mr. Hickson, Q.C., said the proprietors were of

opinion that trawling ought to be permitted within the headlands.

Mr. Brady, secretary of the Fishery Commissioners, stated that, under his observation in the bays of Galway, Dingle, Bantry, and Dublin, there had never been the destruction attributed by many to trawling. He would not advocate its prohibition, though he thought it might be limited in shallow waters. Last season 25,000 tons of oysters had been taken in the Wexford oyster-beds alone for English and French markets, and from £1,000 to £1,200 had been paid in Arklow for oysters taken there.

Mr. G. W. Maunsell expressed his opinion as in favour of trawling.

## ROYAL IRISH ACADEMY.

A GENERAL meeting of the Royal Irish Academy was held on Monday evening, the 23rd ult., at their house, Dawson-street:

The Very Rev. Dr. GRAVES, in the chair.

The Rev. Professor Haughton read an elaborate and learned paper in continuation—"On animal mechanics: on the muscular mechanism of the leg of the Ostrich." The paper was purely scientific, both from an anatomical and mechanical point of view, and several of the views were set forth by the lecturer as never having been previously propounded. He had for the illustration of his demonstrations the skeleton of an ostrich, and from that circumstance the dry, scientific details were made comparatively interesting.

Several members having expressed their opinion of the demonstrations, they were referred to the council for publication.

Mr. Eugene Alfred Conwell read an interesting paper, descriptive of remains of a very extensive necropolis, on the peaks of Slieve Calliagh, near Old-castle, in the county of Meath, and which he himself had recently minutely investigated. Not the least curious part of the history of this very remarkable place was, he said, that up to this period it should have escaped the observation of antiquaries, and should have been passed over even by such accurate observers as Sir W. R. Wilde and other antiquaries. He said that there were several cairns in the necropolis. The stones had been partially removed from most of the smaller ones, for the purpose of building fences, thus leaving exposed some of the interior chambers, the flag-stones forming which had been found engraved with very curious devices, rubbings of which Mr. Conwell submitted to the inspection of the Academy, together with enlarged sketches of various descriptions of chambers, and a general field plan of the present appearance of the place, and the relative positions of the cairns. The three largest, measuring each from 120 to 180 yards in circumference, and from 20 to 30 yards in height, had yet to be explored. He urged the thorough and systematic examination of the place, under the auspices of the Academy. Various other tumuli and some very curious subterranean caves, in the immediate neighbourhood of Slieve Calliagh, were also described.

Towards the conclusion of the paper, Mr. Conwell quoted extracts from the "Book of Ballymote," "Annals of the Four Masters," Keating, Dr. O'Donovan, and Professor O'Curry, to show that this ancient Celtic burying place, "on the confines of the Kingdoms of Meath and Ulster," exactly corresponds with all the descriptions possessed of the greatest of all the ancient Royal cemeteries of Ireland—Brugh, the precise situation of which, he said, had not hitherto been satisfactorily established, but which had been erroneously supposed to be near Stackallan.

The paper was referred to the council for publication.

The Rev. Dr. Reeves and Sir William Wilde expressed their disagreement with his theory that the celebrated Brugh was not that on the Boyne, but that to which he had just been referring.

A resolution was passed unanimously, requesting the Academy to ask the Government to take steps for the marking of the heights and measurements of tumuli not hitherto noticed in the maps of the Ordnance Survey.

## THE "CIGAR SHIP"—WHAT NEXT?

ONE of those extraordinary inventions or designs which come to us in such numbers from America, and which occasionally create a perfect revolution among scientific trades, and even among sciences themselves, is just now in process of being tried on the banks of the Thames, at Mr. Hepworth's ship-building yard, near Poplar. This is what is termed a "cigar ship"—that is, a yacht-steamer, the hull of which is immensely long, perfectly round, and which, in fact, precisely resembles the shape of a cigar, with the exception that both ends are very finely pointed, instead of, as in a cigar, only one. The "cigar ship's" hull is nearly finished, and the "cigar ship" itself will be launched completed, with her steam up,

by the middle of August. The vessel is being built as the private yacht of an American gentleman, who has designed everything connected with the ship, and who is having his designs executed in the most perfect workmanship of which wrought iron is capable. Looking at her now, she appears to be nothing more than a gigantic iron mainyard for some vessel of the Great Eastern class, having a rather wide diameter in the middle, and tapered to a mere point of some ten inches at either end. Her length over all is 256 feet, and her greatest width and depth is in the middle, where the circle is 16ft. diameter. Thus, then, her length is 16 times greater than her greatest width. She is built throughout of the finest boat plates, in some parts of steel, in some of Low Moor iron. Her displacement will be about 500 tons, which gives her a little over 300 tons burden, according to builders' measurement. Throughout her entire length she is divided by no less than 13 watertight compartments, and in the engine and boiler rooms is further strengthened by inner rings of angle-iron seven inches deep, which are riveted to the side, and placed as close as at intervals of 3ft. apart. Underneath, instead of a keel, is a broad band of her best Low Moor iron, which runs almost from end to end, and which is about 1in. thick by 3ft. wide, and meant to protect her in case of her taking the ground. Inside is an iron floor, which also runs from end to end, to be hereafter covered with wood, and form, in fact, the lower passenger deck of the yacht. This floor amidships is only about six feet from the bottom of the cylinder, so that overhead there is a roomy cabin enough, much resembling in shape a small railway tunnel. The upper deck is 130ft. long, by 10½ft. broad, and is formed by holding for that length what we may call a square flat topped cover on the top of the cylinder. This cover or deck is 4ft. 10in. high altogether, of which the lower 2ft. is of iron, riveted to the top of the cylinder, and the other 2ft. 10in. of common light wooden bulwarks. She is to have two short funnels, and these and her little deck and a small part of the upper curve of the cylinder are all that will be seen out of water. Her engines are to be three-cylinder, driven at high pressure, turning one steel shaft (made by Mr. Krupp) which runs through the whole length of the vessel, projecting from the five points at each end, where it carries a screw. These screws are to be four feet greater in diameter than the greatest diameter of the vessel—namely, 20 feet, and each is to have eight blades, because, the two points being only, say a foot or so below the water, four of the blades of each screw will always be out as it revolves, while there will always be four of each immersed to do the work of propulsion. In fact, we cannot better describe the general shape of the ship and its mode of progression when at sea than by likening it to a porpoise with a tail at each end. Under each screw is a rudder, and by steering with both the vessel can be turned as on a pivot. Her boilers, like all the rest about this vessel, are on a new plan. There are four of them on the locomotive principle, with vertical tubes. A blast fan is to give them draught, and they are to work at 150lb. pressure. This is a great pressure, but it is asserted that they could be worked up to 1,000lb., or even 1,100lb., with safety. There are 136ft. of fire-bar surface, and it is expected that with the aid of the blast fan each of these 136ft. can be made to burn 50lb. of coal per hour. If the furnaces can accomplish this, then, according to the rules which give one nominal horse-power for every 2½lb. of coal consumed per hour, Mr. Wienan's yacht will be working at more than 2,500 horse-power, and this, with her slender form, smooth surface, and very small midship section (only 100ft.), should give her extraordinary speed.—*Times*.

The *Daily News* of May 29th, in its description of Benson's Great Clock, says: "The entire finish is of the highest cast." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bed room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate-hill, London. Branch Establishment, 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H. R. H. the Prince of Wales.

# INAUGURAL CEREMONY OF THE OPENING OF THE EXHIBITION.

On Wednesday, the 25th ult., the ceremony of the opening of the Royal Dublin Society's Exhibition, took place, the prospect of which had for a long time previously excited the interest and raised the expectations of the citizens of Dublin, and it may be safely said that the most sanguine anticipations were more than realized in every point of view, whether it was in the rapidity with which the unpicturesque space so recently devoted to an agricultural exhibition was converted by the indefatigable exertions of the committee into a palace of industry, in the truly national character of the articles with which the hall was adorned, in the beautiful harmony and faultless execution of the music that was composed expressly for the ceremony, or in the distinguished and fashionable assembly who graced it with their presence. The only cloud with which the brilliancy of the performance was shaded was occasioned by the absence of his Excellency, who is ever wont to be foremost in aiding every national undertaking with his patronage and countenance, and whose address had been looked forward to by many as one of the most pleasing features of the ceremony. Up to the time fixed for its commencement the most active preparations were being constantly carried on, and so much was there to be done in the space of one short month from the time when the hall was first handed over to the Exhibition Committee that it was even predicted by some that the preparations could never be completed in time. How little ground there was for such anticipations was abundantly proved on Wednesday, when few could have believed in the identity of the place which such a short time before had been devoted to the display of horses and cattle, in the rapid and wonderful transformation which had been effected. The success of these alterations, we may observe, was mainly due to the skill of the architect by whom they were planned, Mr. Joseph Maguire. The preparations of the workmen were all completed before noon, and at one o'clock the doors were thrown open to the holders of season tickets. From that time until the commencement of the ceremony crowds continued to pour in, when there could not have been less than 4,000 persons present. The band of the 11th Hussars was present and played several airs at intervals. Considerable interest was also excited by the performance of a peal of eight bells, which were placed in the area in front of the Society House, from the establishment of Mr. Murphy, bell founder, of Thomas-street. The bells were performed upon by the players of Christ Church, and the clear notes of their chimes produced a singularly pleasing effect. The arrangement of the hall, on being thus thrown open for the first time had a tasteful and imposing effect. Immediately on entering the eye was arrested by a huge circular iron structure, being a lighthouse composed of cast iron, which has been recently constructed by Messrs. Edmundson, by order of the Ballast Board. On passing this a pleasing effect was created by the stands of jewellery, lace, poplins, and ornamental work with which the centre was decorated, interspersed with more massive specimens of chimney-pieces, grates, and iron work displayed at the sides, until the view was terminated by the handsome organ erected by Mr. Telford, in front of which a graduated platform was placed for the accommodation of the orchestra, and in the centre a raised dais provided with seats for the special accommodation of the most distinguished guests.

At half-past three o'clock precisely the sound of trumpets and the pealing of bells was heard outside, and immediately afterwards the Lord Chief Justice of Appeal, Senior Vice-President of the Royal Dublin Society, entered the hall by the north transept, accompanied by Lord St. Lawrence, state steward, his Excellency's deputy on the occasion, the Hon. George Handcock, the Very Rev. Charles Graves, D.D., F.T.C.D., and other members of the household. They were followed by the Right Hon. the Lord Mayor, who was preceded by the City Marshal, the sword and mace bearers, and accompanied by his private chaplain, the Rev. Mr. O'Connell, by his private secretary, Michael Angelo Hayes, Esq., R.H.A., and by the Lord Mayor of York, the Mayor of Cork, and three officers; the Mayors of Manchester, Londonderry, Sligo, Wexford, Waterford, Limerick, and a number of the municipal council of the city of Dublin.

After the National Anthem had been performed, the Hon. George Handcock, addressing the chairman, expressed the regret felt by the Royal Dublin Society that his Excellency the Lord Lieutenant was unable through indisposition to attend, a regret in which he felt certain that every one in the room would participate. He then observed that his Excellency had sent Lord St. Lawrence as his representative, who would receive the address on the part of the Royal Dublin Society.

After the National Anthem had again been sung, Mr. Maunsell rose and said:—

Before reading the address, which it is my duty to do as secretary of this society, I would ask to supplement, by one or two observations, the remarks of the Hon. Mr. Handcock. Pursuing the course which has

raised this society to its present position in public confidence, as the exponent of industrial and agricultural progress, the Royal Dublin Society again comes before the community at large with an exhibition of which all we ask for it is, that it shall be equal to those that have gone before it, that it shall confer the same industrial advantages on the community at large, and that it shall leave behind it marks entitling this society to a still higher position in the great branches of industry which we seek here to set forward. The honour of co-operating in this great work belongs to us all, but the responsibility of failure would have devolved upon a few. It is on behalf of those few—the men who have worked the oars while the great body of the society were but lookers-on—the men who filled the responsible office of committeemen—the men who have laboured here early in the morning, and often as late as midnight, to bring the Exhibition to the crowning point which is here disclosed—it is on behalf of these men that I would ask the approbation of this great meeting, comprised not only of the citizens of Dublin, and of Ireland in general, but of the representatives of those great manufacturing communities, the great towns of Ireland and the great towns of England, to do us the honour of assembling here to-day. In the foremost list of those who are entitled to be named, I would ask to mention the name of Mr. Andrew Bagot, the chairman of the committee, who has undertaken and brought this great work to its present success. With him have been associated his able secretary, Mr. Walker, and those two standing committees of the society, the Committee of Fine Arts and Committee of Manufactures, who, in the persons of their respective chairmen and members had been untiring in their zeal. One of them Dr. M'Kay, has traversed every part of England and the Continent, collecting that brilliant gallery of modern art which is now within these walls. With him have been associated names which are familiar to every one who knows how art is prized in this country. Mr. Kirk, Judge Berwick, and, if I might add another, I would add the name of Mr. Lindsay, the chairman of that department of the committee, who has been unceasing in his labours here. It is to these gentlemen that the society at large and the country at large are indebted for the magnificent result which is here attained. It not only brings together the industrial produce of this land, but, my lord, with that kind and generous feeling which animates the sister country, she enables us to develop and display here those great improvements in mechanism by which the art and industry of this country shall be advanced still further. It is thus we pursue the progress of development—it is thus we cultivate in this society the principles of order and advancement—it is thus that, in the person of our Lord Mayor, we exhibit the evidences of our national hospitality. And I trust that when this Exhibition closes, it will leave behind it evidences that the Royal Dublin Society is faithful to its mission, and glories in its purposes, and that those who may have doubted whether we filled the position that we do in this country will see ample reason for strengthening our hands, for enlarging our resources, and for encouraging us in the pursuits in which we are engaged. Apologising for these remarks at this stage of the proceedings, I shall ask now to read the address which has been placed in my hands.

Mr. Maunsell then read the following address:—

"Many years ago exhibitions of native manufactures were instituted by the Royal Dublin Society, and their periodical recurrence was not wholly unattended with advantage to the industrial enterprise of the country. The Exhibitions of 1850 and of 1853 (the latter due to the public spirit of Mr. Dargan) were international in their character; that of 1861 was almost exclusively devoted to the fine arts. The present reverts to the practice of our earlier exhibitions, its object being to display the existing state of manufactures in Ireland, to note the progress they have made, and to discern what capabilities the country and the people possess for the development of new departments of industry. The pre-eminence which Ireland has attained in one important manufacture, and the high reputation of some other of our national productions, sufficiently attest that success is not impossible; that the impediments to progress are not insuperable; and that perseverance, skill, and judgment, such as have brought the linen trade of Ulster to its present condition of prosperity, may produce similar results in other fields of labour. If manufacturing industry has languished in the other provinces of Ireland, it has never wholly faded away. The Exhibition contains specimens considerable in number and in variety of manufactures which have always existed, and are still carried on on a small scale. The real excellence and genuine character of most of the goods of this description which have been received from almost every part of the country, and which have held their ground notwithstanding many difficulties and disadvantages, refute the too common prejudice against Irish manufactures, and may well encourage the application of capital and judicious enterprise to their promotion and development. Animated by the

hope awakened by this Exhibition, and with the view of making it as practically useful as possible, the society has obtained through the willing kindness of many English and Irish makers, a collection of the most improved machines used in the various processes of manufacture. Thus it may be seen how ingenuity and improvement in mechanism quicken and cheapen production, and enable skill and enterprise to command the markets of the world. Our Irish manufactures may learn much that will be most useful to them in their several pursuits, while the various machines in motion, worked by steam or water, or by hand, will doubtless prove most attractive to the general public. The Exhibition is, therefore, an humble effort to stimulate and to guide the awakened enterprise of Ireland. It is not the duty of this society to open those economic questions at present so largely discussed; but we may be permitted to say there never was a time when the energies of her people were more needed. If those ties which bind her population to their native land seem weakened, we feel, nevertheless, that emigration cannot be stayed unless extended occupations and new fields of industry be provided, securing constant work and remunerative returns. That the general feeling of the public accords with this view, tending to the extension of manufactures, may be inferred from the promptitude with which our guarantee list rose to more than £10,000—upwards of thrice the sum demanded—as well as from the eager applications from exhibitors for space, far beyond the utmost capacity of the buildings available for that purpose. In deference to a very generally expressed wish a Fine Arts Gallery has been added, which contains many most excellent and valuable pictures of the modern English and foreign schools. To his Excellency, as well as to many other possessors of rich galleries, we are most grateful for the confidence with which objects so precious have been intrusted to our care. Remembering with unmixed satisfaction the distinguished patronage extended by the Prince of Wales to our Exhibition of 1861, and contemplating the auspicious events which have since then occurred in his Royal Highness's domestic circle, the society looks forward with hope that his Royal Highness, accompanied by his illustrious and amiable Consort, may at no distant period afford countenance and encouragement to its labours, by visiting the Exhibition now about to be inaugurated. In conclusion, we trust that peace and plenty may cheer the country during the present season; and that our Exhibition, by the encouragement and instruction which it is calculated to afford to industry and enterprise, may in some measure promote the well-being of our native land."

Lord St. Lawrence read a reply from the Lord Lieutenant, expressing his deep regret at being unable to attend the meeting.

The orchestra, numbering over 200 performers, under the direction of Dr. R. P. Stewart, Mus. D., then sang the following Inauguration Ode, written by J. F. Waller, LL.D., composed by Dr. R. P. Stewart, Mus. D.:—

## STROPHE a.

COME, let us chant our labour-song—

A song of praise:

Let the deep organ pour along  
Its tide of music, full and strong,  
While the hymn we raise.

## ANTISTROPHE a.

With mingling voice

Of gentle maidens and of stalwart men,  
Send forth to heaven a jubilant strain  
Of thanks and laud:—

"In our labour to rejoice,

"This is the gift of God."

## ERODE a.

O earliest-born of man's offence,

When in Eden's tranquil bower

He yielded to the Tempter's power,

And lost his innocence:

When from the Lord went forth the dread decree—

Man, for thy sake the ground accursed be!

In the sweat from off thy face

Shalt thou eat thy bread always:

Thou shalt eat it still in mourning

And in labour all thy days,

Till, thy dust unto the dust returning,  
Thou shalt go down unto the ground, thy resting-place.

## STROPHE b.

Forth unto thy labour

With the morning's light;

Forth unto thy labour

Till the shades of night.

When the night falls deepest

On thy weary eyes;

Even while thou sleepest

The curse is on thee—Rise!

## ANTISTROPHE b.

Labouring still from morn to even—

Labouring day and night—

Is no consolation given,

To make that labour light?

Is there no respite from the curse in store?

Man, must thou labour on for evermore?

## ERODE b.

Lift high the song of praise!

In the light of God's deep love

The labour curse into a blessing turns,

As the black cloud, hung in the sky above,

Out of the night upon the breezes borne,

Drifts into sunlight at the break of morn,

And, flushing 'neath the rays,

In gold and crimson glory glows and burns.



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There were no glory if no cloud were there—  
There were no blessing if no curse were given—  
'Tis still a cloud that glittereth in the air;  
A doom made blessed by the love from heaven—  
Lift high the song of praise!

STROPHE C.

Hail to thee, all-conquering Labour,  
Strong of hand and brave of heart!  
Science is thy meek hand-maiden,  
And thy slave is Art.

ANTISTROPHE C.

Thou subduest Earth and Ocean;  
Fire and Ether own thy skill;  
Thou dost make the wild, fleet lightning  
Speed, obedient to thy will.

EPODE C.

See, with his hundred hands  
Great Briareus, the vapour-giant, toils,  
Submissively to man's commands:  
See how he winds and coils  
Over the wheels the pliant band,  
Moving the vast machinery around.  
Now with a booming sound,  
The hammer falls, and breaks asunder  
Strong bars of iron with a crash like thunder:  
Now the shuttle flies along  
Smoothly through the flaxen threads,  
With a gentle sound that spreads  
Like the sweet music of a song,  
When some young maid the cottage door beside  
Sings to her spinning-wheel at eventide.

STROPHE D.

Dispose, O Art, in fair array,  
The treasures of our native land,  
The work of many a skilful hand,  
To grace our halls to-day.

ANTISTROPHE D.

Teach our sons their high vocation  
Is to vie with every nation  
In each peaceful art;  
Teach them a contest worthy their ambition—  
The glorious strife of labour competition  
For every Irish head and Irish heart.

EPODE D.

And Thou, alike the God of Peace and War!  
To Thee our hearts we raise:  
From Thee all good, all fair, all great things are,—  
To Thee be all the praise.  
Our labour-fruits we lay before Thy throne—  
Lord, sanctify our works and us—all are Thine own.

The Lord Mayor then, in a few appropriate words, formally pronounced the exhibition open, and the ceremony was wound up by the performance of the Hallelujah chorus by the orchestra and choir. A selection of music was afterwards performed by the Constabulary band, under the direction of Mr. Harry Hardy.

We now proceed to notice some of the stands that are deserving of particular attention, hoping to return to the subject more fully in our next number, as there are many objects worthy of notice that it would be premature to describe until the arrangements for their accommodation are completed.

Messrs. Musgrave, Brothers, Ann-street Iron Works, Belfast, exhibit specimens of their celebrated stable fittings, that have now gained a world-wide celebrity, and which for neatness of finish and simplicity of construction, combined with economy, seem to come nearer to perfection than any that we have yet seen. They have been adopted to a considerable extent in France, Holland, Russia, Australia, and America, and have everywhere given permanent satisfaction. The most remarkable features of these fittings consist in the admirable arrangements that have been made to ensure cleanliness and thorough drainage, the floor being composed of raised fire-bricks with a drain fitted with a sliding cover in the centre; a patent safety barrier, for turning the open stalls into temporary loose boxes, being simply a sliding bar which passes through the sheet-post into the stall division, and which, when pulled out, effects a complete separation between the stalls, so that, if a horse should break loose at night, he is completely confined to his own division; a revolving mash-trough, turning upon a pivot, which can be inverted and cleaned with the greatest facility; and a false bottom or iron grating hinged to the back of the rack which sinks with the hay as it is consumed, and prevents waste. A patent harmless loose box is also exhibited, presenting the following distinctive features:—The upper portion is formed of open work, admitting a free circulation of air, and allowing the horse to have a feeling of companionship; the upper half of the door opens separately, to allow of easy inspection; and the door fastenings are flush with the surface, the door being made to fold back quite flat, so that there is no projection that can tear the harness or injure the horse. There is also in the upper part of each stall a ventilating window, which is a most valuable addition, and a swinging lantern, suspended by an elastic band, so that it can be pulled down and adjusted at any time without being detached, and, on being let go, will return to its original position. Messrs. Musgrave also exhibited some splendid specimens of drawing-room grates, and of kitchen ranges, introducing all the modern improvements, also some additions of their own invention; their celebrated slow combustion stove, and a highly-ornamented three-light street lamp, manufactured to order for the town of Belfast.

Messrs. Riddell and Co., of Belfast, exhibit some new patent iron fittings for cow-houses. The object which they are designed to carry out is, that they

present on every side a perfectly smooth surface, so that the horns of the animals cannot become entangled, as they frequently do, in the open bars commonly in use. Each stall is intended to hold two animals. The division and fronts are formed of smooth metal sheeting. The trough in front of the animals is also a decided improvement, having a curved lip turned over to the inside, to prevent the food from being tossed out, and avoiding any sharp projection. There is also in front a patent feeder above the trough for holding hay. It has a longitudinal opening or slit, from which the animal eats, thus preventing the waste consequent on putting it in a trough or in a rack, and keeping the fodder clean and dry. Two open stalls and a loose box are also exhibited as specimens of stable fittings, excellent in their way, and resembling in their general details those which we have just described, while they differ in a few of the minor details. There is also a church window-sash, to show a new and improved material for sash-frames, consisting of zinc, either corrugated or brought to a cruciform section. It is brought to this shape by drawing, like wire, and offers the advantages of lightness combined with great strength; and it is so little liable to the influence of the atmosphere, that it will form a durable window-sash without the necessity of being painted. Specimens of wire for fencing are also shown, of which Messrs. Riddell and Co. manufacture an immense quantity. The cow-house fittings and the zinc material for window-sashes are deserving of particular attention.

Messrs. Edmundson and Co., of Capel-street, exhibit specimens of gas meters, governors, and other apparatus connected with gas-fitting and manufacture. There are dry meters, Mr. Croll's patent, enclosed in glass cases, so as to show their works, which are very curious, yet simple in principle. The large iron lighthouse, in the central hall, has been erected by Messrs. Edmundson and Co., by order of the Ballast Board. It consists of a lighthouse, light room, and lantern of the first order, and is remarkable for the solidity and strength with which its several portions have been put together. It is composed of massive cast-iron flanged plates, with planed, radial joints. The interior is elegantly fitted up, and lined with polished mahogany. The dome is of hammered copper, supported by strong iron framing, and the light is displayed through forty-eight compartments, furnished with half-inch polished plate-glass. The height of the structure is 32 feet, and its diameter 15 feet. Messrs. Edmundson and Co. were the first to establish the fact that metal lighthouses could be manufactured in Ireland quite as good as those made in England or Scotland, and at a less cost. They also exhibit some kitchen ranges, which contain several improvements, and are exceedingly creditable specimens of Irish manufacture.

Messrs. Hodges and Son, of Westmoreland-street, exhibit a complete kitchen apparatus, adapted to a large institution or club-house, the sight of which presents quite an imposing effect. It consists of an immense roaster and smoke-jack, fitted with vertical bars which can be taken out when necessary, a very large hot-hearth, and an oven adjoining it of corresponding size. These three are quite separate and independent of one another, and when placed together form an immense culinary structure. Those whose establishment displays very extensive gastronomic requirements have often occasion to deposit large sums of money on their own premises, and along-side of such a formidable kitchen apparatus a perfectly fire-proof, thief-proof, gunpowder-proof money safe is most appropriately displayed, offering every advantage that the proprietor of an immense sum of money could desire to insure its safety.

In the Machinery Court, north aisle, Messrs. Courtney and Stephens exhibit a case worthy of special notice, containing the different articles used in the manufacture of paper, as carried on by them at Loader's Park Mills, Harold's Cross, and Oldbawn Mills, Co. Dublin, by Mr. James McDonnell. The case consists of four compartments, shewing the different processes to which the rags are subjected previous to their being formed into pulp. Each compartment is subdivided into six, containing as many samples of the different materials that are used; of these the most remarkable are straw and a kind of Spanish grass called "espartero". The four processes to which the raw material is subjected are, first, boiling, then washing, then bleaching, and lastly, beating into pulp, and specimens of each different kind are exhibited after they have gone through these successive stages, the pulp being shewn in a bottle brought to a consistence resembling milk, and in no way to be identified with the rags and straw that are to be seen in the first compartment. There is a roll of paper a mile in length, in one unbroken sheet, being the paper that is employed for the printing of the *Penny Despatch*, and it is deserving of particular attention as being made entirely from espartero grass and straw, it being the first time that this material has been manufactured on a scale sufficiently large to suit the requirements of a newspaper. There is another roll more than a mile in

length, exhibiting the paper upon which the *Freeman's Journal* is printed, it is manufactured from an admixture of all the materials that are exhibited in the case. These two reels were manufactured at the Oldbawn Mills. There are also two others exhibiting the paper that is used for the *Daily Express* and for the *General Advertiser*, which is made from a combination of all the different raw materials exhibited except straw, which is not used in Loader's Park Mills, where this kind of paper is manufactured. The specimens of paper exhibited are alike creditable to the proprietors, and to the workmen employed in the respective mills.

An iron water-wheel is exhibited by Messrs. Ross and Murray, of Middle Abbey-street, remarkable for its lightness, and the ease with which it turns. In order to exhibit it in working order, a steam-engine is employed to supply it with water from a tank, and the action of the pumps, as they raise the water from the well beneath, may be witnessed through a bell-glass. There is also a large assortment of brass cocks and taps, some of them of a peculiar construction, of Mr. Ross' invention. They also exhibit a large fire-engine, with all its equipments complete.

The boiler of the large steam-engine by which the whole of the machinery is driven is well deserving of notice; it is invented and patented by Mr. Elson, of Manchester; its peculiar novelty consisting in its being formed of a great number of small tubes, each containing such a small quantity of steam, that, were it to burst, it would not cause any injury in its neighbourhood. The experiment has been actually tried. The danger that accompanies steam-boilers is, by this means, almost annihilated. We are indebted to the inventor for the following description of the engine and boiler:—

The engine consists of a pair of horizontal high-pressure cylinders, 12½ in. diameter, 2 ft. 4 in. stroke, 24 horse-power nominal, making 84 double strokes per minute. It is capable, with a pressure of 50 lbs., of working up to 120 indicated horse-power, and is supplied with steam from Elson's patent anti-explosive steam-boiler, of 60 nominal horse-power, which also supplies steam to the whole building. This boiler is designed to dispense with the huge and ponderous vessel in ordinary use, termed a Cornish boiler, which contains from 10 to 12 tons of boiling water, and a pent-up explosive force of from 4000 to 5000 tons. This massive single vessel is here replaced by a number of bottle-shaped tubes or cylinders, each of about 240 times a less capacity than that of the ordinary steam-boiler; the requisite amount of heating surface is obtained by increasing the number of small vessels or bottles. The advantages proposed to be realized by this invention are numerous and extensive—in the first case it is contended that loss of life from boiler explosions may be entirely prevented, for in case of any one of these tubes bursting, there is not sufficient explosive matter to dislodge the brickwork, or destroy the building in which they are situated; secondly, a great economy in fuel is anticipated from the circumstance that of being able to keep all the heating surface clear and free from soot by the action of self-acting scraping gear, and also from an increased range of an expansion of steam in the engine, for it is adapted to any much higher pressures than are attainable by the present form of boiler. Thirdly, a great saving of space is effected, this apparatus only taking half the room of an ordinary boiler. And fourthly, it is able to carry any pressure up to 150 lbs. per square inch with less danger and risk than present boilers carrying 50 lbs. per square inch. These vessels have been proved up to a pressure of 1000 lbs. before leaving the works, and up to a pressure of 100 lbs. at the Exhibition before several of the Committee. There is one of these boilers at work at Messrs. Woolstenhulmes and Rye, of Oldham, by whom the boiler and engine are exhibited, which has burst during experiments on several occasions and did not do the slightest mischief. It is fitted with Sylvester's patent steam gauge, of Dukensfield, Cheshire. The engines and shafting are made by Messrs. Woolstenhulmes and Rye. The shafting is driven by the engine by means of Combe's patent circular band, and is also fitted with Bigerton's patent oil feeder, one on each journal, according as the air in the vessels rarifies. These are very extensively used in Yorkshire, Lancashire, and various parts of England. Mr. Elson is the engineer at the Exhibition building, and will be happy to afford any further information that may be desired. Experiments on the boiler are about to be shortly made, the results of which will be laid before our readers.

The superintendence of the machinery court is entrusted to Mr. Edward J. Cambie, who is most indefatigable in his attention to visitors, explaining the mechanism of the ponderous masses of machinery with which the court is crowded.

We hope in our next number to notice the articles exhibited by Messrs. Kennan and Sons, of Fishamble-street, Dublin; Messrs. Gallon and Lumb, of Leeds; Messrs. Robinson and Son, of Rochdale, near Manchester; Messrs. Thomas Fraser and Co., of Brick Manufacturers, of Belfast, and several others.

## THE ECONOMY OF COTTAGE BUILDING.\*

WITH a view to discuss the object before us in the most practical manner, I propose to consider the subject of the economy of cottage-building under the following distinct heads:—1st. The cost of cottages, as influenced by sanitary requirements and considerations of durability. 2nd. How far the improvement of the dwellings of agricultural labourers may be advanced by a modification of prevailing views, without detracting from healthiness and comfort; and, 3rd. The advantages gained by the labourer himself, his immediate employer, and the owner of the land upon which his labours are expended, by the erection of good dwellings placed in judiciously-selected situations.

It should be premised that the subject under consideration is confined to rural cottages—the dwellings of agricultural labourers and their families—and does not extend to houses in towns, the dwellings of artisans, mechanics, shopmen, and workmen engaged in commerce and trade. To place the dwellings of these two classes of our industrial population on the same footing, would defeat the object we have before us. The economy of the two can only be fairly discussed by keeping them separate: for to look at them in the same light we must assume that urban and rural labourers have the same income and earn the same wages, which is not the case. We should extend these prefatory remarks too far if we went into a comparison of wages, and the profits of agriculture and trade upon which wages are necessarily based; but it may be safely stated that whereas the average wages of farm labourers in England and Wales do not reach 11s. a week, the wages of artisans, mechanics, shopmen, porters, and others employed in towns, amount to at least 24s. a week, arising from the fact that the average profits of trade are at least double those of farming, for which there are, of course, many reasons, the principal one being that the trader's capital is generally turned over more than once in the year, while the farmer's capital is with difficulty restored to him within the year.

The cost of cottages is made the first object of consideration, because it is practically found that, although all persons interested in the question admit the present bad condition of things, very few comparatively are found willing to improve it, for the simple reason that the outlay does not command that direct profit which attends other investments. Decoration and ornament often form serious items in the outlay, and, unfortunately, often detract from utility; but as these are objects foreign to our present purpose, they must be excluded from consideration. Good judgment in cottage-building is best displayed by neatness and simplicity. It is very possible to depreciate the value of landed property by building unsightly cottages, erected in defiance of good taste and in opposition to all rules of proportion.

The cost of agricultural cottages necessarily depends upon the amount of accommodation they afford, and the strength and substantiality of the structure itself. The extent of the accommodation which rural cottages should possess has recently been somewhat arbitrarily determined on sanitary grounds. The miserable hovels in which large families were crowded, and which still unfortunately exist, to the disgrace of our country, have called forth the indignation of all right-minded men, and we have been gradually led to conclude that no cottages are suitable unless they contain five living rooms, of which three are bed-rooms, of prescribed dimensions, with minor offices. The principles upon which these dimensions of space have been determined are not very distinctly acknowledged, as will be seen by an examination of the views of different authorities and the regulations of different institutions. These show that the space considered necessary to maintain health in dwellings varies from 240 to 1,500 cubic ft. for each person.

According to Dr. Arnott—perhaps the greatest authority on this subject as connected with ventilation—the actual quantity of air respired by an adult human being amounts to 300 cubic inches per minute—not quite one-sixth of a foot, or 240 cubic ft. in the course of the day, while the total quantity of air, directly or indirectly vitiated during the same period, is 2,880 cubic ft. Tredgold, however, states the amount of air respired by an individual to be as much as 800 cubic inches per minute, or nearly half a cubic foot, while the total quantity vitiated during 24 hours he considers to be at least 4,320 cubic ft.

These figures are quoted to show the wide difference of opinion which has been expressed by high authorities on the vital point of respiration; and if we examine the views practically carried out at our various national institutions in the space given to each person, we shall find parallel instances of diversity. For example, the space admitted to be sufficient by the police authorities under the Lodging-house Act is 240 cubic ft. per person; in the dormitories of the

barracks of our army the quantity deemed sufficient has been 500 cubic ft., although the Commission on Warming and Ventilation to the General Board of Health urged that this space should be increased to 700 or 800 cubic ft. per man. In hospitals, where extra reason exists for large space, the amount varies from 1,000 to 1,500 cubic ft. each person; in the prisons 800 cubic ft. seems to be the recognised space, and in the model lodging-houses about 550 cubic ft. is given. In spite of this prevailing diversity, experience enables us to adopt with security for cottages the following dimensions of space:—

Height of lower rooms, 8 ft.; height between floor and ceiling of upper rooms, 7 ft. 6 in.

LOWER ROOMS.			
Living room.....	Area, 150 ft.—	Cubic contents, 1200 ft	
Scullery.....	80 ft.—	640 ft.	
UPPER ROOMS.			
Parents' Bedroom....	Area, 120 ft.—	Cubic contents, 900 ft.	
Boys' " " " "	90 ft.—	675 ft.	
Girls' " " " "	80 ft.—	600 ft.	

The ventilation which will render these spaces sufficient is gained by having a fire-place and window in each room, with the door entering directly from the porch, passage, or stairs. Practically, all minute refinements in the art of ventilation are found inapplicable. In addition to these desiderata, each cottage should be provided with a pantry within the dwelling, having a command of a free passage of air through it. The scullery, and not the living room, should have a copper and sink for washing, which should be the property of the owner of the cottage; an oven is a desirable addition, but it is not essential. The out-offices should consist of a small barn, for wood and coal; a privy detached, with facility for emptying it; and an ash-pit, so connected with the privy that the ashes may be used to prevent effluvia. The whole premises should be perfectly drained. All the roof-water should be preserved, and a command of well-water should be provided also. The yard and walks (if any) should be paved or gravelled, so as to preserve cleanliness within the dwelling. These details of accommodation shortly supply the sanitary data upon which cottages of the best class should be built.

To avoid any difference of opinion as to the proper degree of substantiality to be adopted, it should be borne in mind that a very large proportion of the landed property of the country is held by tenants for life, and that it is of the highest importance that all buildings erected by them should have equal reference to future maintenance as to present cost, for no owner is justified—especially if he charges his estate with the cost—in putting up buildings of any character which shall be a cause of constant repair. This remark applies to all agricultural buildings, but most particularly to labourers' cottages, though instances are not wanting in which landowners, to gratify a passing impulse, have raised upon their estates a number of flimsy habitations, sometimes adorned with questionable taste, which their successors are maintaining at a greater annual outlay than the rent derived from them.

If a landowner, whose interest in his estate is limited to his own life, desires to borrow money for the building of cottages, in the same way as he is empowered by the legislature to borrow for the building of farm houses, or as an incumbent of a living can borrow for the building of a rectory house, he must conform to certain rules. In the case of farm houses and labourers' cottages, these rules are furnished by the Inclosure Commissioners for England and Wales, who are appointed under the several Agricultural Improvement Acts, to protect reversionary interests against the misapplication of money, and to see that cottages, of which the cost is charged on estates, are built according to the rules laid down by them. Objections have been raised by landowners and by architects to the requirements of the Inclosure Commissioners, on the ground that the rejection of home-grown timber is too arbitrary, and that the dimensions of the scantlings are unnecessarily large, but no sufficient reason has yet been recognised for departing from them. It may be a question for owners in fee to consider whether these rules are such as it may be expedient for them to adopt, when not charging their estates, but it will be clear, on examination of the rules referred to, which are printed in the form of a circular, that in all cases of entailed property the conditions recognised by the Commissioners are sound, and ought to be adopted by all tenants for life, whether they borrow money and charge their estates or not. If this be admitted there is the least possible room for difference in the cost of cottages of the same class. Yet there is no subject, perhaps, which has elicited such variety of opinion, and such diversity of designs and estimates. If we examine the journal of the Royal Agricultural Society of England, we shall see conclusive evidence of this fact. In one case, that of Mr. Young Macvicar (prize design 1849), the amount of his estimate is honestly given at £296 9s. 8d. the pair, while in another instance a subsequent prize was given in 1856 for precisely the same object, the estimate of which is £170 the pair.

Were it possible to erect a pair of cottages, with the same accommodation, and with the same degree of substantiality, with such a saving as here quoted, there is no doubt the country would gain a great advantage, but by comparing the details in the two cases, it will be found that if the same prices were paid for labour and materials in each, the latter design, which is represented to be the cheaper by more than £125, would, in fact, turn out to be the dearer of the two. This instance is given to show that the parent Agricultural Society of England, whose desire in offering these special prizes could only have been to forward the object now before us, has been led to award them without that close examination which alone can determine the value of competitive estimates, and the omission of this essential duty has been to retard rather than to advance the progress of cottage building.

The Yorkshire Agricultural Society, having offered prizes for the same object in 1858, received 76 designs for double cottages, to be built at a sum not exceeding £200 the pair; and in 1861 the same society again offered prizes, and received 149 plans for double cottages not to exceed £220 the pair, and 69 for double cottages not to cost more than £180 the pair. Upon these competitions two very careful reports were written by Mr. C. W. Strickland. In that of 1861 the prizes were awarded to Messrs. Richardson and Ross, of Darlington, for the cottages to be erected at £220 the pair; and to Mr. J. B. Corby, of Stamford, for the plans of cottages costing £180 the pair. They each exhibit very considerable merit, and have been adopted by landowners in various parts of the country. Mr. Holland, M.P., of Dumbleton, contracted with Mr. Hunt, of Eversham, for the erection of several pairs upon the plan of Messrs. Richardson and Ross, whose published estimate was £210 14s. 1d. the pair. They are very well executed, but in some few particulars, such as the use of spruce for the floors of the bedrooms, and elm for staircases, are at variance with the requirements of the Inclosure Commissioners. Mr. Hunt's description of the construction, and his statement of facts, are as follow:—

**CONSTRUCTION.**—The cottages are built with red bricks, made upon the estate, those for the plinth and jambs of windows and doors of back elevation being moulded for the purpose. The dressings to the windows are of Bath stone. The floors to the living rooms and entrance passages are of blue stone, toolled, with steps at entrance and back doors of same material. The floors of sculleries and pantries are of red squares, also made upon the estate. The floors of outhouses are brick on edge. The roofs are covered throughout with Broseley tiles, the gutters and ridges being of same material; the gable ends are filleted with cement. The eaves are spouted throughout with cast-iron spouting, with down pipes of same material, and the water equally divided and conveyed into a tank sunk below the surface to supply each cottage with water. The timbers throughout are red deal, that to the roofs in sight being wrought and stop chamfered. The floors of bedrooms are of spruce deal. The staircases are constructed with elm. The window frames and casement sashes are made of red deal, one compartment in each window being hung. The door frames and doors throughout are also made with red deal. Skirtings of wood to the bedrooms, and cement ditto to living-rooms and passages. Pantries fitted up with shelves. Plastering to the whole of the rooms, except walls of sculleries and outbuildings, those being grouted with lime only. The windows are glazed with thirds sheet glass, and the whole of the wood work usually painted receives three coats. Each pair of cottages are properly drained, gardens levelled, and paths formed and gravelled, pitched causeways at back leading to outhouses and approach gates. The contract amount for the erection of each pair, including every description of labour, materials, and all hauling, was £250 a pair. It should be understood that bricks were near at hand, and charged at 25s. per 1,000; rubble was also obtained from the brickyard, for concrete to foundations and filling to garden paths, at 1s. per cart load. Sand also was had for raising off the estate, also gravel for foot paths, and that the contractor lost £20 upon each pair built. I do not think it possible to build cottages of this description, to cover everything, for a less sum than £270 per pair.—GEORGE HUNT.

Eversham, 6th January, 1864.

Mr. Joseph Yorke, of Fonthampton, Gloucestershire, has erected some cottages on Mr. Corby's plan, the estimated cost of which was £187 11s. 5d. the pair, and he has taken every care, by the employment of his own workmen, to reduce the cost to a minimum. The actual cost, exclusive of extras for ornamental chimneys and window labels, and exclusive of the out-buildings and tank, has been £209 1s. 3d. The work has been since measured and valued by a local builder, and his figures amount to £222 4s. 2d. for the same thing, showing that by the employment of the estate workmen a saving of £13 2s. 11d. was effected. These results prove that,

\* Paper read by J. Bailey Denton, Esq., M. Inst., C.E., at the Society of Arts, May 11.

although a careful examination of the designs was made by the Yorkshire Society, the estimates of the prize designs would not stand the test of practical experience, and that 25 per cent. on the estimates must be added to arrive at the actual cost. These remarks are not meant to reflect upon the professional men who have furnished designs, and who have doubtless expressed truthfully their own convictions, but they are intended simply to disclose facts which have acted prejudicially to the advancement of cottage building. It may be stated in general terms, that where the accommodation afforded is precisely the same, and the same degree of durability is aimed at throughout, there cannot be a greater difference in any designs beyond £10, or at most £15 per pair of cottages, always assuming that the circumstances are the same with respect to the employment of tradesmen by contract, who may fairly claim tradesmen's profit, or the employment of estate journeymen, whereby the tradesmen's profit is saved. The number of cottages built in pairs, with three bedrooms each, within the last ten years, upon the principles respecting accommodation and construction here explained, the particulars of which I have taken pains to ascertain, afford a close approximation to a general average of cost.

Including outbuildings, and the formation of a tank for roof-water, that cost is found to be £270 the pair. This price represents the cost at which a builder will undertake the work, and it is possible, by employing the estate journeyman, to reduce it to £255. This amount will necessarily vary with local circumstances and the cost of materials, and will be increased further by the expenses attending the borrowing of money and the inspection of the Inclosure Commissioners, in those instances where tenants for life resort to this mode of effecting their wishes. This price is independent of the land upon which the cottages are built, which, nevertheless, forms an important item of cost. In the consideration hitherto given to the subject, and in the estimates generally furnished with the prize designs, no notice has been taken of this point, although it is one which must be considered, if we are to regard cottage-building as a proceeding worthy the attention of capitalists as well as landowners. Thus, it is not at all improbable that the total cost may frequently reach £300 the pair. Where a landowner adopts the plan of borrowing money, and undertakes to repay it by instalments in thirty years, with interest, he must look to a return, in one shape or another, of at least 6 per cent. per annum. In fact, under any circumstances, the return, in one shape or other, for cottage-building, should be this per-centage, to render the outlay a discreet one, for cottages are perishable, and the first cost must be regained in a given number of years, to enable the owner to replace them. On a pair of cottages costing £300, therefore, the return to be looked for is £18 a-year, or £9 each cottage. This is equal to 3s. 6d. per week.

The foregoing remarks were written before the issue of the report of Messrs. Hayward, Clutton, and Dines, the gentlemen who have so well and so kindly performed the office of judges of the plans recently sent in to this society in competition for the prizes offered; and, as their decision confirms the opinion here expressed, I cannot do better than quote it:—

"In fine we may observe that although good cottages may possibly be erected, under favourable circumstances, in some parts of England for a lower sum, we consider the probable average cost of a pair of cottages built with the conveniences we have enumerated would be about £280 to 300, and that the attempt to erect them at any considerable reduction upon this amount must result in some inferior kind of buildings, discreditable to the owner, and wanting in much of the necessary accommodation for a labourer and his family."

We will now consider how far the rules generally accepted on sanitary grounds may be modified to meet the varying conditions of the labourer, and thereby secure more extended accommodation. No one can deny that in all cases where families of labourers consist of children of both sexes, it is essential to decency that three bed-rooms should exist, but the possession of this advantage is so often abused, and so difficult to adjust to the actual condition of village populations, that it becomes us to consider whether we are not straining too much after one character of dwelling, while there are others which deserve equal attention, and which if they received it would secure a more perfect fulfilment of our good intentions.

The argument used in favour of building no other than cottages with three bed-rooms is, that there already exist so many dwellings with deficient accommodation that it behoves us to supply a full number with a maximum amount before we descend to less. This view would be sound if it were not known to all experienced men that, owing to the difficulty of allotting suitable habitations to different-sized families, and the impracticability of shifting families already in possession of dwellings to fit prescribed rules, half the newly erected cottages are misappropriated. It is

found, in fact, to require the harshness of positive compulsion to remove a large family out of a small hovel into a full-sized cottage, while a well-to-do labourer, with a tidy wife and no children, will greedily seize a cottage with more bedrooms than he can occupy, in order to secure the comforts of a new structure. The motive which actuates each is explained by the circumstance that while both are equally able to work, the man with few or no children is better able to pay for increased accommodation than the man with a large family. For the same reason, when a labourer with a large family does occupy a cottage with three bedrooms, he is frequently found to crowd his family into two rooms out of the three, and to let the third. It will be readily understood that a labourer without children, when once in possession of a new cottage, may, by letting a part to a respectable lodger, gain increased comfort without any material addition to his rent, and with positive advantage to others. It is for these reasons that the practice of taking lodgers, reprehensible on many grounds, is found to be so difficult to prevent, and that first-class cottages are so seldom appropriated in the way intended. It is known, too, by those who are practically acquainted with the management of estates, that it is not always possible to induce cottage tenants to appropriate the rooms of the cottage to the purposes for which they were intended, and that it frequently happens that while a large family will crowd itself into the scullery and make that apartment their living room, the living room itself is converted into a laundry or an onion chamber. To overcome these several difficulties, however, is the duty of those who possess and those who manage landed property, but it is only by modifying the views at present prevailing, and by the greatest perseverance in enforcing an adjustment, that it can be done.

The modifications to be sought are not the reduction of space in the required rooms nor in the dimensions of walls and timbers, but in the establishment of a better and more certain mode of assorting the dwellings to the circumstances of the labourer. It will not be by any refinements in the mode of building, nor by the substitution of concrete walls for brick walls, nor hollow walls for solid ones,\* that the real difficulty can be removed. The ordinary description of hollow walls are shown in the several drawings on the walls. They are each subject to some objection on architectural grounds, which will be manifest on examination, but as all are found sufficiently strong and durable, and the advantages will outweigh the objections, principle will probably give way to expediency. It is admitted on all hands that the rent due for cottages is the great difficulty we have to contend with; and as a larger structure of equal durability and convenience must always cost more to build than a smaller one, it is self-evident that if we are to adjust cottage accommodation to the requirements and circumstances of farm-labourers, the adoption of one uniform size of cottage is the way to defeat the object. Moreover, as it happens that labourers, having the largest families and requiring the most accommodation, are those that can least afford to pay for it, it is equally clear that we must encourage every other means at command of providing for them than by the erection of new cottages. The alteration of existing cottages appears to be the better way of meeting the difficulty.

(To be continued.)

#### THE ALBERT MEMORIAL IN LONDON.

THE works in connection with this national memorial were last week commenced by Mr. Kelk, to whom the execution of the entire contrast has been entrusted. The site chosen for it is in Hyde Park, almost facing the entrance to the Horticultural Gardens, and on this spot the excavations for the foundation are being made. From the great height (160 ft.), and the immense solidity and massiveness of the Memorial, the foundations have to be taken unusually deep considering the excellent nature of the soil, which is all gravel. Under the centre part they are to be formed of 16 feet of concrete, and no where are they to be less than ten feet. The base of the Memorial is to consist of broad and lofty flights of steps, that give access to the work on four sides, and the work itself is to be no less than 130 feet square. The steps, of grey granite, are to be laid in a double flight with a broad landing between the lower and upper tiers. From this upper landing the memorial proper will rise, the basement being formed of a noble frieze in marble, the figures on which will be in high relief and of life size. The columns which support the spire-like superstructure of the memorial are to consist of groups of four red granite pillars, each 2 ft. in diameter.

\* We may, with benefit, study to increase the labourers' comforts, without increasing the expense in the cost of their dwellings, and this has already been partly done in the attainment of dryness by means of hollow walls. A very good specimen of cottage so built has been erected by the Earl of Pembroke, near Wilton, by Mr. Robson.

Their capitals are exceedingly rich, and will be surmounted with statues of heroic size. The spire, if we may so call it, which closes in the arch, is one of the richest and most elaborate of all Mr. Scott's designs. It will be built of red and grey granite, and the rich white stone known as Darley Dale. The terminal and surmounting cross will be of wrought copper gilt, and this portion of the work is to be executed by the Skidmore Art Company, whose rood screen in the transept of the last Exhibition excited such admiration for its exquisite finish. Beneath the groined arch will be placed the statue of the late Prince Consort. His Royal Highness is represented in robes of state, seated on a chair of state. The proportions of the figure are on a scale which, if the statue were represented standing, would give it a height of 30 ft. The details of this figure and of the other groups of statuary which will surround the memorial are, however, still undecided. The whole work is expected to take four years in completion; and, by the terms of his contract, Mr. Kelk has bound himself to complete it for the sum in hand of £120,000. The laying of the foundation stone will be marked by a public ceremonial, at which the members of the royal family will be present. No date is fixed for this event, which, indeed, is not likely to take place till late in autumn.

#### THE NATIONAL GALLERY.

THE National Gallery was opened on the evening of Tuesday, the 24th ult., for the first time to the public by gaslight. It may not be out of place to say a word about the lighting of the two galleries—the sculpture gallery and the picture gallery. Each requires a different kind of light, so as to display its contents to the best advantage, and, thanks to the ingenuity of Mr. Mulvany, R.H.A., the director, a system of lighting has been designed by him more perfect, it is believed, than that in any similar institution in the empire. The sculpture gallery is lighted by six "sun-lights" of 60 jets each, so suspended and shaded as to produce the very highest and best effect possible. The grand picture gallery is lighted by an oblong frame elevated far above the pictures in the arch of the ceiling, and extending from end to end of it. From this frame project, at a slight angle upwards, nearly two thousand gas-jets, which, when in full blaze, cast down a flood of light so strong and equally distributed, yet so modified as to its intensity by the distance which it falls, that one would almost fancy that night were day within the walls. The pictures under this light show admirably; in fact, if anything, they rather gain than lose in effect under the gas light. These lighting arrangements have been carried out, from the design of the gentleman already referred to, most efficiently by the Hibernian Gas Company.

#### IRISH CIVIL SERVICE BUILDING SOCIETY.

A MEETING of this Society was held at the Northumberland Hotel on Saturday evening, the 14th ult. There were present—P. Keenan, Esq.; Jacob Owen, Esq.; J. Lombard, Esq., J.P.; E. H. Carson, Esq., C.E.; J. A. Gardiner, Esq.; T. Collot, Esq.; J. H. Owen, Esq.; G. F. Dunn, Esq.; W. H. Newell, Esq., &c. The chair was taken by

WILLIAM H. NEWELL, Esq., LL.D.

The chairman stated that the first business before them was to elect a chairman and vice-chairman for the ensuing year, and he therefore called on the meeting to proceed formally to the appointment of gentlemen to fill these important offices. Resolutions were passed, electing to the office of chairman James H. Owen, Esq., C.E., architect to the Board of Public Works, Ireland; and to the vice-chair, Wm. Gernon, Esq., barrister-at-law.

The chair was then vacated by Dr. Newell, and taken by Mr. Owen, who expressed his warmest thanks for the honour conferred on him, and stated that he would endeavour to show himself worthy of this mark of the confidence of the board.

Robert George Faulkner, Esq., was duly elected solicitor to the society.

Messrs. Lanyon, Lynn, and Lanyon, were elected to the office of surveyor.

William Daly, Esq., who had acted as secretary to the society since January last, was confirmed in that office.

#### THE VICTORIA BATHS, KINGSTOWN.

ABOUT £2,000 is said to be at present expending on these baths, which bids fair to be all that is required in Kingstown, great additions and improvements being in progress. It is stated that the harbour authorities offer some obstructions to these additions, on the ground of encroaching on sea frontage, but it is to be hoped that so manifest an improvement may not be dreaded by this circumstance, the baths being a necessity of the place.

## RAILWAY INTELLIGENCE.

## IRISH NORTH-WESTERN RAILWAY COMPANY.

—A special general meeting of the proprietors of the above company was held on the 19th ult., at their offices, 43, Lower Gardiner-street, for the purpose of submitting a bill now pending in Parliament, entitled "An Act for the discharge of debts of the Irish North-western Railway Company, and for authorizing divers arrangements between that company and other railway companies, and for other purposes." The Hon. Cavendish Butler occupied the chair. The Chairman stated the principal objects of the bill. The first was to create a certain first-class preferential stock of £325,380. The second object was to create what was called a dividend compensation stock, for the purpose of meeting an arrear which accumulated during the last half year, before the meeting in November, of £16,258, and with a view of giving the shareholders, who ought to have received that dividend, something as compensation for the funds of the company not being able to meet that claim. The third object of the bill, financially speaking, was to meet the claim of Lord Erne, amounting to £109,645, for which they would remember he agreed to accept on certain terms preference shares. The form in which the bill proposed to meet Lord Erne's claim was in proportion to the assents of parties entitled to dividend—that was for every thousand pounds of acceptance of that £16,500, Lord Erne would be entitled to receive about £7,000 of what was called "compensation stock." That was about the proportion in round figures. He was happy to inform them that upwards of £397,000 worth of assents had already been given—that is, stockholders to the extent of £397,000 had already agreed to accept "dividend compensation stock" for that amount. They thus had a proportion of about £12,000 to £16,500 allowed, the effect of which was to wipe off Lord Erne's debt to the amount of £80,000. Of course the parties who had not yet assented would be called on to do so, and he took that opportunity of urging on them the desirability of assenting. It was of the utmost importance, as the meeting of the 4th of November conceived, that the account with Lord Erne should be settled, and that he should be placed in the position of a shareholder, instead of retaining that of a creditor. On that occasion it was shown that the arrangement would put Lord Erne in the same position as a shareholder, sailing in the same boat. If there was a dividend he would have the benefit of it; if there was no dividend he would get none, instead of having a claim for 5 per cent. on £109,000, as he then had. The next object of the bill had reference to amalgamations with other companies. It was thought desirable to secure power to sell or lease the Cavan and Clones line, if that step was deemed advisable, a power the company did not at present possess. A shareholder inquired what would be the position of those shareholders who might not assent? The chairman said that their existing rights would be reserved—but those rights appeared to him a perfect right—because if a railway could not pay out of the current half year's receipt 5 per cent., it was not likely it could pay an accumulated interest. Government was of opinion that accumulated interest was perfect ruin to any company. Shareholders to the amount of £12,000 out of the £16,500 had assented, and if those representing the remaining £4,000 also assented, that and the assiduous working of the line would lead to a more prosperous state of the company. He (the chairman) should not hesitate, if he owned £100,000 worth of shares to give up the accumulated interest, as he thought there was much more chance of getting 5 per cent. out of the current receipts. As he already stated the bill provided that non-assenting shareholders should have their rights reserved, whatever they might be. He begged to propose that the bill as read be adopted and sealed with the company's seal.

**DUBLIN AND DROGHEDA RAILWAY COMPANY.**—A Wharnccliffe Meeting of this company was held on the 20th inst., in the board-room of the Amiens-street Terminus, for the purpose of submitting to the proprietors a bill promoted by the Irish North Western Company, with reference to the discharge of debts, and for effecting divers arrangements with other companies. The chair was taken by J. W. Murland, Esq. The chairman observed that the meeting was what was called a Wharnccliffe Meeting, which was rendered necessary by the standing orders of the House of Parliament, which directed that when the provision of any bill promoted in Parliament, whether by a company itself or by another company, would affect that particular company, it should have the assent and approval of a certain proportion—three-fourths—of the shareholders, before it could be proceeded with in the other House of Parliament. The bill was promoted by the North Western Company for the purpose of

making arrangements for the payment of outstanding debts, and the only clauses which affected this company were those which made application to enable the Irish North Western Company to make arrangements either of selling, or amalgamation, or leasing, or joint working with the other three companies, that is, with the Dublin and Drogheda, the Belfast Junction and the Ulster Companies. He trusted that the passing of this act with the cordial support of the shareholders would be the means of bringing back the Irish North Western Company into a better position than it was in for some time past. After some observations urging the shareholders to give their approval to the bill, he moved a resolution approving of the bill. He said that there was one clause which had reference to the sale of a portion of the Irish North Western Company's line. It was contemplated by the bill that that company might sell their Cavan and Clones line, and the Belturbet branch, to all or any of the three other companies. The act provided that no such amalgamation of the Cavan and Clones line, and the Belturbet branch, with the undertaking, property, and works of the Ulster Company, should be made without the previous consent of the Dublin and Drogheda and Belfast Junction Companies respectively, except on the terms of the third-class letter C preferential shares being taken off their hands at a price equal to the sum which, at the time of the amalgamation, had been paid to the company. Mr. Jordan seconded the resolution proposed by the chairman, which was adopted, and the meeting separated.

**LIMERICK AND FOYNES.**—A special meeting was held on Wednesday, the 25th ult., for the purpose of considering a bill for the amalgamation of the Waterford and Limerick Railway Company, and Limerick and Foynes Railway Company, and for authorizing the Waterford and Limerick Railway to work the undertaking of the Rathkeale and Newcastle Junction Railway Company, and for other purposes; Mr. William Malcolmson presided. The Chairman explained the objects of the meeting, and advocated the policy of amalgamation, and moved that the bill be sanctioned. Mr. Stephen de Vere condemned the bill. He did not think it fair towards the Foynes Company that such a bill should be moved, a bill which would leave them tied neck and heels—the weaker company at the mercy of the stronger company—the Waterford and Limerick. He moved as an amendment that the bill be approved, but that the clause relating to amalgamation be struck out of it. The amendment having been seconded, was put from the chair, and a poll taken, when there appeared for the amendment, 631; against it, 1,631. Mr. Ambrose (solicitor) stated that, as the votes for the resolution were not three-fourths of the entire votes, the amendment was carried.

**THE KINGSTOWN LINE.**—It is stated that the lease of this line is about to be transferred to the London and North Western Company, the purchase having been made nominally by the Mercantile Credit Association, but really on the part of Mr. Wharton, the contractor, who is at the head of the Dublin Metropolitan Railway Bill. The object of the purchases must manifestly be to lend strength to him in the contest which he is waging in Parliament. The rumour of this purchase has given rise to much speculation.

**DUBLIN, WICKLOW, AND WEXFORD.**—A special general meeting of the shareholders in the above company was held on Tuesday, the 24th ult., at the offices, Westland-row, for the purpose of considering certain bills now pending in Parliament. William Dargan, Esq., D.L., occupied the chair. The Secretary laid before the proprietary the provisions of a bill "for authorizing a deviation and extension of the Dublin, Wicklow, and Wexford Railway, and for other purposes." The chairman said that the shareholders knew that their line was at present at Enniscorthy, and they were probably aware that the bill promoted by the company for an extension to Wexford could not proceed in the House of Lords without the assent of a Wharnccliffe meeting. It was for the approval of their proposed extension that the meeting was convened. There was also a small deviation at Slaney bridge of some couple of hundred yards, for which authority was required. They wanted, likewise, authority to join the line proposed to be made from Waterford to Wexford. They did not subscribe any money to this line, but they gave their assent to its construction, as they believed it would be of great value to them. The chairman concluded by moving that the meeting approve of the provisions of the bill promoted by the Dublin, Wicklow, and Wexford Railway Company, and that the seal of the company be affixed to the same. Mr. Maunsell next read the proposed act authorising the construction of the Waterford and Wexford Railway and of a harbour in Greenore Bay, on behalf of the promoters of which Mr. R. D. Kane, solicitor, at-

tended the meeting. The chairman said that the measure which had just been read appeared to be a very formidable affair; but a very simple explanation to the meeting was that the directors did not propose to subscribe one shilling of money to the construction of the line. They took permissive powers to work or lease the line hereafter if they thought it their interest to do so. They hoped that it would prove a feeder to the Wexford Railway, and that a proper connexion could be established with that line. He moved that they assent to the bill. Mr. Pilkington observed that so far as their future dealings with the Waterford and Wexford Railway Company were concerned, the directors could take no step without the assent of three-fifths of the shareholders.

## SEA COMMUNICATION BETWEEN DUBLIN AND KINGSTOWN.

The advantages of a sea communication between Dublin and Kingstown appear to be now fully established. It is now the third year since the experiment was first tried of running a steamer between these places, and notwithstanding many mistakes and mishaps at the commencement, the result was so encouraging that it was only a wonder that it had not been done long before. Since the commencement of the season the number of those who avail themselves of this agreeable mode of transit has been steadily increasing, and those who at first felt timorous of venturing upon the sea have become convinced, thanks to the skilful management of the captain, that the Kingstown steamer is quite as safe as, and far more agreeable than any other medium of communication. Any question as to the seaworthy qualities of the "Kingstown" was completely set at rest on last Easter Monday, when, although it blew a whole gale throughout the day, she performed her trips with ease and regularity, not being more than five minutes late when steaming against wind and tide. Neither are there any fears to be entertained of that much-dreaded malady, "sea sickness," for the Bay of Dublin is generally smooth, and the time of transit from the Light-house to Kingstown Harbour is so short that, although it were rough, the most fastidious would scarcely have time to be affected by it. Even in cold or rainy weather the sea-passage is agreeable, for the saloons are at the same time warm and airy, and quite free from the oppressive closeness that is often experienced in ship cabins. There are a few trifling particulars which, if attended to, would greatly enhance the patronage which is extended to this favourite vessel. There should, in the first place, be some sort of a suitable waiting-room established at both stations. Owing to this deficiency, many parties are deterred from availing themselves of the "Kingstown," ladies especially, who would never travel by any other way were they provided with such accommodation when driving there of a cold or rainy day. Until this is done, the "Kingstown" will never be extensively patronized by the fair sex, for whose convenience it ought to be a special object to provide; for any place that is once habitually graced by their presence is sure to obtain a leading position in the fashionable world. An enlargement of the wooden houses that form the ticket offices might, perhaps, effect this desirable object. For the same reason separate gangways should be provided for the first and second class compartments; and, above all things, the practice of *smoking* ought to be strictly confined to the portion of the vessel that is set apart for that purpose. A refreshment table would be, perhaps, more advantageous in the first class saloon, and if music is provided, it should be of a little better quality than the brazen discord that is produced by most of the German bands. The necessity of providing a second steamer cannot be too strongly urged upon the directors, as the long intervals between the hours of starting oblige many to return by train. We are informed that great exertions are now being made to hasten the completion of the new steamer, which is being built by Messrs. Walpole and Webb; and that, in the mean time, a supplementary vessel will be chartered. The evening excursions to Ireland's Eye and to Bray, which proved so agreeable last year, have been commenced for the season; and there is, perhaps, no more agreeable manner of passing a couple of hours after the throng and heat of the city during the day, affording, as it does, the best opportunity of witnessing the scenery of a bay that is celebrated for its beauty.

**THE LATE EDWARD HAYES, R.H.A.**—The remains of the above-named artist were consigned to the tomb on Tuesday, the 24th ult., after passing an honorable life in the pursuit of the art to which he was so devotedly attached. We can bear testimony to the simplicity and guilelessness of his character from an intimate acquaintance with him for a series of years. He died in the 68th year of his age, and it is said that anxiety to finish a picture for the Exhibition brought on a relapse from a severe attack of bronchitis.

### THE WINTER GARDEN, EXHIBITION PALACE.

Our illustration represents a view of the Winter Garden portion of the Dublin Exhibition Palace (now in course of erection) as seen from the ornamental grounds at the rear of Harcourt-street. This building consists of a nave 477 ft. long and 50 ft. wide, with aisles on either side 16 ft. 10 in. wide, over which are galleries continued all round the building. There are three entrances at the south end and one at the north, while in the circular transept are several doors opening into a colonnade, over which is an external gallery, forming a most desirable feature, and commanding an extensive view of the pleasure-grounds. Some progress has been made with the erection of this portion of the works, and also with those of the exhibition department situate on the north side of the main building. These works are being rapidly proceeded with, and will in a short time present some idea of their magnitude and beauty. The contractors are Messrs. Beardwood and Son, who are carrying out the works, under the superintendence of Mr. Alfred G. Jones, Architect.

### PHOTO-SCULPTURE.

An ingenious application of photography (says the *Building News*) has been recently made in Paris, to which the name of photo-sculpture has been applied by M. Willème, its inventor. By this process busts and statues of living persons are prepared in plaster and "biscuit," which possess much of that faithfulness and minute accuracy of detail which are so striking in photographic portraits. The person whose bust or statue is to be taken is placed in the centre of a circular apartment, 40 ft. in diameter, and 24 camerae obscuræ are placed along the wall at equal distances from him and from each other. By means of a latch, which raises and drops the slides at the same moment, 24 photographs are taken at the same instant of the sitter. He is thus represented from 24 points of view. There are, of course, six front views, six back views, and twelve side views, so that a clever artist would find in these photographs all the materials for a piece of sculpture to be fashioned by the eye. But this is not the course taken, mechanical processes being adopted which insure much greater accuracy. The negative of one of the portraits is placed in a magic lantern, and the image printed upon it is projected on a large sheet of rough glass. The block of clay in which the model is to be cut is then placed on a revolving stand, the circumference of which is divided into 24 parts. A pantograph is next employed, by which the clay is cut exactly to represent the outline on the glass. When one photograph has been copied, the image of the next is placed in the lantern, and the clay is turned round 1-24th part of a circle. It is then copied, and so on with the 24 negatives. The result is that the block of clay exhibits 24 sides, or facets, representing exactly the outlines of the 24 photographs. Of course there are ridges left which must be smoothed down, and this process is entrusted to skilful artists.

### BOOKS RECEIVED.

*The Boy's Own Magazine; the Englishwoman's Domestic Magazine; the Boy's Monthly Magazine.* London: S. O. Beeton, 248, Strand.

THE two first-named periodicals we have had pleasure frequently in noticing; the third one has reached its sixth number, and it, too, is keeping up the fame acquired by the spirited publisher. When we beheld the price on the "hive," counted the pages, and looked through the beautiful illustrations, we marvelled how it could be sold for *twopence*. Of the valuable and instructive sixpenny worth contained in "*The Boy's Own Magazine*," we perceive that Mr. S. O. Beeton is editor as well as publisher. *The Englishwoman's Magazine* contains some beautiful illustrations in the shape of woodcuts, and an exquisitely coloured "Bouquet for Decalcomaine."

*The British Workman, Children's Friend*, and similar publications, issued monthly by Mr. Partridge and Messrs. Seely and Jackson, are still carried on in their usual instructive and attractive form. We understand their circulation has reached to an almost incredible number.

*The Condensed Argument for the Legislative Prohibition of the Liquor Traffic.* By Dr. F. R. Lees. London: J. Caudwell, Strand.

THIS pamphlet, of 160 closely-printed pages, exhausts every argument on the question of "total abstinence." A few hours might be profitably spent in the reading of it.

*Epilepsy: its successful Treatment and Cure.* By Wm. H. Collisson, M.D.

THE above is the title of a pamphlet issued from the press during the past week. The announcement in the preface that it is a "simple detail of facts faithfully recorded," prepares the reader for what is so clearly laid before him. We shall give one quotation, and we would earnestly direct to Dr. Collisson's work the attention of those afflicted, as well as those whose friends may be subject to the fearful malady:—"Epilepsy in itself is rarely a fatal disease; but whether its advance be rapid or gradual, however varied its character and symptoms, its *ultimate consequences* are in but too many instances of the same painful description. The strongest physical constitution, the most acute memory, the brightest intellect, will break down under its repeated assaults." A number of cases are appended, giving details of those in which Dr. C.'s treatment proved successful.

### Public and Private Works.

Extensive alterations are in progress at Jude's Royal Hotel, Grafton-street. Mr. Joseph Maguire, architect. Mr. Doyle, Temple-lane, contractor.

The establishment of Messrs. G. Yeates & Son, 2, Grafton-street, has been much improved by the addition of a new and extended shop front, besides internal fittings of neat character. Mr. J. McCurdy, architect. Mr. Grant, Pembroke-street, contractor.

Alterations and additions to the house and premises, No. 15, Sackville-street, Derry, for Mr. Holmes, are in progress. Mr. Hugh McGinley, contractor. Fitzgibbon Louch, Esq., C.E., architect.

### General Items.

A tree was recently cut down in California the circumference of which is 90 feet, and its height 325 feet. The tree contained 250,000 feet of timber. Its age is estimated at about 3,100 years. The wood was sound, and very solid.

The average depth of the Atlantic Ocean is set down at 13,400 feet, and that of the Pacific at 18,000. On the western side of St. Helena soundings were made, it is said, to the depth of 27,000 feet—five miles and a quarter—without touching bottom.

The Archaeological congress for 1864 will be held at Warwick from July 26 to August 2, inclusive.

A blue titmouse has built its nest in a letter-box in the front door of a gentleman's residence at New Fishbourne.

### Miscellaneous.

THE NEWSPAPER PRESS FUND.—The inaugural dinner of the Newspaper Press Fund took place in London on Saturday evening, 21st ult., under the presidency of Lord Houghton. The object of the fund is to secure by subscriptions from members, and by voluntary donations and bequests, benevolent provision for members incapacitated through bodily or mental infirmity, and for the widows and children of deceased members. A large number of noblemen and members of the literary profession were present, and subscriptions and donations to the amount of £1,500, including £50 from the Liverpool Shakespeare Tercentenary Committee, were announced.

THE BRITISH MUSEUM.—The annual return to an order of the House of Commons made by the British Museum gives us the sole account of the progress and recent acquisitions of that institution. From that just issued we learn that the cost of the establishment for the current year will be in round numbers, £96,400, against £94,900 for that which is past,—of this £47,400 is for salaries, £3,000 for house expenses,—and £70,300 for purchases, £2,200 for the same, special. Bookbinding and preparing for the Zoological, Geological, Mineralogical, and Botanical Departments cost £10,500; of this handsome sum, £7,000 is for binding printed books, £1,000 for MSS. Printing costs £2,200; buildings, furniture, &c., £11,000. From the above total deduct £4,200, derived from funds in hand, and we have the estimate of sums required from Parliament, £92,100. The number of visitors in 1863 to the general collections was 441,000 (against 895,000 in 1862); there were 108,000 readers' visits (against 122,500 in 1862). Total number of visits, 554,700 (against 1,024,000).

PORTPATRICK HARBOUR.—In reply to a question put to the President of the Board of Trade, respecting the progress of the works at this harbour, he said he believed it was not probable that they would be completed during the present year. The entrance to the floating dock would be ready in about six weeks, and the channel would be deepened in the course of two months.

A CONTRACTOR'S LIABILITIES.—At the Bray Petty Sessions on Saturday last a novel case was decided by the magistrates. A builder, named Rooney contracted with Mr. Brennan for the building of eight houses on Bray Strand; Rooney sublet to a man named Lunney, who, during the progress of the works refused to pay the workmen's wages, his funds being exhausted. On their applying to Rooney, he gave them 10s. each (the debt being 24s., a week's wages), and afterwards kept them at work during a portion of the following week, but declined paying them the arrears due by Lunney. He was ordered to pay the full amount claimed by the workmen.

PERMANENT WAY OF RAILWAYS.—At a meeting of the Inventors' Institute, on the evening of the 12th ult., at 9, Conduit-street, London, General Sir John Scott Lillie, C.B., in the chair, the paper read was on "Inventions relating to the Permanent Way of Railways," by Mr. B. Burleigh, C.E. After alluding to the importance of the subject generally, and the influence exercised on the revenues of railways by the cost of maintenance, the author proceeded to give a general sketch of all the existing systems of permanent way and the improvements which have from time to time been introduced. In contrasting the respective merits of wood and iron sleeper roads, he concluded that certain conditions were indispensable in their construction. 1st. Simplicity of arrangement. 2nd. Durability, which would be best insured by employing good material. 3rd. Stability of construction. 4th. A certain amount of elasticity. 5th. A combination for obtaining the greatest ultimate economy. These conditions being observed, iron appeared to be by far the best material for sleepers. The author concluded by referring to the various causes of railway accidents arising from defects in the permanent way.

GRACEFUL ACT ON THE PART OF EMPLOYERS.—Messrs. A. and N. Hammond (of Drogheda and Dublin) gave their workmen—masons, stonemasons, quarrymen, &c.—a holiday, on the occasion of the laying of the foundation-stone of the Whitworth Hall in Drogheda, in honour of the important local events which were celebrated. The Messrs. Hammond employ over one hundred men, and each man was served with refreshments at his employers' expense.

CHEAP PAINTS.—The essential part of all good paints, properly so called, is linseed oil. Oil, if well boiled, may be applied alone, and affords an excellent protection to hard wood and implements, and upon floors. Sundry substances ground very fine are used to mix with the oil; and in proportion as they thicken the oil and form an opaque coating, they are said to possess "body." A pretty good cheap paint for outside work is made by mixing plaster of Paris with white lead, or zinc white, and grinding them together in a paint mill with oil. Plaster alone may be used, and it is said to form a durable and cheap paint. Of course any colour may be given which is desired.

A NEW STREET-SWEEPING MACHINE.—A New Yorker has patented a machine which, when drawn through the streets of a city or town, will automatically pound and level the surface of said streets, and collect the dirt and dust by an oblique adjustable sweeper and brush, and by means of scoops, and leave it in heaps on the sides of the streets, whence the same can be readily removed by the ordinary dirt carts. This invention will also roughen paving stones when so smooth as to endanger the injury of horses by slipping; it is also useful in winter for abrading ice; while in summer a reservoir is also attached to the machine for the purpose of laying the dust.

The *Times*, September 15, speaking of Benson's Modern and Antique Watches in the Exhibition, says—"As affording the most striking contrast, Mr. Benson shows with these a fresh exhibition of modern watches, with cases made from prize designs at the South Kensington Museum, some of which are fine specimens of engravings." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watch-making, with descriptions and prices, from 3 to 200 guineas each. It serves as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch Establishment, 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

UNITARIAN CHURCH, ST. STEPHEN'S GREEN. A new organ, built by the Messrs. Telford, was used for the first time on Sunday last in the above place of worship.

KINGSTOWN HARBOUR.—Yesterday, May 31st, 47 years ago, the first stone of this harbour was laid by Earl Whitworth.

**FATAL ACCIDENT FROM WINDOW CLEANING.**—On Wednesday last an old man, while engaged in cleaning one of the upper windows in Crosthwaite Park, Kingstown, being obliged to stand upon the window-sill, missed his hold and was precipitated to the pavement underneath, where he sustained such injuries that he only survived half an hour. This case is only one of many similar accidents which have taken place since the commencement of the year. We trust that some improvement will be shortly adopted which will obviate the danger which is thus so constantly incurred, and remedy the inconveniences that are occasioned by the present style of window; an improvement in that department would rank amongst the most useful inventions of the present year.

**DAUNT'S ROCK.**—It is satisfactory to know (says the *Cork Reporter*) that some progress has been made towards marking the position of the now celebrated Daunt's Rock. It is intended that a light shall be exhibited from the lower part of Roche's Tower, which, when completed, will shine with intense brilliancy in the direction of the rock. The merit of the invention is due to Mr. Roberts, R.N., Inspector of the lighthouses and lightships of Ireland. The light is produced from a canticular apparatus of the first order of Fresnel, and a reflector of silver formed by the revolution of a paravola on a centre, in the coincident face of which burns an argand flame of two inches. The apparatus, which is truly ingenious, is now in process of erection under the able supervision of Mr. Sloane, engineer to the Dublin Ballast Board. Mr. Sloane has designed an improvement for the hanging of a fog bell, in conjunction with which, and an adequate bell buoy on the rock, the light cannot fail to be most useful in enabling mariners to distinguish the exact position of the rock, and also in marking most plainly the entrance of the harbour, so justly bearing the motto of "*Statio bene fida carinis.*"

The *City Press*, June 7, 1862, speaking of Benson's Argentine, says—"Beautifully finished works of art, well sustaining the deserved popularity of the producer." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the Argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full-price list of the various manufactures, both in Argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, Argentine and electroplate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. The Prince of Wales.

**IMPROVEMENTS AT PORTRUSH, COUNTY ANTRIM.**—Most extensive plunge baths, for ladies and gentlemen, with additions to the present hot and shower baths, are in course of construction at this fashionable watering-place. A large number of quarrymen are busily engaged for several weeks past excavating the rocks for the plunge bath, which will form a basin from 3 feet to 7 feet in depth, hewn out of the solid rock, the tide having ingress and egress through sluices. The public are indebted to the enterprise of William Dargan, Esq., D.L., for this additional attraction at the Brighton of the North. The works are designed and being carried out under the superintendence of Fitzgibbon Louch, Esq., C.E., of Sackville-street, Londonderry.

**CAN YOU BELIEVE IT?**—A watch consists of 992 pieces, and in making it 23 trades and about 200 persons are employed. A remarkable instance of labour in augmenting the value of raw material is afforded by the balance spring of this instrument. One farthing's worth of iron will make 7,650 balance springs!!!

**A BUILDER'S NEGLIGENCE.**—The result of the coroner's inquiry into the recent calamity at Greenfield, near Manchester, caused by the fall of a mill chimney, was that the jury returned a verdict to the effect that the disaster arose from neglect on the part of the builder in constructing the foundation of the chimney, "but that neglect was not so gross as to amount to manslaughter."

**PUNCTUALITY.**—Method is the very hinge of business, and there is no method without punctuality. The want of it not only infringes on necessary duty, but sometimes excludes this duty. Punctuality is important as it gains time. It is like packing things in a box; a good packer will get in twice as much as a bad one. The calmness of mind which it produces is another advantage of punctuality. A disorderly man is always in a hurry—he has no time to speak with you, because he is going elsewhere; and when he gets there he is too late for his business, or he must hurry away to another before he can finish it. It was a wise maxim of the Duke of Newcastle, "I do one thing at a time."—*British Workman.*

**PREVENTION OF RUST IN IRON.**—Many a valuable hint is to be obtained from an intelligent practical labouring man, which may lead the philosopher into a train of ideas that may, perhaps, result in discoveries or inventions of great importance. When bricklayers leave off work for a day or two, as from Saturday to Monday, they push their trowel in and out of the moist mortar, so that the bright steel may be smeared all over with a film of it, and find this plan an effectual remedy against rust. In Wren's "Parentalia" there is a passage bearing upon this subject:—"In taking out iron cramps and ties from stonework, at least 400 years old, which were so bedded in mortar that all air was perfectly excluded, the iron appeared as fresh as from the forge." In the victualling department at Plymouth, some years ago, I observed a man lime-whiting the inside of some iron tanks, previously to their being filled with water for the service of the crew and passengers during a voyage: this was to prevent the iron rust affecting the water. In London I have also recently seen men, with a tub of lime-whiting and a mop, smearing the inside of large water-pipes, as security against rust. Oxygen, which is the main cause of rust, is abundant in the composition of both water and the atmosphere; and that quicklime has an astonishing affinity for it is evinced in the homely practice of preserving polished steel or iron goods, such as fire-irons, fenders, and the fronts of "bright stoves," when not in use, a little powdered lime beaten upon them out of a muslin bag being found sufficient to prevent their rusting. Another instance, very different and far more delicate, bearing upon the same principles: the manufacturers of needles, watch-springs, cutlery, &c., generally introduce a small packet of quicklime in the same box or parcel with polished steel goods, as security from rust, before sending it to a distant customer, or stowing it away for future use. These cases are extremely curious; because, as a general rule, bright steel or iron has a most powerful affinity for oxygen; consequently it is very readily acted upon by damp, and is rusted in a short time, either by decomposing the water, and obtaining oxygen from that source, or direct from the atmosphere. It is not absolutely essential that the quicklime should be in actual contact with the metal, but if somewhere near, as in the case of the parcel of lime packed up with the needles or watch-springs, the bright metal will remain a long while without the least alteration in its appearance; the lime (which is already an oxide of calcium) either receiving an additional dose of oxygen, or being converted into a carbonate of lime.—*M. C. H. Smith, in Builder.*

**TELEGRAPHIC COMMUNICATION WITH THE EAST.**—A correspondence has been published, extending over five years, between Mr. Francis Gisborne, on behalf of the promoters of the Anglo-Australian and China Telegraph, and the Australian, Dutch, and British Governments. Some interesting maps are given, showing the routes selected for laying the submarine cables which are to connect India with China and Australia. The starting point is Rangoon, whence the cable will be laid to Singapore, a distance of 1,200 nautical miles, and will then proceed, via the French settlement at Saigon, to Hong Kong and Shanghai, a further distance of 2,500 miles. The telegraph to Australia will commence at Singapore, whence a cable will be laid to Batavia, a distance of 600 miles. There it will be connected with the existing overland telegraph through Java. The cable will again proceed from the east point of Java to the head of the Gulf of Carpentaria, a distance of 1,830 nautical miles, with intermediate stations at Timor and Port Essington. The whole of the seas to be traversed by these different cables have been well sounded, excepting between Java and Timor, and the soundings show that the cables can be laid in a depth of 50 fathoms, and occasionally in a less depth, though that is not desirable. The telegraphic system of the company, which will extend over 6,130 nautical miles, being about 7,000 statute miles, is to be carried out at a cost of £2,250,000. These projected telegraphs will be of great value to the trade between Australia and China, besides forming a link in the chain of telegraphic communication with Europe. There is probably no portion of the world where so extended a system of submarine telegraphy could be carried out with the same prospect of permanence, in consequence of the moderate depth of the seas, and

of the facility which that circumstance affords for repairing the cables whenever they get out of order. The several Australian Governments and the Dutch Government have subsidized the line between Singapore and Australia, though some of the subsidies have lapsed, and will have to be revived. Our Government, however, has refused to subsidize the India-Singapore, or to contribute towards the Singapore-Australia line. But for that refusal these lines would have been carried out several years ago; and as none of them are deep sea lines there is no reason to suppose that they would have failed, the depth being more favourable for submarine telegraphs than that of the North Sea and British Channel, where it is too small.

**NEW TYNE BRIDGE.**—In the report of Mr. Thomas Bryson, town surveyor to the Newcastle Town Council, a description is given of the New Tyne Bridge, the plans for which are being prepared by Mr. John Ure, the engineer of the Tyne commissioners. The following is the description of the new bridge:—1st. The intended position is on the line of the present bridge. It has four spans and three stone piers in the river, with land abutments at each end. The piers in the stream will be placed in a line to coincide with the piers of the High Level Bridge. The length of each span is 100ft., clear of the piers. The masonry of the centre pier will require to be made extra strong, because it will have to carry the entire weight of the swing girder, with railing, roadway, and footway all formed on it, and which will revolve horizontally on the top of the middle pier, similar to the seat of the 60 ton crane on the Quayside. The swing girder, when in position, will extend over the two arches on the north and south sides of the middle pier, and will consequently be about 260 ft. in length, the balance being in equilibrium. 2nd. The height of the proposed bridge will be governed by the roadway gradient of the Parliamentary section, which is 1 in 20 in the rise, and 1 in 27 towards the centre on the north end, and 1 in 28 on the Gateshead side, while the two centre arches are about equal; but any higher level will be preferred by the engineer. 3rd. The width of the present bridge is 36 ft., including the side parapet walls, or 34 ft. in the clear roadway; but the proposed bridge is intended to be seven or eight feet wider, or about 44 ft., and consequently will require the centre pier about the same width to support the bearing plate to the girder in its revolution or when swung open.

**DOOR AND WINDOW OPENINGS.**—On the 4th ult., Mr. Frupp gave a lecture before the Bristol Society of Architects, at the Fine Arts' Academy, Queen's-road, on "Door and Window Openings." Mr. Frupp said there was certainly a variety of ugly treatment of doors and windows to be found in their city. In a modern house they were restricted to shallowness of detail, the walls not being thick, and what thickness they had being required for internal fittings, shutters, and so on, so that they depended almost entirely on surface decoration. He should very much wish, in villa architecture, to see the windows projected boldly, instead of being flush with the wall, not in the way of ordinary bow-windows, but projections of from 15 in. to 2 ft. 6 in. perhaps, simply for the purpose of getting vertical lines in the building, and for the convenience of carrying up dormer windows into the roof, and making them a feature in a skylight, which would assimilate to the treatment in the late French style of Louis XV., and also to our own Gothic buildings of a later period. The lecturer then referred to drawings of windows which he had executed, and which had been taken from buildings in the locality. The treatment of mouldings was also discussed.

**NATIONAL GALLERY OF IRELAND.**—The attendance of visitors at the gallery during the week ending the 28th of May was 4,650; total since the opening on the 1st of February last, 111,352.

#### TO CORRESPONDENTS.

*We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.*

*Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.*

*All Communications respecting the DUBLIN BUILDER, should be addressed to Mr. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.*

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# The Dublin Builder.

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## A PEOPLE'S PARK REQUIRED FOR DUBLIN.

THE failure of the bill which was promoted for the opening of Stephen's Green has caused a universal feeling of surprise and disappointment. The expediency of such a measure as a matter of public utility has been clearly set forward: noblemen, judges, gentry of position and influence, have all given their testimony in its favour, and a weight of evidence has been brought forward that seemed well calculated to bear down all opposition. It does seem strange that the opposition of the Corporation on such narrow and self-interested grounds should have had more weight with the Select Committee, and it is much to be regretted that some compromise could not have been made between the promoters and their opponents. There can be little doubt that the bill will be ultimately carried; its supporters have pursued their object for two years with a steadiness of purpose that show their determination ultimately to prevail. There has been for many years past a growing desire to promote the welfare of the working classes, and the claims of the many upon the liberality of that class to whose lot the good things of this life have fallen, have silenced the exclusive cravings of a selfish oligarchy. This disposition is mainly attributable to the influence of the press, a mighty instrument in setting forward, as the recognised organ of the people, their peculiar feelings, condition and requirements. The garb of a mechanic may be humble, his hands may be hardened and worn with toil, but he is possessed of the same feelings, the same physical constitution, the same powers of appreciating rest and recreation as those who recline in carriages at their ease; nay more, for those who hold pleasure at their command can never appreciate its influence in the same keen manner as those who snatch an hour's enjoyment after a day of wearisome and continued labour. And yet, if we desire to increase our own comforts and luxuries, to clothe ourselves after the most costly requirements of fashion, to deck our habitations with the splendid ornaments of modern refinement, we must recollect that for all these we are indebted to the humble mechanic, that we reap the fruits of his ingenuity, and that in his welfare our own social comforts are in a great measure involved. Just as in the body, if one function becomes deranged the whole system suffers, so are the different grades of society jointed and framed together, and in promoting the welfare, both moral and physical, of the working classes, we follow the surest method of establishing our commonwealth upon a strong and solid basis.

The opening of Stephen's-green to the people would not be attended with the encroachments upon privacy, or the desecration

of aristocratic precincts which some of the inhabitants may imagine. The working classes are engaged at their occupations from an hour long before the inhabitants of the big houses think of leaving their beds, until six o'clock in the evening. Only after that hour, or on Sundays, could they partake of the recreation which others may enjoy at any period of the day. But it is more probable that were Stephen's-green thrown open it would become the resort of a brilliant crowd of rank and fashion, instead of being as it is at present, a dreary expanse, the lonely aspect of which, such is its extent, would not be broken were all the inhabitants of the surrounding houses mustered there collectively. Even were the working classes to enter, they would keep to some place by themselves, as they always manifest a disposition to do when they enter the precincts of the *haut ton*, and sentimental, Byronic young ladies might read beneath the shade of spreading trees without the slightest fear of their reveries being disturbed.

Dublin possesses in its external appearance, a certain amount of lightness and beauty, which, notwithstanding its comparative smallness and deficiency of pecuniary resources invest it with an amount of attractiveness which even our Continental neighbours think it worth their while to come over and visit. Although insignificant in size beside the great metropolis of England, yet it boasts of larger squares (leaving Stephen's-green out of the question), and at least one wider street than any in London; and its atmosphere possesses a clearness, and its buildings present a freshness of exterior that is not to be found in the smoke-begrimed cities of the sister country. But when nearly all the leading cities of the present day, London, Paris, Vienna, Genoa, Rome, Naples, possess public parks, promenades and gardens, why should our own city be deprived of such an enhancement to its beauty, why should the enjoyment of an hour's recreation necessitate a preliminary drive on that peculiarly Irish conveyance, an outside car, to the "Phoenix"? The sooner then that Stephen's-green is converted into an ornamental and tastefully arranged pleasure-ground, with all the decorations that modern improvement bestows upon such places, and, if needs be, a statue of the late Prince Consort, or one or more of those of our illustrious countrymen, the more will it redound to our credit, and the less liability will there be of our being pointed at as behind the age. The public would appreciate the advantage of a diagonal path from Leeson-street to Grafton-street, and another from Harcourt-street to Merrion-row; and the performance of a military band once a week in the "People's Park" would render it such a fashionable locality that the value of house property would be increased and not deteriorated.

Let us then treat with all care and kindness the hardy mechanic who builds the house that shelters us, who weaves the cloth and prepares the material with which we clothe ourselves, who ministers to all our daily requirements. Let us not despise his threadbare coat, let us not boast of our refined education; there are many things which he could teach us, there

are many points in which we are more ignorant than he. Let us examine the various curiously devised and beautifully finished works of art at the Dublin Society's Exhibition, or the complicated patterns issuing, as it were by magic from the loom, and ask ourselves which of us could do it? The nobles of the land treat him kindly, they throw open their beautiful demesnes for his enjoyment, and experience a true pleasure in seeing him happy. Let us not deny him the enjoyment of a few acres of comparatively useless ground. The matter will be again brought before Parliament next session, and if called on to contribute the trifling amount of 1d. in the pound, let us do so cheerfully, and we will be repaid for it afterwards.

An earnest desire at present exists for improving the domestic condition of the working classes. Learned bodies having taken up the subject for discussion, and building societies have been organised to enable the labourer by a succession of yearly instalments to become at length the proprietor of the house which he occupies, with very successful results. Prizes have been offered for the most cheap and serviceable form of workmen's cottages, and have caused many valuable improvements to be suggested, some of the most important of which are detailed in our last and present number. The advocates of moral and social reform amongst the working classes will find that this is a step in the right direction, and that the surest method of counteracting vice will be by substituting the enjoyment of harmless and healthful recreation, not by vain efforts to introduce coercive measures.

## THE IRISH CIVIL SERVICE AND GENERAL BUILDING SOCIETY.

WE have much pleasure in drawing the attention of our readers to the Prospectus of the Irish Civil Service and General Building Society which we publish in our advertising columns. This important national project supplies a want long felt in Ireland, and it is brought before the public under the patronage and direction of men whose character, ability, position and influence are such as must insure for it the confidence and support of the Irish public. Although the prospectus contains at once a comprehensive and lucid exposition of the principle on which the society has been formed, and gives a satisfactory though brief explanation of the system under which its operations will be conducted, it appears to us that some of the features in the construction of the society are so important as to be deserving of especial attention. We have, in the first place, to point out that *the liability of the members or shareholders is limited to the amount of their shares*, as appears from an opinion given by the most eminent legal authority in existence on the law of building societies (Mr. John Tidd Pratt, barrister-at-law, the Government Registrar of Building and Friendly Societies), therefore the members are securely protected from all *partnership liability*, and in this respect are placed in a safe and satisfactory position in consequence of the society being enrolled and protected by the Building Societies' and the other Acts which have been incorporated with it. The society also offers peculiar advantages to persons who do not wish to build or purchase property, enabling them (in the words of the prospectus) to accumulate their surplus income at a high rate of interest, and on undoubted security. To persons who desire to build, the society will advance on mortgage the value of the property (as determined by its surveyor), receiving back the amount lent, in such instalments (monthly or otherwise) as may be agreed upon, and which, if spread over a lengthened period, would be not more, or perhaps even less, than the rent they would have paid to their landlord, and thus they become proprietors of their houses by "funding their rent for their own benefit."

ROYAL DUBLIN SOCIETY'S EXHIBITION.  
SECOND NOTICE—THE MACHINERY COURT.  
(Continued.)

AMONGST the instruments that are designed for turning, carving, and moulding, some very beautiful specimens are exhibited by Messrs. Kennan & Sons, of Fishamble-street. Messrs. Kennan's establishment has long been celebrated for the excellence of its lathes, and for the great variety of tools, planes, chisels, agricultural instruments, and grinding stones with which it is furnished. There is also a new kind of mowing machine with a tilt action delivery, designed by Mr. Kennan. This lawn-mower has gained two prizes, and many testimonials have been furnished in proof of its practical efficacy. The old form of lawn-mower only possessed one small box in front for receiving the grass as it was cut. This required to be emptied frequently, causing a great many small heaps of grass, and occasioning considerable inconvenience. Mr. Kennan's lawn-mower is furnished with two boxes, the usual one in front, and another one, much larger, behind, between the handles. As the mower is pushed along it causes a set of circular knives to revolve, which cut the grass and cast it into the small box in front. When this is full it is tilted up by means of a handle; this causes it to cast its contents into the large box behind. The small box being now empty the mowing is continued by pushing forward the machine as before. When the large box is filled, after several tilts, it can be itself emptied in a very simple manner by turning it over upon its axis, upon which it swings loosely. In order to empty the old mower it was necessary to turn it over bodily on its side. Messrs. Kennan & Sons also exhibit an amateur turning lathe, a sawing and drilling machine, a garden seat, remarkable for its lightness and portability, which are well deserving of notice; also a very remarkable instrument for carving statuary work, termed a sculpture machine. This machine (of which we give an illustration) copies works of art in ivory, wood,

circular movement only. This machine was the original invention of Charles Shaw, Esq., Dublin; the details have been arranged and the machines are built only by Kennan & Sons. The machine is easily worked by one person; it occupies but little space. The ivory figure of horse and serpent, entirely executed by the machine, illustrates its power. An improved swinging saw is exhibited for cutting, which will do all the work of a cross-cut saw and can be worked by one man. There is a second case in which an apparatus is exhibited for blasting roots and stumps; with 5 oz. of blasting powder it will split up a large root in about eight minutes. This case also contains a variety of forester's implements, knives, billhooks, shears, &c.

We noticed in our last number a specimen of a large portable engine, exhibited by Messrs. Perrott & Sons, of the Hive Iron Works, Cork. This firm also exhibit four kitcheners, each of them complete, with all modern improvements; but there are two that are deserving of special notice. In addition to the usual apparatus of boilers, pastry ovens, hot closets, &c., with which all such kitcheners are furnished, the roasters are constructed so as to afford a large ventilation directly into the fire, so that the fire radiates directly into the roaster itself. The utmost economy of fuel is afforded, and they are furnished with a new kind of air-jack, patented by Messrs. Perrott & Sons, which requires no winding, being simply turned by the draught of the flue. It is much to be regretted that these kitcheners have not been placed in a more conspicuous position; they are in the south department, apart from the main building, and might on this account escape the notice of a casual visitor.

In the same department there are also some valuable specimens of materials connected with the building trade. The perforated bricks of Messrs. Thomas Fraser & Co., of Belfast, are very perfect in their make, sound and strong, and well suited for the purpose. A variety of specimens are here to be seen from the Hibernian Brick, Tile, and Draining-pipe Works, Wicklow, and the slates from Killaloe and Carnew are fully equal to any Welsh slates that we have ever seen. Some beautiful marble chimney-pieces are also supplied by Mr. S. Sheppard, of 28, Lower Ormond-quay.

In the Machinery Court, near the entrance, Messrs. Edmundson have exhibited some additional specimens of the apparatus used in the manufacture of gas, amongst others a photometer for measuring the intensity of the light afforded by a gas flame. It is well known that if a piece of paper or parchment be saturated with oil and held up to the light, it will become translucent, that is, the light behind will appear through it, but if another stronger light is placed in front this translucent property will disappear. The photometer is constructed on this principle. A piece of paper properly prepared and saturated is placed before a flame of known intensity. A jet of the gas whose power is to be tested is ignited at a certain distance at the other side. The paper is then moved forward along a graduated slide until its translucency disappears, and the distance at which this takes place measures the intensity of the flame which is in front.

A new kind of gas meter, on the wet system, termed "the unvarying water line gas-meter," is exhibited in the Centre Hall, by the Irish Gas-meter Company (Limited), who have lately opened very extensive works in Hanover-street. Owing to these meters having been

placed in the immediate neighbourhood of the stand of Messrs. Edmundson & Co., we were inadvertently led to report them as exhibited by that firm, a mistake which has been corrected in a letter from their manager, Mr. Andrews. A contest has for a long time been waged between the advocates of the wet and dry meters, and has now been nearly decided in favour of the former, by the improvements which this Company have patented, as a proof of which we may mention that they have received large orders for their new meters from the various gas companies of Ireland.

The manufacture of common clay pipes, as exhibited by Mr. Keevil, of Merchants'-quay, also to be seen in the Machinery Court, is as curious as it is simple. The pipe-clay is brought to a proper consistency, then worked between the hands into a rude shape approaching to that of a pipe, then brought in a mould into the ordinary form of a pipe. The whole is done in a few minutes. They require, however, afterwards to be baked at a very high temperature.

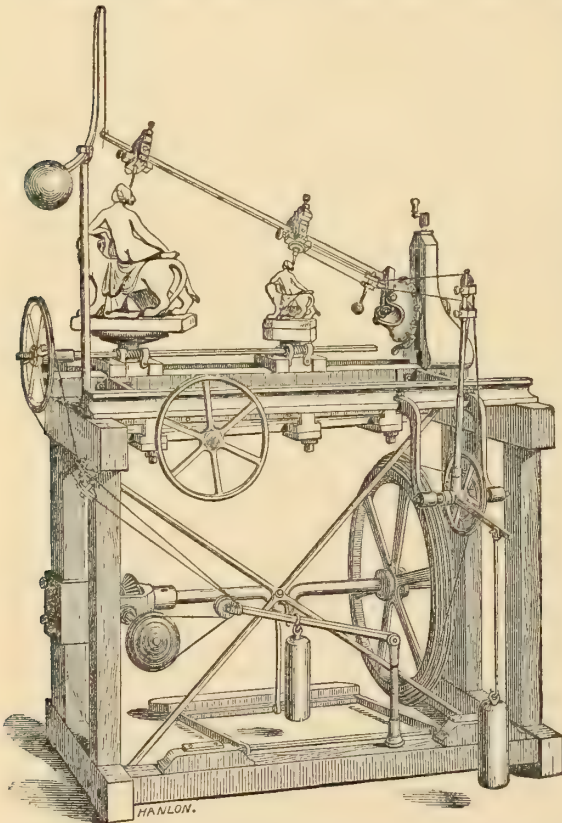
At stall No. 13, north side, Central Hall, Mr. Joseph Lewis, 29, Dame-street, exhibits as inventor, patentee, and printer, three machines—1. *The Au-*

*tomaton Pentagraph*, an instrument by which lithographs, engravings, and printed matter can be reproduced to any desired scale, larger or smaller, and printed in the altered form from the lithographic stone.\* Specimens are shown of every variety of work—commercial, engineering, and artistic—to which the invention has been successfully applied, testifying strongly that the work produced by the "Pentagraph" cannot be equalled for excellence and beauty by hand labour. 2. *The Automaton Register*.—This instrument is used in the operation of transmuting impressions or transfers from work on stone into raised blocks to print at the letter-press, whereby the advantages offered by the lithographic process are successfully united with the dexterity and despatch of the letter-press or steam machine. 3. *The Photo-Automaton Register* is a modification of the above machine, and is used in effecting the transference of the photograph to stone or steel plate for printing purposes. The principle involved in these registers offers a facility for the execution of printing surfaces not hitherto possessed, as, for instance, in effecting the transference of a photograph, two or more negatives on glass are taken from the same point of view; these are secured in frames which register with unerring accuracy over each other, whereby the operator can repeat the applications of sensitive coatings, exposures, and etchings, until he obtains a satisfactory result; by using several negatives together, pictures are obtained with all the parts developed, as the sky, middle tint and deep shadows are each impressed from a different negative obtained by varying degrees of exposure. In the conversion of impressions from stone into raised blocks the object is effected by repeating one impression over another, until the ink film becomes sufficiently elevated, when a casting is made from it. Another mode is to repeat the impressions from a flat zinc plate and etching slightly after each impression is made; by this means the fine lines are preserved from the corroding action of the acid until the broad lights are etched away sufficiently. The patentee prefers this latter mode of operating. A bank note engraving engine is shown at work, re-producing by automatic action, most elaborate patterns upon stone, from pattern relief plates. A close inspection of this machine will well repay the time. We are pleased to observe that this exhibitor has been able to successfully compete against the importation of continental prints. The idea of embellishing Irish manufactured articles with views to be found only in Ireland seems to have been overlooked. How much more becoming to see a box of Irish lace or cambric handkerchiefs surmounted by the "Dargle" or "Giant's Causeway," than some imaginary "View on the Rhine." The drawings are sketched from nature, and are furnished to our manufacturers at as low a rate as the imported imaginary trash. These facts fully attest what Irish energy can accomplish.

#### INDURATION OF IRON.

A PROCESS by which iron can be indurated, and thereby preserved from oxidation and decay is thus described by our contemporary, the *Mechanics' Magazine*:—"The iron is to be thoroughly cleaned and heated to the requisite temperature, in a furnace planned by the inventors. When this temperature is attained, it is to be plunged into a bath of prussiate of potass, and chloride of potassium in a molten state, so that when the iron is withdrawn, it may easily part with the surplus of the aforesaid chemicals, which should run off like oil. The iron is then to be dipped into boiling water, containing a certain proportion of cyanide of potassium; from thence it is removed to a bath for final washing, and set up on end to dry. All the processes are to be carried on under cover, and before exposure to the atmosphere the iron is to be coated with an asphaltum paint twice, at given intervals; and again it is to receive two coats after fixing. Of course, all the necessary planing, drilling, and fitting is to be done preparatory to the indurating. The time the iron is to remain in the bath will vary from one to five minutes, according to the weight of the metal to be operated upon. The elaborate character of the process, to which the contractor is rigidly bound, will account for the large sum to be expended in carrying out this part of the work. £4 per ton is allowed to the contractor for the induration and painting. Messrs. Morewood will receive from the contractors 5s. per ton as their royalty, which it is estimated will be £1,000. Thus £16,000 is to be spent in this effort to prevent oxidation, no greater proof of which, in its damaging results, can be offered, than the case of the cleaning of the oxide (or rust) from the Menai Bridge, from which have lately been removed above forty tons of oxide of iron." We understand that this process has been patented by Messrs. Morewood & Co., and will be tried on the iron work of the new bridge at Blackfriars, London.

\* The map of the City of Dublin, which forms an illustration in present number, is an instance of the powers of this clever invention; it has been reduced by it from a much larger size.



alabaster, &c., to any scale, from either the flat or round. The general construction is similar to that of an amateur's lathe; motion is given by the foot to a shaft carrying speed wheels, from which, by bands, the cutting tool is driven rapidly, and the various slides are actuated as required, being stopped and started, or reversed, at any instance, by means of a simple contrivance, without stopping the cutting tool. The rotatory cutter and guide point are mounted on a bar, having a universal pivot at one end, so that the motion of the guide upon the original gives a corresponding movement to the cutter, in exact proportion to their relative distances from the pivot end. The original and the copy are fixed in chucks, mounted on two carriages, standing vertically on the shears or bed of the machine, and by means of the wheel at the end of the machine they are made to revolve simultaneously, so that every part of a circular or cylindrical object will be successively brought before the cutter. For operating on long surfaces, there is an entirely novel arrangement of proportional slides, by which the utmost facilities are afforded for operating upon such surfaces as could not be executed by the

## CULVERWELL'S PATENT RAILWAY LAMPS

AMONGST the most useful of recent inventions to be seen at the Exhibition, we have much pleasure in calling attention to a new form of railway lamp, adapted for burning paraffin, the invention of Mr J. P. Culverwell, of this city. The brilliancy of the light yielded by paraffin, its great economy, its cleanliness in burning, have long been appreciated and have caused it to be used extensively for domestic purposes. It is unfortunately, however, liable to be easily extinguished by drafts, and was considered on that account as not adapted for portable lights; and, although previous endeavours had been made to overcome the difficulty, it remained for Mr. Culverwell to solve completely the problem of rendering it serviceable for railway carriages, thus conferring a boon upon the public which can only be fully appreciated by those whose eyes have often been strained in striving to read by the obscure lights at present in use. The Dublin and Drogheda Railway Company first adopted paraffin for their stationary lights along the line and at stations, but it could not be introduced into the carriages so as to give perfect satisfaction for the reason just mentioned. Mr. Culverwell's ingenious invention has completely overcome the difficulty, and his patent lamps have now been used for many months with satisfaction and success, affording a brilliant and beautiful light. These lamps are made in three forms, for carriage lamps, tail lights, and porters' hand lamps. The following is a description of one of the latter class, the principle being the same in all:—

In order to check the rapid flow of air through the lamp case, which occurs when the lamp is in rapid motion on a railway train, and which interferes with the proper burning of the volatile oils, a check plate is fitted in the chimney of the lamp case, consisting of a disk of metal. This disk is perforated with a series of small holes, through which the heated air and products of combustion pass from the lamp; or the check plate may be unperforated, and the heated air and products of combustion pass around its edge; the flame is thereby made clear and steady, and is not liable to be put out in an exposed situation during the rapid motion of the train.

In order to keep the reservoir containing the volatile oil cool, and thereby prevent the volatilization of the said oil by the heat of the lamp, the patentee isolates the lamp case from the reservoir, and thus prevents the conduction of heat to the reservoir. The lamp case and reservoir are so arranged that a current of air can pass over the top of the reservoir, and the said reservoir is thereby more effectually preserved from the effect of the heat of the lamp. Provision is made for the current of air on the top of the reservoir by connecting the lamp case to the reservoir by means of two strips of wood on two opposite sides of the bottom of the lamp case, the two intermediate sides being unprovided with strips of wood, there are left open spaces on those sides, equal in thickness to the said pieces of wood, and through the said spaces air enters and passes over the top of the reservoir.

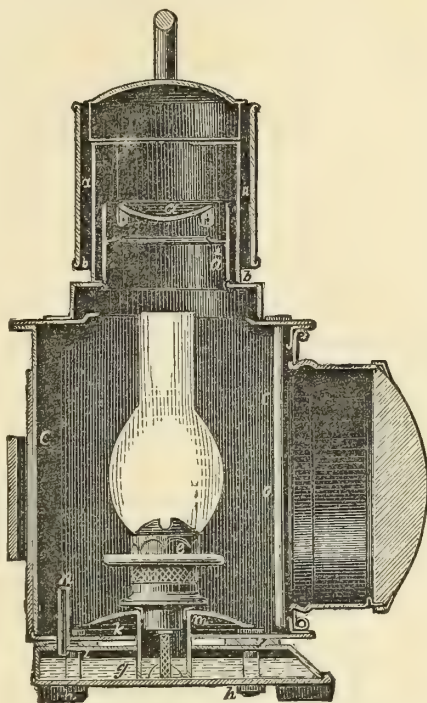
In order to prevent any vapour which may be formed in the reservoir from escaping at the wick, and thereby producing a jumping motion in the flame, a small opening is made in the top of the reservoir for the escape of the vapour, which opening is made to communicate with the metal chimney of the lamp, or the atmosphere where convenient, instead of with the interior of the lamp case. Air is supplied to the interior of the lamp case for the purpose of supporting the combustion of the flame of the lamp by means of vertical tubes, their upper ends opening outside the top of the lamp case, and their lower ends nearly touching the bottom of the inside of the lamp case; by this means copious currents of air are supplied to the interior without affecting the steadiness of the flame.

In order to prevent the running down of the rack by which the wick is raised and supported, and which frequently happens by the shaking of the train, a pin is passed through the base of the burner, and passing through the wick prevents its descent. The same result may be attained by means of a spring tongue cut in one side of the wick holder.

The accompanying engraving represents in vertical section a railway lamp of the kind commonly called a head or tail lamp for burning volatile oil, in which these several improvements are combined.

*a, a*, is the chimney of the lamp supported by the feet *b* on the top of the lamp case *c* in the ordinary way. To the inner tube *a*<sup>2</sup> of the chimney *a* a

check plate *d*, consisting of disc of metal, is connected by the arms or pieces *d*<sup>2</sup>, *d*<sup>3</sup>.



The other parts of the chimney are of the ordinary construction. The heated air and products of combustion from the lamp burner *e* in escaping by the chimney *a* strike against the plate *d*, and a rapid flow of air through the lamp case is thereby prevented; by this arrangement the flame of the lamp is made clear and steady, and is not liable to be put out in an exposed situation during the rapid motion of the train. The burner *e* is of the ordinary construction. *g* is the reservoir containing the volatile oil formed in the hollow base of the lamp case *c*. Between the reservoir *g* and the bottom of the lamp case *c* are two strips of wood or other imperfect conductor of heat *i, i*, situated on opposite sides of the said lamp case *c*, the two intermediate sides being unprovided with strips of wood or other imperfect conductor of heat; there are thus left open spaces *h, h*, between the top of the reservoir and bottom of the lamp case equal in thickness to the said strips *i, i*, through which spaces air enters and passes over the top of the volatile oil reservoir *g*. The burner is supported on the top of the metal tube connected to the reservoir, and is isolated from the said tube by a ring or tube of wood or other imperfect conductor of heat *m*, placed between the lower part of the burner *e* and the tube *l*. The part of the burner which rests upon the top of the tube *l* has a layer of cork between it and the said tube *l*. In the top of the reservoir *g* an opening is made, into which opening a short tube *n* is fixed, one end of the said tube opening into the reservoir *g*, and the other end into the interior of the lamp case *c*. Any vapour which may be formed in the reservoir *g* escapes by the said tube *n*. The tube *n*, instead of opening into the interior of the lamp case *c*, as represented in the engraving, may communicate with the chimney *a*, or directly with the atmosphere. By the escape of vapour from the reservoir by the tube *n*, instead of at the wick, a jumping motion of the flame is prevented. In front of the interior of the lamp case *c* are two vertical tubes *o, p*, the upper ends of which open outside the lamp case to the atmosphere. The lower ends of the said tubes open into the interior of the lamp case near the bottom of the case, as shown. Air for supporting the combustion of the flame of the lamp passes by these tubes *o, p*, to the interior of the lamp without affecting the steadiness of the flame. In making roof lamps according to this invention, it is preferred to make the reservoir of earthenware or porcelain, in order the more effectually to prevent the transmission of heat to the oil in the oil reservoir.

## A FIRE ALARM TELEGRAPH.

A FIRE alarm police and water telegraph is about to be erected by Messrs. J. F. Kennard, in Chicago, at a cost of 70,000 dollars. According to the specifications, a building for a central office is to be procured and fitted up, with all the necessary instruments scattered all over the city, with 103 signal boxes. There will be eight electro-magnetic bell-ringing machines and 13 engine-house gongs with hammer and magnetic escapement to alarm the firemen the instant the intelligence of a conflagration is flashed over the wires to the central office. In

the police department of the telegraph there will be six indicating-dial instruments with call bell. This will be one machine for each station police headquarters and the central fire alarm office, so that information in regard to fires will be given from any police-station. The superintendent will also be in a position to communicate at any instant with any or all the station-houses.

Each of the reservoirs will be connected by telegraph with the waterworks, so that the condition of the water, whether high or low, can at all times be known. A gong will also be placed in the waterworks, and all alarms of fires will be given the same as at the engine-houses. This will allow a full head of water to be turned on the instant the alarm is given.

This telegraph will prove most useful, and by means of it a vast deal of property may be saved. In the event of any popular outbreak the superintendent of police can in a moment telegraph to all the stations for reinforcements.

## LIGHTING RAILWAY CARRIAGES BY GAS.

An apparatus has been recently patented by Messrs. Malam and Tice, of Deptford and Islington, for supplying gas to railway carriages in such a manner that the gas may be compressed and admitted into the apparatus at a high pressure, and so regulated as to be consumed at the burners at a low or reduced pressure, so that each carriage may carry a comparatively large quantity of gas. For this purpose they fix to the top of the carriage a pipe or series of pipes which act as a holder or reservoir of high pressure gas, and from these pipes the gas, having its passage controlled by a valve, is carried through a regulator to the burners, before arriving at which it passes through a chamber in which it is suffered to expand, thus reducing the pressure. The invention is ingenious, but we feel doubtful as to its success. It would be almost impracticable to subject such a subtle fluid as hydrogen gas to a high pressure without suffering enormous loss from leakage. An express train might require to travel for an hour without stopping at a station. An ordinary burner would in this time consume at least three cubic feet of gas. Were this quantity compressed to half its bulk a cube foot and a-half would still be a large amount of space to take from one compartment of a carriage, and the gas would be brought to an effective pressure of 15lb. on the square inch. No joinings, however neatly turned or accurately fitted, would be sufficient to confine hydrogen gas for any length of time under such a pressure. We notice in another part of our columns an invention for accomplishing the purpose for which the above apparatus is designed by means of paraffin, which appears to be far better suited for such a purpose. The expense of paraffin would be little more than that of gas, and would be more than compensated by the simplicity of the apparatus in which it is burned. The employment of gas will never be attended with success for a moveable light, nor where there is required a high pressure or a complexity of joints.

The *Clerical Journal*, April 23, 1861, says, "Mr. Benson's argentine can be manufactured in every description of service or ornament suitable for presentation, as well as the more unpretending articles ordinarily to be found on every dinner and tea table." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz.—spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch Establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

## ON THE TESTING OF CHAIN CABLES.\*

(Continued from page 104.)

It appears a paradox to say that the chain is, in one sense, strengthened by a strain in excess of the elastic limit, but such is the fact. The power to bear a static load is indeed increased, as was shown by the experiments cited, before the Committee of 1860, to prove that a cable is strengthened by being broken several times under the gradually applied load of the hydraulic press; and, as was also shown by the performances of the 1½th bars subjected to the same treatment by Mr. Loyd. The link is, in the first place, mechanically strengthened by being drawn into a lozenge-like shape, as the two sides of each end then act as ties to a very short beam; but this is obtained at the expense of the elasticity of the material—the material of the link is rendered harder. It is a somewhat fanciful analogy to compare the limits of elasticity and of rupture of iron to the organic life of a plant or animal, but it is justified by the common expression that a bar is said to be crippled by an undue strain. If this living force in a bar—these *forces vives de resistance*, as they are termed by Poncelet—if, in one word, the work to be done in stretching a bar be expressed (in the English way shown by Mr. Mallet) by multiplying half the static load in pounds required to stretch a bar one foot long and of one-inch cross-section to its limit of elasticity, by its elongation in terms of a foot ( $T_e$ ); and if the static load required to break the bar be expressed in the same way—by multiplying half the static load in pounds by the ultimate elongation in terms of a foot ( $T_r$ )—we shall then get the power for work expressed in foot pounds, or the structural value of our bar, and shall see the reason that a chain is truly crippled for any application in which it is subject to an impulsive force. The short range, multiplied into the high static load required to stretch a bar of hard iron to its limit of elasticity, compared with the product of the long range but low static load required to stretch a bar of soft, ductile iron, will show that a link made of hard, brittle iron will keep its shape much better than one made of soft, ductile iron. A calculation of the work done in rupturing a bar of soft iron will show that its living force of resistance to rupture is several hundred times greater than the force required to alter its elasticity; and a similar calculation of the work done in rupturing a bar of hard iron will show that the work to be done in breaking it is perhaps twenty times less than that in stretching it to its elastic limit. As any impulsive force is equal to twice the work to be done in producing or consuming it, and as the effort required is less as the distance gone over is greater, it will be seen that, although resilience is a *sine qua non* in a cable, the strength of the links would be destroyed, and the structural flexibility of the whole cable would be injured, by the use of iron too soft; while the use of very hard iron in the first instance, or the ultimate hardening of any iron when its limits of elasticity are exceeded, renders a cable of hard or hardened iron utterly useless for its intended purpose.

There is thus no necessity to have recourse to any theory of the crystallization of iron under impulsive stresses to explain the gradual deterioration of a cable; but this question of crystallization is one of the greatest importance and interest; and we may yet learn that the structural value, for many purposes, of a given bar of iron is some determinate relation to the size of the facets of the crystals of which it is composed. A good cable bar consists of crystals that have been more or less elongated while passing through the rolls; the question is whether these crystals are loosened or separated at their planes of cleavage, or whether the crystalline axes have been transposed, under the undue strains, more or less accompanied by vibration, to which chains in general, and chain-cables in particular, are necessarily subject. There is no well-ascertained instance of any alteration of this kind happening under moderate stresses, but Mr. Mallet appears to believe that a reversal of the crystalline axes takes place when the elastic limit, either of extension or compression, and therefore of flexure, is exceeded, and more especially if the piece be not initially in a state of molecular repose. There is every reason to believe in the existence of internal strains in the link of a chain, and more especially at the crowns. But numberless experiments by Dr. Rankine and others, and more particularly by Mr. Kirkaldy, have shown that what is popularly called a crystalline fracture may be given to the most fibrous piece of iron if it be broken under a suddenly-applied load—an effect simply due to the mechanical effect of a sudden stress, and to the fact that any piece of iron is an assemblage of crystals.

There is no reason to believe that a magnifying glass—as was, indeed, shown by Robert Stephenson—would reveal any material difference between a bar broken after fatigue of whatever kind, or a bar broken when fresh from the mill. At the same time, the application of a very powerful microscope to the molecular structure of iron has yet to be made; and the history of the first application of the telescope to a very different science may yet find its counterpart in this department of physical knowledge.

Whatever be the internal effect of the lateral contraction induced by excessive tensile strains, it would be of the utmost importance to settle, once and for all, whether re-annealing can restore the living force of resistance of iron, and, therefore, of a cable. Mr. T. M. Gladstone, C.E., recommended this plan before the Committee of 1860. Mr. Smale, then of Woolwich, said that this would be like Burnetising rotten wood. Dr. Noad, in a letter to the *Times*, about eight years ago, stated that he had taken away the brittleness of an old chain by keeping it for 24 hours in a furnace. The late Mr. Glynn recommended that a crane chain should be annealed every three years. At the North Roskear mine, in Cornwall, it is stated by M. Moissonet that the pit-chains, are withdrawn from the shaft after every six months' use, are rolled in a heap, then covered with a sort of cylindrical furnace, and brought to a red heat. According to an account translated from the Russian into the *Polytechnisches Centralblatt*, the chain cables for the Russian government, after being brought to a dark-red heat immediately after testing, are then tarred—a plan which is said to prevent rusting, as the tar thus takes a firmer hold on the iron. But many things may be done with charcoal iron that it would not be safe to attempt with our ordinary iron. Baudrimont appears to believe that all metals only acquire determinate qualities by proper annealing, and that a cherry-red heat is necessary for annealing wrought iron. According to the experiments by the Franklin Institute, wrought iron is perfectly annealed at a clear bright red. The experiments of both Baudrimont and the Franklin Institute show that the ultimate tenacity of iron is considerably diminished by annealing, but, unfortunately, in neither case was the elongation noticed. Poncelet has shown that his co-efficient,  $T_e$ , of elasticity is increased with annealed iron, but that the co-efficient of rupture,  $T_r$ , is diminished. This refers to wires, and no complete experiments appear to have been yet made on the effect of annealing on bars. It is a question whether the extra ductility conferred on the links by the process of annealing would not, while rendering them more ductile, at the same time lead to their changing their form. At any rate, at least some of the cast-iron cross-stays would be rendered less able to withstand distortion. At the same time, the question ought to be settled, and to cables comparatively uninjured by corrosion, the process might prove of great value. The conditions of size in a cable are peculiarly favourable to the use of annealing. Great as the advantage would be in the successful application of annealing to large forgings, there are several well-authenticated instances of massive crystals being developed in the interior of the mass by the long-continued action of a red heat. General Morin thus mentions an instance of the production of crystals, with facets from 4 to 5 millimetres in breadth, in a charcoal iron bar originally of fine, soft, fibrous, texture.

Tied as we are in testing cables within a narrow limit, which if exceeded in either direction would, on the one hand, either impair the efficiency of the cable, or, on the other, the efficiency of the test, it is clear that the most thorough accuracy is required in measuring the proof stress. Unfortunately, it is not always the case that this accuracy is obtained. The stress exerted by the machine of M. David, of Havre, was shown by the French government to be taken too high. The appliance for the measurement of the stress exerted by the Liverpool corporation testing machine, was a few years ago shown by Mr. Mallet to give a result of nearly 9½ per cent. error in excess. Some of these machines consist of a powerful windlass purchase, but we will confine our attention to the direct-acting hydraulic press, the application of which to the testing of chain cables, by the late Sir Samuel Brown, may be said to have rendered the iron cable a practicable thing. There are three distinct ways of measuring, or at least approximately measuring, the stress exerted by the press plunger. 1st. A small valve is fitted to the cylinder and furnished with a steel-yard and adjustable weight. In large machines this is, for the sake of convenience, carried to a distance from the press, the water being conveyed in a small pipe. 2nd. A Bourdon gauge is attached in the same way, either direct on the cylinder, or it is placed in communication therewith by means of a small pipe. 3rd. The other end of the chain being tested is attached

to the head of a bent iron lever, the power of which is multiplied by a system of levers balanced on knife edges. The plan of measuring the stress exerted by the press plunger, by means of a weighted valve, is liable to several objections, as was pointed out many years ago by Professor Peter Barlow, more recently by Professor Rankine, and by Mr. Bowman in his evidence before the 1860 Committee. In the first place, the relative proportion between the pump plunger and the valve is necessarily great; and a simple calculation will show that a hair's breadth more or less to the valve would make an important difference. In the next place, the friction of the leathers and the weight of the plunger are not taken into account; the gross load on the plunger is, in fact, given as the useful work at the end of the piston rod. Some experiments made by Professor Rankine, whose name is a sufficient guarantee in matters of this kind, have shown that about one-tenth should be deducted from the pressure in the hydraulic press, merely for the friction of the press plunger. The real, the useful work exerted at the end of the plunger on the chain is thus more than 10 per cent. less than is given by the pressure of the water. An error in the opposite direction will be made by conducting the pressure of the water, either on a weighted valve, or on a Bourdon gauge, and this error will vary with the diameter of the pipe, the number of bends, and the other losses of effect in a stream of water passing through a pipe, which are well known to engineers. The load on a safety valve is always an unreliable datum for computing pressure; a Bourdon gauge is much more delicate, but, in this case, its indications are erroneous, unless proper allowance be made for the friction of the leathers and the weight of the plunger. The most exact means yet employed for measuring the stress created by the plunger on the chain, consists in the use of a system of balanced levers, according to the plan adopted at H.M. Woolwich and Portsmouth dockyards, and by Messrs. Brown and Lenox. The press at Woolwich is also furnished with a weighted valve, according to the plan just mentioned, and in addition to the system of levers. The lever scale is perfectly sensible to a few pounds, but the valve scale will scarcely move with a load of two tons, and it is less and less sensible as the loads increase. The balanced levers are perfectly accurate, but the apparatus is rather expensive. At the last Worcester Show of the Royal Agricultural Society, a certain apparatus (not patented) was exhibited for testing the draught of Fowler's six-furrow steam-plough, and it appears to me that a modification of this dynamometer might be employed for registering the stress on a cable. It consisted essentially of a cylinder, and a piston, on one side of which was a volume of water in communication with a Bourdon gauge. The water was enclosed in an elastic diaphragm, fixed to the piston and to the cover, and the gauge was necessarily marked according to the results given by weights gradually applied. By shrinking rings on the outside, or by straining on a coil of wire, the cylinder could be made to stand any amount of pressure required, and, adjusted with the cross shackle pins at the opposite ends, at right angles to each other, in order to prevent any tension, and also by the adoption of other simple means, such as the use of steel, that will occur to those now present, a light instrument of probably very great delicacy would be obtained.

When a long length of cable, say of seventy-five fathoms, is being tested, there is another influence that will, in some cases, affect the result. If we take the comparatively light one-inch cable, we find that it weighs 58 lbs. per fathom, so that the whole length will weigh nearly two tons. The last link at each end will have to stand a down pull of nearly one ton in addition to the longitudinal stress of 18 tons. This, however, would probably be practically compensated by directing the hammer test more towards the centre portions of the cable, and the *vis viva* of each blow will be absorbed by the elasticity of the metal, the deflection of each link struck, and by the combined weight and resilience of a certain portion of the cable within the range of each blow. It may here be noticed that in testing the effect of impact on beams, Mr. Hodgkinson used a 4 lb. leaden cushion in order to partially deaden the jar of the blow. In a leading article of one of the engineering journals, in May last year, giving an account of Loyd's proving house, it was proposed that "a falling weight, to be released by a trigger tripped by a long cord," should be employed instead of the hammer, in order to prevent any accident to the operative, through the flying of the cable or a chip of the cast iron cross-stays. This weight could be made to slide overhead in the same vertical plane as the cable; and by letting it fall from heights determined for each diameter of cable, the *vis viva* employed could be measured with approximate accuracy.

\* Paper read on Wednesday, May 4, 1864, at the Society of Arts, by Frederick Arthur Paget, Esq., C.E.

This would only be on a par with the plan adopted in numberless instances, as we have seen, by our scientific neighbours the French; and similar measures might perhaps be used to measure the blow required to carry out the fracture test.

The application of known impulsive force as a test is of the utmost value, more especially when, as with cables, the object tested will have to undergo such forces in practice. If some plan could be devised for easily and accurately submitting the whole length simultaneously to a sudden instead of a static load, this would be of great importance. In the meantime, the hammer-blows are the tests for the resilience of the cable. In doubtful cases Professor Daniell's acid test might be of value in examining the nature of the fractured sections of the two or three links that are usually broken up. A great number of experiments on the specific gravity of iron have shown that it would be dangerous to make deductions as to the qualities of a specimen of wrought-iron worked by one metallurgical process, and to then apply these results to a bar produced by another mode—for instance, to compare in this way a rolled bar with a hammered bar. At the same time there is a remarkably close, though not perfect, correspondence between the specific gravity and the quality of the specimens. Mr. Kirkaldy found that the specific gravity of iron was even decreased by being much strained—at any rate by tension. It is very easy to obtain the specific gravity of any substance like iron; and whether the physical facts that, 1st, the gravities of, for instance, No. 3 bars, bear a pretty constant relation to their qualities; and that, 2nd, the specific gravity of wrought-iron generally is diminished by tensional straining; and, 3rd, that it is considerably increased by annealing, might be used in practice for testing the quality of the iron, or the deterioration through wear of a chain, is at least worth an inquiry.

The physical conditions involved in the construction, the use, and the testing of anchors, differ so materially from those of chain cables, that the two subjects must be separated in an examination of this kind. But there can be little doubt that a sound and general system of testing the mooring tackle of ships will bring about the same improvement in the quality of chain cables and anchors as the trials at Shoeburyness have already effected in the quality of rolled plates; and the effect which will indeed be produced by somewhat similar causes.

#### THE ECONOMY OF COTTAGE BUILDING.\*

(Continued from page 109.)

ACCORDING to the population returns of the census of 1861, the number of individuals constituting families of the sizes mentioned below appears to be in the following proportion; of course these figures represent only those families specially selected to illustrate the point before us:—

Population of the District.	Families.
	768 families, consisting of married persons with five children.
69,397.	1,378 do., with three children.
	1,839 do., with one child.
	1,614 do., with no children.

With these figures before us, it is manifestly clear that dwellings should be provided of different sizes and accommodation in something like the same proportion.

The late Duke of Bedford, in 1849, published, in the Journal of the Royal Agricultural Society of England, the designs and particulars of the several kinds of cottages he was erecting on his Bedfordshire and Devonshire estates. He had directed his surveyor to prepare plans of cottages, suitable for families of different sizes, singly and in blocks, and some most excellent designs will be found in the tenth volume of the Agricultural Society's Journal. Among them will be found the following plans:—No. 1 shows a block of four cottages, in which two have two bedrooms, and two, three bedrooms each. No. 2 shows a pair of cottages, in which each has a single bedroom.

On Sir Henry Dashwood's estate, in Oxfordshire, may be seen some excellent cottages, which contain three bedrooms, but one is placed on the ground floor and two above, and scullery, pantry, &c., form a lean-to. The Cottage Improvement Society have issued a design with a similar arrangement of rooms, with the exception that the bedroom occupies the lean-to, in the place of the scullery, and has no fire-place in it; the plan, therefore, cannot be considered so good as that adopted at Kirtlington.

Captain Dashwood, under whose direction the cottages on the Kirtlington estate were erected, thus explains the advantages of the design:—"The downstairs bedroom is adopted because it is found that a farm-labourer, though requiring a third bed-

room at one stage of his family's growth, does not require it for any length of time, as his family are either very young, or, as soon as able, go out to service. The ground-floor bedroom can, at such time, be used for a lodger; or when the parents get old they can retire to this room and admit a married child, or even another couple, to help to pay the rent. The old woman, by looking after the children, enables the young wife to attend to work, and the old man can help to gain a living by doing duties which frequently devolve on children to the loss of their education. The advantages of this plan are: First—That of enabling old and young people to reside under one roof, thereby securing nearly all the advantages of two cottages. Second—It secures greater privacy from the position of the rooms, as under ordinary circumstances the parents would sleep below and the children above, and the partition walls would be constructed of brick, and not lath and plaster, as is the case with ordinary three-room cottages. Third—It secures greater warmth and less draught; and Fourth—The third downstairs room will be found available, if required, as a workshop, or as a bedroom, especially suitable for a crippled child or an aged parent." A modification of the same arrangement of sleeping rooms is shown by the woodcut of a cottage designed by the writer, in which the scullery forms a small covered yard, extending from the cottage to the out-building. The advantage of this arrangement is, that the yard and scullery being one, and under cover, the former is always dry, and the latter more spacious than under ordinary circumstances, while the room (i.e. yard) is so constructed that it cannot be misappropriated as a living room.

Some cottages erected on the Culford estate, near Bury St. Edmunds, by the Rev. E. K. Benyon, have an arrangement with respect to the scullery which will recommend itself. Mr. Benyon says—"I have just completed these cottages at a cost under £200. I have put the bakehouse and washhouse out of doors, as this prevents any steam from getting into the bedrooms, and the back kitchen is made small, so as to prevent its being made a living room, which I have found to be the case in some cottages that I have built, in which the larger front room has only been made use of to hang up the family photographs." The cost quoted by Mr. Benyon evidently does not include every detail.

An arrangement for the accommodation of unmarried men has been adopted in different forms, and it is quite certain that there is no branch of the subject which deserves more careful consideration, although at present it does not receive the attention it ought. The late Prince Consort viewed this object with considerable interest, and at the Flemish Farm his Royal Highness erected a cottage specially designed for the accommodation of carters and unmarried men upon the farm. Several instances might be mentioned where the unmarried labourers have been provided for by the erection of a number of bedrooms under one roof, with a common mess-room, and supplied with a kitchen and offices, under the charge of a selected matron. It is needless to say that such a provision goes far to prevent evils attending the admission of lodgers into cottages, and, as such, is worthy the attention of the philanthropist and the landowner.

Reduced to figures, we shall find that three bedroom cottages will cost from £130 to £150 each; those with two bedrooms from £90 to £130 each, and those with one bedroom only from £70 to £100. The mean return required to repay principal and interest in 30 years may be taken at £8 a year for the first, £6 12s. for the second, and £5 for the last description of cottage. With respect to the improvement and alteration of old cottages to meet the requirements of the present day, much has been done and much more can be done. The best practical illustration of this fact is to be found at Broadlands, the estate of Lord Palmerston, where everything that can conduce to the comfort of the labouring poor has been studied with the greatest possible interest. Lord Palmerston has said, and proved, that "it is not necessary to pull down old cottages to build new ones. A great deal can be done at a moderate cost, in improving the old ones." His lordship added, when he said this, "That the effect of improving these dwellings is almost marvellous. In the first place, the comfort of a man's house depends on the tidiness of a man's wife, and on the mode in which she tries to make him comfortable. But there is a temper of the human mind which is denominated recklessness. When a thing seems impossible it is given up in despair. When a cottage is in such a 'ramshackle' state that it is impossible for the wife to keep it clean, she becomes a slattern; everything goes to ruin; the man is disgusted, and flies to the beer-shop." At Broadlands, Lord Palmerston has personally superintended the enlargement and alteration of his old cottages, so as to render them free from those objections which are so repugnant to good feeling. Sufficient bed-

room accommodation, good drainage, and ventilation have been his primary objects, while the poor man's comfort has been studied by the substitution of boarded for stone or brick floors, and by the provision of those little conveniences, such as cupboards and shelves, which we all know how to appreciate in our own houses. Several local societies have been established in different parts of England for the purpose of encouraging the improvement of existing cottages. It would be difficult to specify them, but in most cases the object has been to advance money to the poorer owners of cottages for the purpose of inducing them to build bedrooms to existing tenements; and one society went so far as to offer a bonus or gift of £5 to such owner as would add an additional bedroom.

Without entering upon any details as to the cost of alterations and additions which may be made to existing cottages to render them conformable to present views, it is manifest that very much may be done with them at a less expense than by the erection of new cottages, an advantage which will enable landowners to adjust the rent in some measure to the circumstances of the labourers on their estates. In fact, it is to this point we must look for a means of reconciling the difficulties of the whole question. The rules laid down by the Inclosure Commissioners for the advance of money to landowners for cottage building in no way extend to the conversion of or addition to existing cottages; and the facilities for getting money for the purpose of erecting new cottages are therefore one reason why so little attention is paid to the improvement of existing structures. This is to be regretted.

3rd. These remarks bring us to the third part of the subject—the advantages of good cottages to the labourer, the tenant farmer, and the landowner, who, being naturally benefitted, must severally contribute to the return due to the provision of good cottages.

When Lord Palmerston said, "The cottages for the labourer ought to be looked upon as part of the appurtenances of a farm, just as much as the buildings for cattle, or any other erection essential to the cultivation of the land;" and that "When he built a cottage for a labourer he regarded it as he did the farm-house, for which he did not expect the tenant to pay rent separately from the land," his lordship correctly expressed the connection of the labourer with the land upon which he is employed; and, although there are many who object to the dependent condition to which a labourer is reduced by occupying a dwelling from which he may be ejected by his employer, it is a position, nevertheless, from which it is not possible to rescue him as long as he is unable, out of his wages, to pay the full rent due for his home.

The limits of the present paper forbid our dwelling upon the wide topic of labourers' wages, which it will no doubt be said should be sufficiently high to enable every man to pay his own rent as a free agent, and that the dependence of the labourer upon his employer for his home is a species of serfdom from which he should be relieved. At present, we can only deal with the question of wages as we know them to be. In the northern counties, the average weekly wages of able-bodied men employed on farms will be found to be 13s. 6d.; in the midland counties they will be 11s., and in the southern counties not quite 10s. The women (excluding the indoor servants and dairy-women) living in cottages with their husbands or families, have it in their power to gain some money, in addition to the wages of the husband, and these contributions vary with districts. In some the women assist in field labour more than others. In Bedfordshire and adjoining counties, straw-plaiting helps to maintain the rural population; while in other localities lace-making answers the same end. The wages gained by boys of different ages are about the same all over England, varying from 4d. to 1s. per day. Although there is a wide difference in the earnings of the labourers in different counties, in no instances is it possible for any labourer with a large family, by which the wife is disqualified from earning anything, to pay 3s. 6d. a week out of his wages. The advantages to the labourer by the acquisition of a good cottage are, nevertheless, considerable. He will have greater comfort and improved health; but although these benefits will render him physically better able to do his work, they do not enable him, in nine cases out of ten, to earn more wages, and thereby to pay more rent. If his cottage is placed on or near the field of his labour, he will gain more time in which to work in his garden and enjoy his home, and to this extent he is peculiarly benefitted. But with this advantage, the utmost a labourer can pay in the way of rent is from one-sixth to one-seventh of his earnings; and assuming his wages to be, as in Hants or Dorset, ten shillings per week, with double wages at harvest, it follows that 1s. 6d. per week represents the amount he can set aside for rent. In the Midland Counties, by the same rule,

\* Paper read by J. Bailey Denton, Esq., M. Inst., C.E., at the Society of Arts, May 11.

the proportion due to rent will be 1s. 9d., and in the Northern Counties 2s. per week. There is an advantage, however, to the labourer in a comfortable cottage which he may not directly acknowledge or appreciate, and therefore for which he would be disinclined to pay. One of the certain effects of a comfortable home, with the cleanliness and tidiness which it begets in his wife and children, is to keep him from the public-house, and thereby to avoid the expenditure of his earnings in beer.

I believe no one interested in the welfare of the labouring poor will grudge the cottager the advantage of this saving, but, on the contrary, will rejoice in his thus helping him to a means of educating his children.

The advantages of well-built and well-placed cottages to the tenant-farmer, in securing labour at the time and at the place where it is wanted, can hardly be overrated. Well-placed cottages will not only secure the farmer a choice of his labourers, but will secure him that protection for his stock and property which the presence of selected men on the spot will be sure to gain. He will, moreover, save the time and strength of his labourers by securing that portion of both which would otherwise be expended in walking to and from the farm. It has frequently been said that the farmer loses nothing in this respect, but that as his labourers are bound to be on the scene of their employment at a given time, and to leave it at another, the loss of both time and strength is theirs and not their employer's. Those persons, however, who look carefully into these assumptions are of a very different opinion.

The advantages to the employer of well-placed comfortable cottages for his labourers will certainly justify him in paying a proportion of the rent. The aggregate value of the advantages has been estimated at different amounts, from 1s. to 2s. a week. If the mean be taken, then, the tenant farmer may be regarded as paying 1s. 6d. per week more in wages for selected men placed where they are wanted.

The advantage to a landowner of a good cottage tenantry is quite equal to, though not so manifestly direct in its results as, that to the labourer and the tenant-farmer. Leaving out of consideration all regard for the duties of a landowner in his social position, it will be admitted that the permanent improvement of his property will result more from the good character of the labouring population which is fixed, than from his farm tenantry, which, comparatively, is frequently changing.

The best cultivated districts, and those which owe their high rents to the superior treatment of the land, have arrived at their present condition from the superior character of the local labourers. The good habits which comfortable and cleanly homes beget, not only secure the superior cultivation and the improved rental which results from it, but they engender a respect for property generally, and are opposed to the evils of poaching and petty depredations which characterise certain demoralized districts. On these grounds the landowner can afford to debit himself with a part of the return due for good cottages. It is very much to his interest to recognise the fact in this light, for it will be a sorry day for him when cottages can be erected at such a price as will enable the labourer alone to satisfy the builder, and induce speculators to run up cottages wherever and whenever it may suit their purposes.

There is one way in which the landowner may contribute to the rent of a cottage in a tangible manner without a contribution of money, which might be more generally adopted. It is by adding a rood of land to each cottage occupied by an able-bodied labourer, and charging him only an agricultural rent for it. The value of land of moderate fertility to a labourer for gardening is 9d. a pole, or £6 an acre, if it immediately adjoins his cottage. The value of the same land for farming may be taken at £2 an acre, or 3d. a pole; if, therefore, the cottager pays but 3d., and he is benefitted to the extent of 9d. a pole, the difference of value will be 20s. a-year for the rood which the landlord will thus practically contribute towards the cottager's rent.

Before dismissing from consideration the advantage landowners will gain, a word or two should be said as to their duties with respect to the labouring classes. Most nobly did the late Duke of Bedford, in his communication to the Royal Agricultural Society of England, express what he deemed to be that duty (*Journal of Royal Agricultural Society*, vol. x, p. 186):—"Cottage building is, we all know, a bad investment of money; but this is not the light in which such a subject should be received by landlords, from whom it is surely not too much to expect that, while they are building and improving farm-houses, homesteads, and cattle-sheds, they will also build and improve dwellings for their labourers in sufficient number to meet the improved and improving cultivation of the land. To improve the dwellings of the labouring classes, and to afford

them means of greater cleanliness, health, and comfort in their own houses; to extend education, and thus raise the social and moral habits of those most valuable members of the community, are among the first duties, and ought to be among the truest pleasures, of every landlord. While he thus cares for those whom Providence has committed to his charge, he will teach them that reliance on the exertions of the faculties with which we are endowed is the surest way to their own independence and the well-being of their families.

But, however striking and true these words may be, it is quite certain that, as long as the laws of settlement and irremovability remain as they are, there is little chance of any general extension of cottage building. This is not said to justify the cruel acts of some landowners in demolishing old cottages without building new ones, but to affirm that there will always be, so long as these laws remain unaltered, a large proportion of the landed interest who will refrain from building while there is a possibility of the cottages they build being occupied by labourers employed on other properties than their own; in which case they say and feel they will only be preparing their own punishment, inasmuch as a residence of three years prevents removal, and gives a labourer who may become a pauper a claim for relief as long as he lives.

If we appeal to the legislature for means of alleviating the difficulties of the case, there are, indeed, several points towards which attention may be directed. First, to the alteration of the Law of Settlement, or irremovability just referred to, with a view to encourage the building of new cottages. Second, to the amelioration of the Poor Law, which discourages provident habits in the labouring poor. And third, to the encouragement of sound benefit societies, whereby the labouring poor may provide for old age as well as for sickness.

#### MEETING OF IRISH CIVIL SERVICE AND GENERAL BUILDING SOCIETY.

A NUMEROUS and influential meeting of the promoters and supporters of this society was held on Wednesday evening, 1st inst., in the Rotundo. CHARLES GRANBY BURKE, Esq., Master of the Court of Common Pleas, and Vice-President of the Society, in the chair.

Among those present were: William Henry Hardinge, Esq., Landed Estates Record Office; William Gernon, Esq., Secretary to the Board of Charitable Bequests; Alexander Parker, Esq., J.P.; Thomas Vance, Esq., J.P., Blackrock House; Jacob Owen, Esq.; Frederick Falkner, Esq., Barrister-at-Law; Benjamin Banks, Esq., Chief Clerk, Poor Law Commission; W. Scott, Esq., Valuation Office; George Irwin, Esq., Valuation Office; W. G. Plunkett, Esq., Valuation Office; Andrew H. Bagot, Esq., William-street; William H. Newell, Esq., LL.D., Chief of Inspection, Board of Education; James H. Owen, Esq., Architect to the Board of Works; Augustus Wyatt, Esq., Chief Clerk of Income Tax Department; Edward Henry Carson, Esq., Architect; George E. Durn, Esq., Secretary, Royal Hospital; Robert G. Falkner, Esq., Solicitor; James A. Gardner, Esq., Her Majesty's Customs; Robert H. Jephson, Esq., Poor Law Commission; Trevor Owen, Esq., assistant architect Board of Works; Frederick Franklin, Esq., Board of Works, Dublin; Alfred J. Aldrich, Esq., merchant; George William Finlay, Esq., Poor Law Commission; John Daly, Esq., Board of Education; Joseph A. Taylor, Esq., Board of Education; F. W. Connor, Esq., Board of Education; John G. Macfee, Esq., Her Majesty's Customs; Slevin, Esq., solicitor; John P. Seaver, Esq., solicitor, Her Majesty's Customs; Bryant, Esq., Board of Works; Charles Russell, Esq., Board of Works; Butler, Esq.; Thomas Donelan, Esq.; S. Rogers, Esq.; J. Browne, Esq.; E. Soultby Esq., Common Pleas, &c.

The Chairman said that it was not his intention to trespass on the time of the meeting at any length, because he would be followed by others who had devoted more time and attention to the subject than he had, and who understood it better; and as they had probably come there to learn rather than to speak, he was sure that they would give an attentive audience to what would be said upon the interesting subject that had brought them together. At the outset he should congratulate the promoters on the quantity and the quality of the meeting assembled on that evening, and he thought it right to state that, although himself intimately connected with the Civil Service of this country, this society was by no means confined to that or any other service. The gentlemen from whom they would hear most instruction on the subject were those eminent in the highest branches of commerce in the city, who, by character and probity, had attained their present high station, who would put before them the great public advantages to the community of a society such as this. They would hear matters succinctly treated regarding the operations of such societies, but if parties would only take the trouble to read the printed document he held in his hand, and for which, he should say, they were indebted to their indefatigable secretary, Mr. Daly, they would find in it the amplest information, and an opportunity would be afforded after the meeting to enable persons to join their society. They had heard of the question of landlord and tenant until they were almost sick of it, but here they had found a happy combination—rarely seen in any part of this country—for by their plan the tenant could ultimately become, through thrift, his own landlord; and they

had it from one of the most celebrated authorities on the subject (Mr. Tidd Pratt) that no gentleman who subscribed to this society would be liable beyond what he subscribed; and with such men connected with it they had every reason to look forward to complete success and prosperity. Those societies had produced extraordinary results in London, Manchester, and Birmingham; should Irishmen, then, be behind? Such societies, he believed, would have the effect of uniting men—of wearing off animosities and petty prejudices, and producing harmony and good fellowship, and that spirit of self-dependence which arises from self-respect, and, what was worth all, a high moral character in the community. It had been said of a kindred subject that a proof of the morality of Britain was the number of life insurances, and the same might be said to a certain extent of such societies as this, as they were to a certain degree of a kindred nature. He would call on their indefatigable secretary to explain the objects of the meeting.

The secretary (Mr. Daly), then came forward and said it was not his intention to address any observations to the meeting, other than those having relation to the immediate purpose for which they met. He would not enter into the general question of building societies. He had the pleasure of addressing assemblages on the same subject elsewhere, but he now found that his office had come down from a promoter to an officer of the society. He had the honour of introducing this society into Ireland, and if anything were wanting in his efforts to further the objects of the undertaking, he trusted the distinguished assemblage before him would bear with his defects. He would be followed, as they were informed by their esteemed chairman, by gentlemen who had made themselves thoroughly acquainted with all the leading characteristics and qualities of the society, and who would bring under their notice the whole facts connected with building societies, and would explain the immense advantages they were capable of conferring on this country. They had already conferred great benefits on England, and he did not see why Ireland should not participate in them. He would only observe that this society, of which he had the honour to be the promoter had attained a position and a success that was equal to anything they could desire; it was not formed in any spirit of opposition to any other society—there was room enough for all, whether they be joint or distinct societies, and he could tell the promoters of those other societies and the people of Dublin, that he and those gentlemen with whom he was associated, would be glad to see one hundred building societies in Dublin, and all doing well. If any one wished to learn the vast benefits which such societies were calculated to confer, he had only to read the able statement of Mr. Chambers in reference to his visit to Birmingham. He stated that everywhere these societies existed he found morality, industry, thrift, and a laudable desire for religion; and if these results followed in the train of such societies in England, it was but reasonable to expect that similar consequences would result from their establishment in Ireland. It was unnecessary for him to dwell on the advantage of a man occupying his own house, sitting at his own hearth, and being in fact his own landlord; and this feeling in itself was sufficient to arouse a spirit of self-dependence and self-reliance such as the chairman so eloquently referred to. Mr. Daly concluded by reading the notice of meeting.

Mr. Alexander Parker proposed the first resolution, viz.:—"That this meeting highly approves of the principle upon which this (the Irish Civil Service and General) building society is founded, and hereby recommends it as eminently deserving of the support of the Irish public." He said, he felt that any casual reader of the newspaper of the day must look with no little anxiety on the future consequence of so many schemes having originated within the last two months, demanding enormous sums of money for purposes some of which he regarded as feasible enough, some doubtful, and many he looked on as Utopian. He was satisfied, however, that this was not a society that bore any resemblance to some of the undertakings he had referred to; it, in the first place, made no large promises of marvellous percentages on the sums deposited, but it says that for a small outlay, if properly supported, it will enable the thrifty man to become his own landlord. He did not know whether it was so with the other members of the board, but he had a distinct recollection himself, when house rent was a serious item in his disbursements. When a young man, residing alone, he should have been delighted to embrace such an advantage as a building society of this nature offered. There was a very large and respectable class of the community who, with the education, the feelings, and the conduct of gentlemen, must find it no easy matter to make both ends meet in bringing up their families on slender means. For that class of the community he had the greatest respect; and he had much pleasure in giving a word of encouragement, a word of counsel, and a helping hand towards forwarding the interests of that class. He did not anticipate that he would ever become a bor-

# MAP OF THE CITY OF DUBLIN,

AND TOWNSHIP OF

## RATHMINES.

1864.

SHEWING EXISTING RAILWAYS AND THE PROPOSED  
DUBLIN TRUNK CONNECTING RAILWAY, & THE  
DUBLIN RATHMINES & RATHCOOLE RAILWAY,  
*as approved by Select Committee of  
the House of Commons, June 1864*

J. LEWIS LITH 25 DAME ST



### NOTE

Existing Railways —  
Dublin Trunk Railway, —  
Dublin Rathmines & Rathcoole Railway } —

THE LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

The Dublin Builder.

No 108, JUNE 15<sup>TH</sup>, 1864.

MAP OF THE

CITY OF DUBLIN,

AND TOWNSHIP OF

ST. ANTHONY AND ST. ANNE'S

rower for the purpose of building a house—he was sufficiently well provided in that respect; but if his friends and neighbours who were not yet housed desired to acquire that independent position which this society promised to them, he thought as a citizen he was bound to give a helping hand towards the undertaking. The resolution which he proposed pledged him to a certain extent that the rules of the society were prudent, sound, and practical. He did not vouch this as an actuary, but said that the rules of their society were the rules of societies that had been eminently successful; and he could not see why what had succeeded to admiration in England should not succeed to admiration in Ireland. He hoped there was as much intelligence and as much integrity here as there, and if there were not as much enterprise, this was a step, at least, in the right direction. The building societies in England, as a general rule, were established for the benefit of a class of a lower social status than that to which it was proposed in the first instance to apply the present society. The reason of that was because Ireland was not a manufacturing country, and we had not, therefore, the class of foremen and overseers to become builders on their account. He had looked over the papers of many of the English building societies, and he was happy to say he had not been able to meet with the case of a single failure. One society, established but a single year, in Birmingham had put forward a certified statement that it had eclipsed most of the societies of the same standing in England, partly because the system had come to be so thoroughly understood, and partly by reason of the enormous population of Birmingham. It had a good account to give of all its investments, and had realised a profit of something like £900 on the year. Mr. Parker proceeded to explain the mode in which the society would operate. A member of the society who wished to purchase or build a house would borrow the money for that purpose from the society, which would be secured by mortgage on the premises, their solicitor and secretary taking care that the security was sufficient. The money would be repaid by instalments as agreed upon, and when the entire amount was liquidated the man became the absolute owner of the house. In paying the instalments he was, in fact, paying rent to himself, and accumulating a property. He attached great importance to the habits of thrift and self-denial which such a society was calculated to engender, and expressed a strong belief that this undertaking would prove as successful and as beneficial in Ireland as similar societies had done everywhere.

Mr. James Owen seconded the resolution, and explained at some length the principles on which the society was founded, and the advantages which it was calculated to confer upon those who became members of it. This society was not a speculative society—it could neither buy nor sell; it only presented to parties opportunities of buying themselves, and provided them with the means of doing so, and then took the repayment from them in the manner most easy to them, and at times presenting the least possible difficulty. The society did not build itself, or call on its members to build—the impression had gone out, he understood, that members should build, but he hoped that Mr. Parker had sufficiently removed that impression by stating that although he had joined us he did not intend to build. It was an Irish society, and he wished it to be Irish, not only in its membership and directory, but also in its success, and as Irishmen had the reputation of going into extremes in everything in this country, he hoped the peculiarity would in this instance be perpetuated by carrying this society on to the extreme of success.

Mr. William Gernon proposed the second resolution:—"That the following gentlemen be, and are hereby appointed auditors and arbitrators of the society, viz.—Alderman James Mackey, J.P., and Charles Todd Buchanan, Esq., auditors; J. J. McCarthy, Esq., architect; A. J. Aldrich, Esq., merchant; Wm. B. Tomlins, Esq., surveyor H.M. Customs; J. Sibthorpe, Esq., merchant; and W. G. Murray, Esq., architect; arbitrators." Mr. Gernon proceeded to say that he knew no more pleasant position in which a speaker could be placed than when having to follow two gentlemen who had thoroughly dwelt on every idea he had formed of a subject, and expressed it infinitely better than he could. Having the good fortune or misfortune of following the exhaustive statement of Mr. Parker—agent to one of the most flourishing insurance companies in this or any other country—supplemented by Mr. Owen, he felt that he was literally standing before them without having been left anything to say except to propose to the meeting the resolution placed in his hands which it was necessary they should adopt under the Act of Parliament, under which they were constituted. He would, however, take the opportunity of saying that they might be sure that any society Mr. Parker had allied himself to as a Vice-President was no foolish project; and when he (Mr. Gernon) saw such a man allied to their society, and also the name of William Dargan—a man not only of Irish, but of European reputation—when he saw such a man as Thomas Vance, so well

known in the mercantile world—a man in the station of life of their respected chairman—he should come to the inevitable conclusion that not only was that society not foolish in its conception, but that they had the most perfect guarantee of its success. He cared not for the sneers that the society might meet from some quarters—those sneers only strengthened them. With William Dargan as their President, and Mr. Parker, and he had almost forgotten Mr. Bagot—the projector of the Irish Exhibition—one of the leading stars of the evening, but who, with his usual modesty, was concealing his brightness behind the chairman, they need entertain no fear of the sneers of others—and added to those they had the advantage of the services of their worthy secretary, Mr. Daly, in working out their undertaking. The names of those gentlemen he had read from the resolution, were such as he was sure would be acceptable to our Irish audience as the Irish controllers of this Irish society. The first building society came into existence about the time he (Mr. Gernon) came into the world himself—namely about 40 years ago. He was glad to see them in such good humour, and he did not wonder at their incredulity as to his being so long in the world. Well, the presence of a telegraph line in Connaught would not be newer than the appearance of a building society now in Dublin, and he was not surprised at it; however, their results were beneficially known and felt in England, and, before proceeding further, he should be allowed to do justice to the gentleman sitting before him, and with regard to him he would only say that the origination of this society and the idea of taking it up and conferring the benefits of it on this country were mainly to be attributed to the activity and talents of the gentleman who held the office of Secretary to their society—to him was to be given the credit of procuring for their country what was sure to be of vital advantage and importance to it—he had devoted his attention to the business part of this society, and had mastered the details in every part. As regarded his (Mr. Gernon's) official connexion with the society, he attributed the honour conferred on him more to any little attention he might have given to the meetings than to his knowledge of the details of those societies. It was only in 1836, he believed, that building societies became an established enterprise, as they ultimately attained such a magnitude, that the legislature thought fit to interpose, and passed the act 6 and 7, Wm. IV., under which their society was registered, and which permitted them to meet that night under legal sanction. In reference to building societies in general they could no longer be deemed an experiment, for the experience of forty years proved them to be eminently successful in every part of England. In four societies in the town of Bradford the total sum deposited a few years ago was £1,179,790, and in 1858 alone, the enormous sum of £222,522 was received. The average annual receipts are £150,000. The total amount advanced on mortgage was £632,457. The National Freehold Land and Building Society, of which Mr. Cobden, M.P., is the chairman, in 1853 had an invested capital of £220,895. In the year ending October, 1863, the balance to the credit of the shareholders was £498,756, and the net profit at the end of the year (after placing £5,000 to the credit of the reserve fund) was £16,405. In the Leeds Permanent Benefit Building Society, of which the Right Hon. Sir Charles Wood, Bart., M.P., is chairman, the total sum invested since its foundation, in 1849, amounted to £1,130,330, and during the last year the sum received by it was £167,082. In the Queen's Building Society, Manchester (of which Mr. Scholefield, M.P., is chairman, and which, though only a few years in existence, is now one of the most flourishing societies), £52,000 has already been invested. In five other building societies in Birmingham the amount invested since their formation in 1847 down to the present time is £610,000. These statistics were to be found collected in an admirable article on building societies in the last number of the *Civil Service Gazette*, and he could see no reason to question their accuracy in any respect. He would detain them for a few moments, while reading from an authority known to them all—Mr. Chambers—a man well known to the literary world for every perfection in the social sense. This gentleman had made building societies his peculiar study; he went from Edinburgh to England for the purpose of mastering the details of those building societies, and he had stated the result of his experience in a pamphlet which he had read at Glasgow and Edinburgh. (Mr. Gernon here read the extracts from the pamphlet referred to, and continued)—This society was brought before the public in this country in a national point of view—it was Irish to the heart's core, and would they allow it to be said that because it was Irish it should fail? He replied that such should not be said of it. Why should not Irishmen in their own country succeed as well as in any other country we see them transported to? Why should they not succeed in their own country in that principle of combination which they so successfully ac-

complished when cast on a foreign soil? The society did not stand hostile or antagonistic to any other society. In several towns in England there were not only one or two of those societies, but seven or eight of them; and was it because they happened to be the first started in this country, that it is to be said that there was no room for them. He was happy to observe that they were patronised by the ladies on that evening, and he regarded it as a good omen, for he never knew of the ladies taking a part in any undertaking that it did not succeed. Mr. Gernon concluded by calling on all classes of Irishmen to rally round the society, and by availing themselves of its incalculable advantages, not only serve their own country but render unto themselves and their families a lasting benefit.

Mr. William Harding seconded the resolution. The society possessed his fullest confidence, not more from its utility than from the list of names attached to the directory. He was sensible of its advantages to the Civil Service. It had his entire support, as, perhaps, one of the oldest Civil Service officers in the United Kingdom.

Mr. Thomas Vance, J.P., proposed a resolution, by which the meeting recorded its full confidence in the gentlemen who formed the board of management and officers, and confided to them the future control of the society. He was quite sure there was no one present who did not know the name of each gentleman connected with the management of the society. He dwelt on the great services that their indefatigable secretary, Mr. Daly, had rendered in promoting the objects of the society.

Mr. Trevor Owen seconded the resolution. He said that he had confidence in doing so, not only on account of the names of the officers, but because from his knowledge of the success of the societies of like nature in England, he was sure that such a society had fair prospects of success here.

Dr. Newell proposed a vote of thanks to the press.

Mr. Andrew Bagot bore testimony to the manner in which the press had advocated movements calculated to benefit our country.

After passing a vote of thanks to the chairman, the meeting separated.

#### ROYAL IRISH ACADEMY.

A GENERAL meeting of the members of this society was held on Monday evening at the Society's house, Dawson street.

The Very Rev. DEAN GRAVES, President, in the chair.

The President read an interesting paper on certain inscribed monumental remains in the county of Kerry. It was a curious Ogham monument he had to give an account respecting. Whilst in the neighbourhood of Derrynane, last summer, the seat of Daniel O'Connell, he observed rising out of the strand a small rock or pillar about three feet in height. One of his sons who accompanied him, suggested that it might be an Ogham monument. Being surrounded with sand some inches in depth, he did not further examine it then. On the following day, however, it was examined by his son, who brought him information which satisfied him as to its character. The whole monument was covered by the water at spring tides. Upon it was an inscription reading from below upwards, part of the inscription being buried in the sand, and the part above it much injured and defaced by time. In the neighbourhood of this monument were a number of remarkable ancient forts, and the surrounding country was rich in remains well deserving the attention of the archaeologist. Having referred to the significance of such monuments, and the inscriptions upon them, the Dean acknowledged the assistance he had received from Mr. Daniel O'Connell, the present proprietor of Derrynane, in carrying on his examination of the monument. It was no easy task to remove the sand and other obstructions from about its base.

The paper was referred to council for publication.

Mr. G. C. Garnett read a paper "On armour-plated ships of war." He proceeded in the first instance to give an interesting history of the modern system of iron plating, and an account of the different forms it had assumed since its introduction. The experiments of Mr. Stephens, an American engineer, proved that a thickness of six inches of iron may be made impenetrable to every projectile. His results were communicated to every Government in Europe, but while they were neglected in this country, the French Government at once discerned their great importance, and accordingly the French iron-plated ships *La Gloire* and *Normandie* were constructed. There could be no doubt but great improvements had been effected in shipbuilding of late years, particularly by Mr. Scott Russell, who had discovered the wave line. This country had been slow to act upon those improvements.

A paper on "Animal Mechanics" was read by the Rev. Professor Houghton, M.D.

## IRON APPLIED TO ARCHITECTURE.\*

I HAVE chosen iron as the subject of my paper tonight, not only on account of its great value as a building material, but as being pre-eminently the new material of the nineteenth century, which has called forth our skill as constructors, enabled us to execute works that a century ago would have been considered impossible, and should ere this have called forth a new style of architecture. "Architecture," says Macaulay, "is more of a science than an art." Be this as it may, it is first necessary to point out the advantage gained by the use of iron before entering on the question of giving it a beautiful form.

There are four perfect building materials, namely, wood, stone, brick, and iron. I use the word perfect in this sense—that, with each of these materials, a building may be wholly constructed, the windows excepted. It may be more agreeable or economical to use other materials for certain parts of the structure, but it is not absolutely necessary; and, as we include marble under the head of stone, we may say that stone is perfect, without excepting the windows, as they may be glazed with thin marble or alabaster slabs, as is done at the cathedral at Torcello. A wood building is cheaply constructed, is warm, dry, and comfortable, can be carved and ornamented as we please, but it is liable to decay rapidly, and is perfectly inflammable. A brick building is much more costly; it is tolerably dry, but the walls and floors are rough and cold to the touch; great space has to be given up for the thickness of the walls, and to resist pressure of the vaults; it cannot be carved; and, if the external parts are covered with terra cotta, the numerous joints spoil the effect of mouldings or ornament, unless the building be on a large scale; it is very durable, and, if built with mortar, it has the advantage of being thoroughly fireproof. A stone building is more costly than one of timber or brick, provided both bricks and stone be of equal durability, and can be both got on the spot. It is not so dry as brick, but it is stronger, taking bulk for bulk, more available for a better mode of construction, and can be carved or moulded as we please, but it is not fireproof, only incombustible. It will now be necessary to point out some of the properties of iron which fit it for being used as a building material before comparing it with timber, brick, or stone construction.

Iron is divided into cast and wrought iron; both are very heavy, as compared with the other materials, but they have much greater power to resist crushing, tearing, or breaking across. To give you some idea of the greater power of iron, I may say that one square inch of cast iron will take more weight to crush it than ten square inches of granite, and nearly as much as two square feet of brickwork; but its capability for resisting strains is much more available than the mere comparison would imply. Iron may be cast hollow, and pieces of wrought iron may be put together in such a way that the material may act with its greatest efficiency; while brick and stone must be put together in solid pieces, iron can be cast thinner than brick or stone, wrought iron can be rolled as thin as paper. Cast iron is incombustible, and wrought iron is virtually fireproof. Iron also demands more skill on the part of the architect, in nicely adjusting the parts one to another, and the whole to the strains to be borne—in designing such ornaments as are adapted to the nature of the material so that an enormous expense is not incurred in producing an effect that might be obtained by simpler and cheaper means. The pieces are cast or made of considerable size, and generally may be put together without scaffolding or centring.

It has lately been the fashion to enlarge on the advantage gained by society in employing workmen on work that may serve to develop their intelligence, and this has been carried to the point of recommending masons being employed to design and carve the ornamental parts of buildings, on the ground that it would be better that the men should have their attention drawn to the beauties of nature than the public should be regaled with artistic work. By the use of iron we certainly employ a large number of men in a pursuit calculated to raise their intelligence.

It would be unfair not to point out the disadvantages of iron, which, without doubt, greatly contribute to its want of more general use. It rusts, and this rusting destroys wrought iron; but if iron pipes, baths, and saucers can be enamelled for use, why cannot iron columns and girders be enamelled for beauty? It rapidly conveys heat, and this is at present an almost insuperable objection to it, for outside or inside coverings. If used for outside coverings, it makes a building insufferably hot in the summer, and if inside, cold to the touch in winter; it will communicate fire by getting red hot, and when used in thin plates, it is too sonorous.

In small houses where plenty of light can be got, where the ground is of small value and the risk of fire is not cared for, brick and timber are cheaper than

iron. In large and ancient towns the streets are for the most part narrow, and the houses high; consequently, the rooms are either very dark, or a large space must be given up at the back to get the necessary light. In the city of London especially the ground is very valuable; and, by admitting all the light we can, we save the space given up for light areas, and greatly palliate, if we cannot cure, the evil of darkness. By this we not only confer a great benefit on the unfortunate occupants by giving them more light, but save annually a great outlay for gas, and for the rent of ground unprofitably occupied. No one can walk through the narrow streets of the city, in which the houses are not unfrequently six times as high as the street is wide, without being shocked at seeing new buildings with massive piers of brick or stone that block out two-thirds of the available light, and should there be a building more pretentious than its neighbours, its piers are usually still more massive, the windows are smaller, and it has a more overhanging cornice. In short, it is generally a copy from some Italian palace, where small windows, thick walls, and deep eaves are wanted to keep out the light and heat. In churches, public halls, and theatres, it is important to have the space as clear as possible, so that no obstruction may be offered to sight and sound. In theatres iron columns are generally used, but in the two former piers of stone or brick are still adhered to, or, if the columns are of iron, they are made as large as if of stone. Until iron was used for building purposes, if floors were wanted to be incombustible, they had to be vaulted; but, by the introduction of iron, an incombustible floor may be made of stone, or slate, a few inches thick, carried on iron girders.

In short, it is only necessary to remind you that an iron girder 450ft. long, and but 25ft. high, spans the Menai Straits, and carries the heaviest weights, and that the Crystal Palace, one of the largest buildings in the world, is supported by columns not larger than rain-water pipes, with a roof like a spider's web.

Having now pointed out the superiority of iron over other building materials, I will describe the manner in which it can be put together in the best way. The most economical form into which iron can be fashioned for supports is in the shape of hollow cylinders or columns, and beams or girders for carrying the floors or weights; so that we have a sort of skeleton or framework, consisting of columns at certain distances apart, connected on each storey by girders. To form this framework into a house or building, we have to fill in screens or partitions between the columns, to form the substance of the floors, and to cover it with a roof to carry off the water. This can be easily and cheaply effected by means of thin iron plates, if there was no objection to their use.

Architecture depends, first, on the arrangement, second on the material used, third on the science possessed at the time for properly using the material, fourth on the artistic invention. By the arrangement, I mean whether the building is to be open or enclosed, whether it is a market, a portico to shelter from the weather, a house, a church, or a theatre. To make a building we must have a roof and supports to carry it, and generally we require enclosures and floors above the ground. This being given, the material and the scientific skill give the building. The rudest architecture we know in point of skill is that of the Greeks, namely, the post and beam, which were not superior to those of our own naked native at Stonehenge. Two big stones, with bases large enough to prevent their falling over, were put on end, and a stone beam was laid across the distance, the uprights being regulated by the length of the stone beam, the larger central span being left open because it could not be roofed with stone. Their only other style was after the manner of the oyster shell grotto. The Romans could build with small stones, brick, or rubble, as they knew how to make good mortar, and when the arch became known they were enabled to span the larger openings with stones that a man might carry. They could also vault over spaces that before could not be covered, and this, too, at a less cost than one large stone beam could be cut, removed, and raised. From the plain vault arose the dome on a cylindrical wall, and to that succeeded the groined vault. The next step was the Byzantine dome on pendentives, and from that time until the invention of the rib and panel vault, with the groin ribs semicircular, and the main ribs pointed, no great advance was made in construction. That discovery being once made, the architects trusted themselves to their own resources, threw off all their ancient trammels, strove to outvie one another in hardness of construction, and executed those works which even now excite our admiration and wonder. The rib and panel vault at last gave way to the vault of uniform curvature, first, with the dome, and afterwards with the pendant, and then construction ceased again to make any great stride until the present century.

On the first introduction of cast iron it was used as stone had been before in making arches, with the voussoirs or arch stones of iron, instead of stone, but

it was soon found that iron could be cast sufficiently deep to enable us to use beams of great length, as the Greeks had used stone lintels; and, when wrought iron had been brought to some perfection, it was found capable of being made into beams or girders of a length that had never before been imagined. No sooner was this capability discovered by the joint labours of Fairbairn, Hodgkinson, Robert Stephenson, and others, than new forms of trussed and braced girders were really introduced. In many of these girders the solid parts between the top and bottom were cut away, and a variety of forms was introduced. The girders are known by various names suggested either by the form or by the names of the first patentees, such as the tubular, the plate, the bow string, the lattice, and Capt. Warren's, the flexible arch, &c. Fresh experiments on the strength of cast iron, and of the best forms in which it could be made, gave a new impetus to its use.

It now only remains for me to point out the advantage of the new methods of construction over the best of those before used, namely, the rib and panel vaulting of the Middle Ages. It is agreed, I believe, on all hands that the impulse given to the use of vaulting was the damage by fire constantly occurring to large ecclesiastical buildings, but when once the difficulty had been solved it became apparent that a much nobler and more complete character was given to a building by having its interior all of one piece or of one material than by covering it with one more perishable. Light as these vaults were made it was necessary to resist the outward thrust of the arches by means of flying buttresses which carried, as it were, the thrust to the ground. In cathedrals and other large buildings only constructed for show, the effect of the vaulted roof not only added to the grandeur of the appearance, but, by suggesting the forcing outwards of the walls produced a magical effect, as the means by which such a catastrophe was prevented could not be seen from the inside, and probably the use of the buttresses when seen from the outside was not very apparent to the uninitiated. But when works are executed mainly for utility the case is very different. A large space profitably occupied is taken up by the vault itself, the spandrels have to be filled up for the floor above, and great space is taken up by the buttresses, and the expense of their construction is very great. If this vault were one solid piece, self-contained as a cup, there would be no more weight to be supported by the wall than when the vault was active, and all the space and cost of the buttresses would be saved. By reverting, then, to the old Greek plan of the post and beam, all outward thrust is avoided, and we are saved the abutment of the bridge, the thick walls, buttresses, or counterforts to a house or a church. Another curious phenomenon is to be observed. The earlier nations of antiquity who have reached any great eminence have built more solidly and grandly than those nations more approaching our own time. At the present day we are content to make our buildings of only sufficient stability to last beyond the average length of man's life. The pyramids of Egypt, if not wilfully destroyed, may last for as many thousand years as they have hitherto stood. The Greek and Roman remains may last another two thousand years. The cathedrals of the Middle Ages, both from their principle of construction and the small quantity of materials used, will probably, not survive a thousand years, unless protected and repaired; and, probably, a couple of centuries would see the Britannia Bridge at the bottom of the straits, or the Crystal Palace but a few fragments of rusty iron and broken glass, if they were left, untouched to the mercy of the elements. The child of to-day and the man child of early ages have but little real comprehension of another life, or even of the gradual raising by their efforts of the races that are to follow them, and desire to leave some tangible and enduring memorial of their brief stay upon the earth; but few of us have any such care, and would as soon be left without a tombstone as with one. Besides, we see such a prospect of future changes and convulsions that our buildings are not designed to be much more durable than the bird's nest or the spider's web. Whether this results from a purer faith or the knowledge that money at 3 per cent. will double itself in 33 years, I will not attempt to determine. I feel sure that, greatly as iron is used now, it will be much more largely employed when the saving effected by its use of light and time is duly appreciated, even though it may be shown that its duration, when it is no longer cared for, will be short.

Having now pointed out the advantages that are gained by making buildings of iron, I will speak of architecture as a fine art. This art wholly consists in making the building pleasing to the eye after the judgment is satisfied that the necessary requirements have been fulfilled. The eye refuses to see the beauty if it is palpable that the building is unfit for its intended purpose, if it appears unsafe, or if those parts that give the general appearance of beauty to the whole appear to be unnecessary, or are mere excrescences that might be cut off and still leave the

\* By Mr. G. Aitchison, recently read at the Architectural Exhibition.

building. Before we can look on architecture as a fine art we must feel that the sort of beauty given us is of a character consistent with the feelings of the age in which we live and that it is original.

There are but few rules that can be applied to an art, the existence of which depends on original invention, but such as they are, I will give them. The parts must be in harmonious proportion one to another; for instance, the space given to the capital shaft and base of the columns, to the solids and voids, must bear such relations to one another that they produce a pleasing impression; the parts must be subordinated to the whole or be in proper proportion to it, the outline must be good, there must be a due proportion of light and shade; there must be a proper variety of forms so as to produce gradation and contrast of tone; the ornament must be graceful, and such that is adapted to our taste.

It is natural to ask if this has ever been accomplished? It has been accomplished in the Greek temples. In them you have a rude construction on a par with the Druidical temples, the only difference being that the Greek temples are oblong squares, and the Druidical temples, circular; but the one, if it can be said to exhibit any art at all, exhibits the rudest attempt of a savage, while, in the other, art has arrived at its highest pitch of excellence. These temples are an example of the sayings—that the art is to hide the art, and that perfection consists in trifles, but is itself no trifle; for in what does all this perfection appear to consist? in a few vertical and horizontal scores, a few projections, a few dots, and in a few simple curves taken from a shell or a pebble. Yet such is the subtlety of the proportion, the exquisite grace of the curves, the exact placing of the dots, and the extreme simplicity and originality of the whole, that it extorted the reluctant praise of the artist's contemporaries, and in succeeding ages has called forth the enthusiastic admiration of all cultivated minds. The next question is, why cannot we have an architrave equal to the Greeks? In constructive skill we are as superior to the Greeks as the angels are to us. The answer is, you do not want it! The public do not see any difference between one proportion and another; they care not for the subordination of the parts to the whole, nor for the outline, not for the light and shade, nor for the variety of forms; they do not care for any ornament at all, and, if they have it, they would as soon have a coarse imitation of nature chopped out by a mason as the most exquisite production of a Greek artist of the time of Pericles, or an Italian artist of 1500. The carving of the present day is called natural—I suppose, in contradistinction to artistic; and reminds one of the artificial flowers cut out of turnips and carrots with which cooks ornament joints. The Britannia Bridge, and the new viaduct across the Borough, may be taken as examples of the architecture people want—things not simply indifferent, but positively hideous. It may be objected that some of our engineering works are the best architecture we have; Southwark-bridge, for instance, is the most graceful bridge on the river. This is true, the lines of force will sometimes coincide with the lines of beauty. But you cannot expect to have real architecture, the highest of all the fine arts, and by far the most difficult, by accident; there must, at least, be an earnest and true desire for it before it can ever be got; and, when we get a real architect, he must be rewarded with all the thanks and honour that the nation has to bestow, not only in rejoicings at having found so great a rarity, but in recognition of the years of unrequited and heartbreaking toil that he had to undergo. Most men are tolerable judges of the convenience of the house in which they live—a merchant of his counting-house, a trader of his warehouse, a judge of his court; but of the artistic merit of the design they are generally as incapable of judging as of the relative merits of Sir Isaac Newton and Leibnitz, of whose works they do not understand one word; and yet every wealthy blockhead who has a house to build, or who has the fortieth part of a vote at a committee, is quite ready to criticise, advise, and give directions, though he may not know a Corinthian column from a Gothic pinnacle, nor even which side of a drawing should be uppermost; in fact, he may be ready to treat the architect with much less consideration than his tailor, who, if he be a man of independent spirit as well as a good workman, will advise him to get suited elsewhere, if he tells him he does not approve of his cut. This belief, that money confers the power of judging the artistic merit of a design with the want of appreciation of real genius, drives many of the most promising young men out of the profession, who prefer embracing painting to suffering neglect and having their designs spoiled. The works of a painter may not be appreciated until he is old and, perhaps, not till he is dead, but he can still paint, and, probably, make a modest livelihood; but a real artistic architect who is not appreciated has nothing to leave but drawings which few value or even see.

If the public wish to have architecture let them either abstain from giving their opinion or influencing

the choice of any design until they have at least studied form, by drawing for some years the more graceful plants, and have surrounded themselves with furniture and utensils, of shapes the purest, most elegant, and devoid of ornament. As there is so much said and written on the subject of the real living architecture that we now have, and the ardent and enthusiastic band who are carrying it to a goal more distant than it has yet attained, it may appear to you curious that I have said nothing about it; but the fact is that architecture is in the state of the discreet French statesman, who was dead, but did not wish it to be known; and the battle of the styles is only a quarrel between rival old clothes men. The particular forms which the Greek artists applied to their buildings cannot be applied in the present day, because they are not only unsuitable to our taste and climate, but seem to form an intrinsic part of a construction which we have ceased to use. The Romans and the Roman school,—Palladio I mean, and his followers—never had any art. The Romans were, like us, capital constructors; but when they had made their building, they did not know how to ornament the construction, and having conquered Greece about the time their wealth enabled them to do much public building, they stuck on the outside of their buildings bad copies of Greek work, which were either wholly useless, and unmeaning, or acted as buttresses of a bad shape and in a curious disguise; besides, their construction was superseded by that of the middle ages, and that of the middle ages by our own. The works of the middle ages were executed rather by engineers than architects,—splendid constructors, but indifferent artists, who sought rather for variety, oddness, and grotesqueness, than for elegance, grace, or propriety, and appealed to a daring, turbulent, and unlettered public. Their construction we have surpassed, and their ornament we hate. Besides, the copying, altering, or paraphrasing of any artist's work, requires but a small talent, and such work is not to be elevated to the dignity of an art. If we want any beauty we look rather for elegance and propriety than for variety, oddness, or grotesqueness.

We have a material with which we can wholly construct a building. By using it, we can save more space and time, and gain more light, than by the use of any other material; it is durable, incombustible, and may be given any form we please; the putting together of it more resembles the constructions of the Greeks than any subsequent construction, and I repeat, that, if we cannot make an architecture out of it, we may lament that our time is not that of the Greeks, or the middle ages: the architects may content themselves with saying that the public do not want architecture, and the public by saying that they cannot find architects.

#### RAILWAYS IN CHINA.

A PROPOSAL has just been published by Sir M. Stephenson for the introduction of the railway system into China. It consists of a report, accompanied by a large sketch, upon which an extensive system of railways is laid out. Sir Macdonald was the first who, twenty-five years ago, introduced railways into India, and he is now about to turn his energies to China, a far larger, and, perhaps, not less promising field in respect of railway enterprise.

Sir Macdonald's attention was first turned to the subject of Chinese railways by a retired member of the eminent firm of Jardine, Mathieson and Co., and it is an additional proof of the commercial importance of the proposed undertaking that twenty-seven of the largest English merchants established at Shanghai have already petitioned the Imperial Commissioner and Governor of the province of Keangsoo for the concession of a line of railway from Shanghai to Soochow, a distance of sixty miles. It is anticipated with confidence that it will be granted. Sir Macdonald states that the governor of Canton and many of the Chinese people are become interested in the subject of railways, and there is abundant reason for believing that if one short line is constructed the Chinese will immediately demand others. Sir Macdonald has sketched out a comprehensive system of railways centering at Harkow. The line extending eastward from thence to Shanghai would be 650 miles long, north to Pekin 800 miles, and west to India about 1,600 miles. He proposes if it be possible to have five short lines commenced, which, although each would be complete in itself, and possess the command of a large traffic, might ultimately become links in the larger system just mentioned. The whole issue of the scheme depends upon that of the application already made for a concession of the Shanghai and Soochow lines, but the prospect appears to be encouraging.

There does not appear to be any considerable difficulties in the way of the construction of the proposed lines; they are not only direct, but lie, for the most part, along the valleys of great rivers, and in fine alluvial soil, well cultivated, and capable of contributing traffic. Only one of them would require to

be carried over a mountain pass, that between Hankow and Canton. Here, however, quite practicable gradients and curves can be introduced. Within sixty miles of Canton, and also in the Meiling mountains, there have been found extensive deposits of coal, the value of which, in connection with railways, it would be needless to dwell upon; samples have been brought to England for trial as steam coal, and the same variety is employed in the numerous Chinese manufactories in and about Canton. Should railways be begun in China, the low price of labour, and the industrious habits of the people, would prove most important. The Chinese are accustomed to extensive canal works and earth works, masonry, &c., and it appears that their work is well done. Sir Macdonald states that the value of materials and labour may be taken at the following rates collected from various sources:—Granite (rough squared) in place, per cubic foot. 3s. 6d.; sound hard timber, 2s. a cubic foot; earthwork, 6d. a cubic yard; mat and bamboo building, suitable for temporary residences, stores, sheds, &c., £1 10s. per 1,000 cubic feet, this kind of construction being strong, dry, and impervious to rain. The wages of masons, stonecutters, carpenters, &c., are about 1s 6d. per day, or if by the month 22s., ordinary labour varying from 6d. to 1s. per day according to locality.

Sir Macdonald Stephenson corresponded extensively while in China with government officials, merchants, and missionaries there, and although it is just possible that all of the replies received were not of the same hopeful and encouraging tone, it is certain that of the large number of letters given in his report, all are in favour, and many of them strongly so, of the introduction of railways into China. From the view which he takes of Chinese prospects there, some striking conclusions may be arrived at.

The Chinese empire contains about one-third of the whole human race, and it is blessed with a fine climate, noble rivers, a fertile soil, and an industrious and practical, although ignorant population. With all their industry, however, the excessive population of China, unsupplied with means of proper communication, necessarily implies great poverty in many places. It is this poverty which railway undertakings are best fitted to remove, and they would do so in China, in part by the employment of labour in their construction and working, but chiefly by the vastly increased facility and consequent cheapness of exchanging natural products and manufactured articles. Coal, for example, mined at a distance of about 200 miles from Canton, is a whole month in reaching there, and its cost of delivery is from £1 12s. to £3 11s. a ton, the highest price being for the hard coal.

There is a great difference between the Chinese and the Indians. There is no caste in China, nor are the people of the indolent habits of those of Hindostan. The Chinese are already accustomed to manufactures, mining, &c., and large and numerous steam vessels, built and owned by Europeans and Americans, are now running on the Chinese rivers, The Chinese have enough of spirit too for emigration, whereas Hindoos never emigrate. Although they are unwelcome visitors the Chinese are found in force in Australia and in California, and they are hard-working miners there, and become comparatively rich. With proper facilities for manufactures and trade, and with the examples of English institutions amongst them, the Chinese, it is likely, would become improved as a race, and to an extent which one could hardly reconcile with their past barbarism and wretchedness. It is, therefore, gratifying to know that, at the time of the departure of a recent Chinese mail, the Governor General of Canton was carefully examining working models of an English locomotive and train. We will hope, and we may reasonably do so, that he and his countrymen will have soon become familiar with them.—*Engineer.*

#### DUBLIN AND KINGSTOWN STEAM PACKET COMPANY (LIMITED).

It will appear from our advertising columns that this company have commenced to issue return tickets between Dublin and Kingstown for a single fare after five o'clock p.m. on week days. This will be highly appreciated by excursionists, and we have no doubt that very many will avail themselves of this opportunity of obtaining a few hours of evening recreation during the season.

The British Government has now 17 iron-clads afloat and efficient, and by the middle of next year will have 27. Of those afloat ten are first-rates of the Warrior class, though with many differences in construction, two second-rates, three third-rates, and two little ironclads. Of the ten nearly finished six are first rates.

### THE SUCCESSFUL METROPOLITAN RAILWAY BILLS.

We have hitherto refrained from commenting upon the protracted strife which has been waged in the House of Commons amongst the host of engineers, contractors, solicitors *et hoc genus omne* who have benevolently undertaken to give us a railway whether we wish it or not, and have carved up the map of our city without compunction according to their respective fancies. Were the various schemes, the discussion of which has for a long time occupied a large portion of the columns of our daily contemporaries to be all represented upon one map, they would present a complicated arterial system sufficient to bewilder the eye of an anatomist, and a ponderous blue book might be filled with the evidence adduced in their support. It would certainly seem that the advocates of each plan were more eager to disprove the expediency of every one except their own than to bring forward the merits of that which they supported, and had they bestowed more energy upon this latter object very different results would have been arrived at. We have already discussed the question of the several metropolitan railway schemes, and it would be needless again to enter at any length upon the subject. We have always maintained that a metropolitan railway for Dublin was in the first place not needed, and even if it were, the expense of its construction would render it a very doubtful speculation. There has been abundant evidence to show that at any rate it could not pay by means of goods traffic, and that its best chance would be to make it a really convenient passenger line, carrying the residents of Kingstown, Bray, and the suburbs, into the immediate neighbourhood of their respective places of business. The most natural way of effecting this was obviously to make the several lines run into a central station, not a goods depot, but a moderate building suited to the requirements of passengers. This desirable object would have been effected by Mr. Barton's plan, or indeed by Mr. Barry's, although not possessing so much merit in an engineering point of view. These are points, however, that could only be understood by a long residence in Dublin, and it is not to be wondered that the decision of the committee should be biased by their experience of what was best suited for London, although there could in reality be no comparison between our small city and the vast metropolis of England.

Two questions naturally suggest themselves, and indeed have been already asked,—since the promoters of the circular subaqueous junction railway may be considered to have gained their bill, will it ever be constructed? and if so, will it pay? We hold our own opinion on these subjects, but do not wish to enter the lists of the contending parties by stating it; but one thing we do hope as advocates of everything that tends to advance the interests of our people, that if the works do go on they may be made a means of employment to *Irish* workmen, and not placed in the hands of an imported Scotch element, as in the case of another vast undertaking that was considered necessary for the benefit of our citizens, but to be executed at their own expense. We have, however, yet another question to ask, to which we would be glad to obtain a satisfactory answer. Will the new metropolitan railway have any kind of a central station for the accommodation of passengers? If such a station be provided the inhabitants of Bray must travel by the Kingstown line in order to be conveyed to it, and the traffic of the latter must be turned off at Sandymount, where the junction line branches off. The Dublin, Wicklow, and Wexford Company are anxious to encourage the traffic from Bray along the main line for very obvious reasons of their own, and they would certainly never agree to a scheme which would lop off a mile of the Dublin and Kingstown line. What would become of the portion of the line between Sandymount and Westland-row, if the passengers from Kingstown were to be conveyed into the city by the junction line? It would appear then that neither with the approbation of the public nor with the consent of the proprietors of the principal passenger line of the city will the proposed railway become a line for passenger traffic, and yet if not, for what is the station at Irishtown intended? How will passengers from Irishtown be conveyed into the city? Will they be sent round by Sandymount to Westland-row when a car will take them to Carlisle-bridge for two-pence, or will they be carried forward to a remote terminus at the north side of the city. A foot-path is promised through the tunnel to connect the north and south sides of the city below Carlisle-bridge, which is boasted of as a great short cut; but how many will make use of it? If it be made, it must be to the requirements of the Ballast Office, *thirty-seven feet* below the river, rather a formidable descent before again emerging into the precincts of light and air. A flight of seventy-four steps would be sufficient to deter the most active of our citizens from availing himself of such an accommodation. We question would not a mile of a round be preferable to undertaking such a short cut. Besides there is a ferry

there to offer the advantages of a horizontal transit. If it were proposed to join the north and south sides at the same place by a bridge thirty-seven feet in height, would not the engineer who made such a proposal be laughed at? And yet the foot-path through the tunnel is precisely the same case only in an inverted position. The same obstacles which rendered the Thames tunnel a failure will still be found to be in force, and after such a disastrous precedent it would hardly be expected that the experiment would be tried a second time.

If, then, the new metropolitan railway is not to be a passenger line, will it be used extensively as a goods line? The Midland Great Western Company will be more likely to avail themselves of their own Liffey Branch line so recently constructed. The opening of a new port at Greencore connected with a short sea passage may divert a considerable portion of the goods traffic of the Drogheda line from Dublin. The Dublin, Wicklow, and Wexford Company will not willingly run their goods traffic over the Dublin and Kingstown line. Will, then, the traffic that will arise between the several railways and the cattle market be sufficient to guarantee a profit on an outlay of £255,000. Again, will there be a guarantee that the line can be made for such an outlay? The tunnel will be 324 yards in length, and it is expected that it will be made for £54,000. This amounts to £166 per yard forward, or a modest demand of £4 14s. 6d. per inch! But is there any certainty that it can be made even for such an amount. An estimate for a tunnel must necessarily be more or less of an approximate character, and unforeseen casualties may at any time occur which will cause it to run up to four or five times as much as was anticipated. Such has been the case in many instances, never more strikingly than in the case of the Thames tunnel. The water broke through twice from overhead, proving almost fatal to those who were engaged on the work, and but for the power of the master mind by which it was designed, it never would have been completed. It will be argued that such an accident would be impossible at such a depth beneath the water. The Thames tunnel would have been carried at a much lower depth, but it was ascertained that by doing so it would be caused to enter a water-bearing stratum which would have rendered the work impracticable. Has there been any evidence, by borings or otherwise, that the same may not exist at a depth of thirty feet beneath the Liffey? With these few remarks we leave it to our readers to answer,—if the promoters obtain their bill, as there is now a likelihood of their doing, will the works be ever executed, and if so will there be a profit on the outlay?

Another of the so-called metropolitan lines has passed the Committee of the House of Commons, almost without opposition, and we congratulate its promoters on its success. This is the Dublin, Rathmines, and Rathgar Railway. The advantages which a railway will confer upon these thickly-inhabited and fashionable suburbs are estimated, and there can be but one opinion as to the profits that are likely to accrue.

We select the report of the proceedings of the Select Committee on these two so far successful bills out of the vast mass of antagonistic evidence as being most likely to be of use for future reference. On the fallacy of some of the arguments brought forward in support of the former we need not dwell.

#### THE DUBLIN TRUNK CONNECTING RAILWAY BILL.

Mr. Hope Scott opened the case of the promoters for this bill. It was his wish at first sight to show the absurdity of a central scheme. All military authorities derided it. The Duke of Cambridge had given evidence against it, and Colonel Wetherall, who had been examined here, had admitted that it was objectionable, and especially where bodies of troops were to be brought through the several termini stations as was proposed by the central schemes. It was admitted that in large cities, like London and Paris, central stations were an impossibility; and if any comparison was to be made between London and Paris and Dublin, the convenience of a central station would be much against the last city. London was an ellipse of 9 miles by 7, or 64 square miles of area, whereas Dublin was only 8 miles of area, and was 1½ miles across. Dublin had already five railway stations for 8 square miles and a population of 300,000. London had only 12 railway stations for 64 square miles and a population of 3,000,000. If London had the same amount of station accommodation as Dublin, it would require 40 stations. A radius of 7 furlongs would take in all the present railway stations in Dublin. It was idle, therefore, to talk of want of station accommodation in that city, and that it was upon the want of station accommodation that this committee was called upon to exercise its legislative authority and give its sanction to a central station project. The success of any central station must depend on the amount of support which would be given to it. There was not a bit of evidence given that any of the present railway companies

would abandon their present stations and use the central one. Under Mr. Barton's scheme, it is proposed to make the Kings-bridge station a mere roadside one; but what assurance had the committee that this would be done? And the same might be said of Mr. Barry's central scheme. Indeed Mr. Barton went upon the most extraordinary statement ever launched before a committee, and it was that every company having a line coming into Dublin would make its goods station a depot of the goods traffic of every other company. The Great Southern and Western and the Midland Great Western Companies were competitors to Athlone; and the Midland Great Western and Drogheda Companies were competitors for the Northern traffic; yet, according to this Utopian scheme, the traffic manager of the Great Southern and Western would open his goods store for traffic going to Athlone, by the Mid. Gt. Western Railway; and the simple-minded traffic manager of the Midland Great Western Railway would send goods from Belfast over the connecting line, and round the city, to its rival the Dublin and Drogheda Railway Company. In fact Mr. Barton had no goods station; but he depended on the kindness of all the Dublin Companies to provide them with one at whatever point he might want it. The committee on the London Metropolitan lines had reported in favour of a connecting line in order that it might be common to all; and the promoters of the trunk connecting line kept that object in view. They claimed it as an especial advantage that they were independent of the Liffey Branch. Mr. Hemans had come forward to ask a line for £400,000, but was afterwards content to humble his views down to a line for £75,000. But the northern junction of this line, between the Great Southern and Western and the Midland Railway, would cost £160,000, while the line for which he appeared would cost only £95,000; and the difference between these two sums would complete Mr. Mallett's scheme as far as the North-wall. Mr. Mallett's scheme was the most direct between Kingstown and the Drogheda Railway. Mr. Allen, of the Post Office, had told the great increase in the postal revenue received at Belfast. In 1853 it was £9,682; while in 1864 it was £24,200. This showed the necessity of developing the postal traffic to Belfast. The estimate for the proposed line, including the requirements of the Ballast Board, would be £255,000, and on grounds of economy as well as public interest he had every confidence that the committee would give a parliamentary sanction to his scheme.

Mr. Burke, one of the engineers to the line, said he had laid it out in common with Mr. Mallett, it would start from the goods station of the Great Southern and Western Railway, and cross the Liffey near the Park-gate, giving a station there; it would give another station at the Cattle Market, and run into the line of the Midland Railway; it would run along by a line separate from the Midland Liffey Branch into the Drogheda Railway, and thence down to the river; at the river it would throw out a branch to the banks of the Liffey, so as to accommodate the traffic on the North wall; from the North wall there would also be a tramway to the docks, which the Ballast Board were about to put up; the total cost would be £254,000, and the length of the tunnel under the Liffey would be 324 yards; originally his tunnel was to be 23 feet deep; now, under the requirements of the Ballast Board, it would go 14 feet deeper. The Thames tunnel cost £400,000; the estimate for the Liffey tunnel was £54,000; he originally proposed a cofferdam principle, but the Ballast Board required him to change to a tunnel; the expense of keeping the Thames tunnel dry was £350 a-year, and the Liffey tunnel must be pumped in the same way; his connecting line was 5 miles 2 furlongs long; he supposed that the line would be worked by the company as an independent one, but the little lines to the several existing stations would be worked by the different companies; to bring passengers coming from Kingstown to the other lines the trains must be divided at different points, and send off carriages to the different stations.

#### THE DUBLIN, RATHMINES, AND RATHGAR RAILWAY.

Mr. Karlslake and Mr. Bond Cox appeared for the bill. Mr. Muggeridge, parliamentary agent, appeared for the Dublin and Wicklow Railway.

The committee then proceeded to examine this bill.

Mr. Karlslake stated that the objects of it were to open up a rich district of Wicklow to the inhabitants of Dublin. The line would commence at Trinity-street, near Trinity College, and go to the Grand Canal; thence it would run by Rathfarnham, Rathgar, and Roundtown. There were no engineering difficulties on the line. There would be stations at Peter-street, the Circular road, Roundtown, Rathfarnham and Rathcoole. The cost of the railway would be £250,000, and that of the land. The Dublin and Wicklow Railway were opposing, but their opposition was only for the purpose of removing clauses.

Mr. Hume, M.P. for the county of Wicklow, said that the district through which this line would pass required railway accommodation, and that the traffic upon the line would be very large. If this line were passed an act would be brought in next year to extend it to Balinglass, to which he was prepared to contribute. A number of gentlemen and landed proprietors of the county, including the Marquis of Waterford and the Marquis of Downshire, had made arrangements for extending the line to Wicklow. There was a meeting held at Reynold's Hotel, Sackville-street, at which resolutions were adopted that a railway to connect the west part of the county of Wicklow with the city of Dublin was most essential to the development of the prosperity of that county.

Mr. Cogan, member for the county of Kildare, said that the districts through which the railway would pass required railway accommodation, and that the traffic upon the line would be self-supporting.

Mr. John Lentaigne, Inspector General of Prisons, said he had resided 30 years at Tallaght, near to which the railway would run. Rathmines and Rathgar were formerly thinly populated, but they were now densely peopled. If this railway passed numbers of houses would be built farther into the country. The district of the city through which the line would pass was a poor one, and the neighbourhood of Rathmines was very healthy.

Mr. Brett, County Surveyor of the county of Wicklow, said he had experience in constructing lines in Ireland. He had laid out this line with the view of developing the suburban traffic of these districts into the city of Dublin, and with a view to an extension to Blessington and to Balinglass. The entire length was 14 miles. There were 12 omnibusses plying through the district which he would accommodate, which earned £20 a-day, or £7,300 a-year; and 100 carts carrying bread-stuffs and general traffic to the extent of £7,300 a-year. The entire traffic of the district would produce £28,760 a-year, and this would give, with payment of working expenses, five per cent. on £250,000. The cost of the line would be £250,160, and this would include the expense of land.

The committee declared the preamble proved.

**ENGLISH AND IRISH NORTH WESTERN RAILWAY.**—The directors of this line are making every exertion to get their traffic bill passed into law, so that they may at once commence their line of railway from the present terminus of the Londonderry line at Dundalk to Greenore, and make suitable docks for the accommodation of first-class steamers to Holyhead. We learn that the Dundalk Steampacket Company will oppose the progress of the bill in the House of Lords.

**WESTPORT RAILWAY.**—The contract for the completion of the railway from Castlebar to Newport has been entered into.

**DUBLIN AND MEATH RAILWAY.**—At a special meeting, held on the 7th inst., the directors were empowered to raise fresh capital.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.]

### THE LAW OF BUILDING SOCIETIES.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—Having recently received, through the medium of the Post Office, a letter enclosing printed documents purporting to show certain alleged advantages (which I hold to be wholly delusive) of a project registered as "a company," over a society enrolled and protected by the provisions of the Building Societies' Act, 6 & 7 Wm. IV., cap. 32, and having observed that this question has been raised in communications addressed to some of your contemporaries, I beg leave to state, as a shareholder in the "Irish Civil Service and General Building Society," that after a close examination of the provisions of the act in question (with which other acts are incorporated), and having regard to the circumstance that all the building societies in England, with their hundreds of thousands of members and millions of capital, are registered under the same enactment, and that they in every instance claim the principle of non-liability for their shareholders, I am altogether opposed to any meddling with or alteration of the rules of this successful society, believing that it would be fatal to its interests to remove it from under the protection and encouragement afforded by the provisions of the acts in question. If any further proof, however, were wanting as to the limitation of the liability of members of building societies, it would be found in the opinion of the Government registrar in

London, J. Tidd Pratt, Esq. (an authority second to none on this point) given on a special case submitted to him by the largest building society in England (the "Conservative Building and Land") in which he distinctly and unequivocally states that the shareholders are not liable beyond the extent of their shares. This society and the Irish Civil Service are, I find, registered under the same act; their rules are the same, and the system under which their operations are conducted are identical. In conclusion, Sir, I would but observe that the directory of our society (if I may call it so) have reason to be proud of the success which their project has already met with, and resting on the fact that it has the unlimited confidence of the great body of civil servants in Ireland, as well as of the public generally, they may treat with merited contempt and disregard the efforts of certain parties who, from unworthy motives (which cannot be mistaken), are vainly endeavouring to obstruct the progress of one of the most useful and promising institutions yet formed in Ireland.—Yours, &c.,

A CIVIL SERVANT,  
(And a Member of the Irish Civil Service and  
General Building Society.)  
Dublin, June 14, 1864.

### IRISH GAS METER WORKS.

TO THE EDITOR OF THE DUBLIN BUILDER.

The Irish Meter Manufactory, Hanover-st.,  
Dublin, June 9, 1864.

SIR,—In your publication of the 1st inst., describing the goods exhibited at the Royal Dublin Exhibition, you have made a mistake in stating Messrs. Edmundson and Co. are the exhibitors of Croll's Patent and other gas meters; as I am happy to inform you we supplied these articles, and are now largely manufacturing them at our Dublin works. As this is a new branch of *Irish industry* introduced by us into this country, I am the more anxious your readers should be acquainted with the fact, and I shall have great pleasure in showing you, or any of your readers interested in the gas trade, the extensive operations we are carrying on at our manufactory. Allow me further to state that the wet gas meter manufactured by us, and for which we have large orders in England and this country, is an *Irish invention*, patented by Messrs. Sanders and Donovan, of Dublin, and extensively used by both the gas companies in this city.

W. W. ANDREWS, Manager.

### THE KINGSTOWN ROYAL MARINE HOTEL.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—As various rumours are afloat as to the intentions of the Royal Marine Hotel Company (Limited), respecting the building of their hotel here, as originally contemplated, and as on the faith of promises put forth by them, several of the inhabitants were induced to become shareholders, through you, Sir, I beg to ask, can it be that this "limited" Company, after expending a large portion of its capital in the purchase of a "monster" concern in a neighbouring and rival watering-place, is not in a position to fulfil its engagements with the people of this town? I read lately in one of the morning journals that "large quantities of materials had arrived on the ground," that "the excavations for the foundations were being proceeded with," and that "the first stone would shortly be laid." It is said that these announcements have been made with the view of drawing out new shareholders with their money, and thus enable the directors to steer out of their present difficulty. I understand that the eminent contractors, the Messrs. Cockburn, declined other large works in order to put a sufficient staff of workmen to the Kingstown "monster," to have it finished within the time specified. Hoping you may find room in your very valuable journal for these few hastily-penned lines.—Yours, &c.

NOT A VICTIM.

Kingstown, June 11, 1864.

## General Items.

The directors of the Wicklow Copper Mining Company made a minute inspection of their works on Saturday, the 4th inst. They report them to be in a very satisfactory working condition, large quantities of the iron ore being at present shipped for England.

The time for lodging tenders for the Downpatrick Lunatic Asylum has been extended to the 29th inst.

A New National Bank House is to be erected at Thurles, Co. Tipperary, Mr. Wm. F. Caldbeck, architect. Tenders till 28th inst.

The Board of Public Works require tenders for Coast Guard Stations at Balbriggan, Co. Dublin, and at Upper Cove, Kinsale, Co. Cork.

## Miscellaneous.

The *Standard*, Nov. 15, speaking of Benson's watches in the Exhibition, says—"It has evidently been Mr. Benson's object to render them rivals in point of beauty of decoration to the elegant Swiss knocknacks, and at the same time to preserve the characteristics of an English watch—strength, durability, and accuracy. In point of decoration his watches are certainly unsurpassed." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking, with description and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, Class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. The Prince of Wales.

**AN ELECTRIC BALLOT BOX.**—An experiment was lately tried at the Palace of the Luxembourg, Paris, with an electrical apparatus, intended to replace the present mode of voting in the French Legislative Assemblies. The engineer who invented the apparatus began by placing 12 boxes, each provided with two finger keys, one white and the other black, on two benches. (The number of boxes is to be the same as the number of the members of the assembly.) Those boxes were connected by metallic wires with what the engineer calls an indicating table, pierced with holes corresponding to the name of each of the voters. Two more holes, but larger, opening at the bottom of the table, are intended to give the addition of votes, for or against. This part of the apparatus is called the reckoner. The reckoner is moved by a button placed within reach of the President's hand. When the President announces that the ballot is to commence, each member of the Assembly presses the finger key, white or black, by extending his hand over his desk. A disk of the same colour instantly appears at the hole placed beside the name of the voter. When the President declares that the ballot is closed, he touches the button placed under his hand for the double purposes of preventing any further vote, and of setting in motion the machinery, which instantly performs the addition of the votes for and against. The Secretaries have then only to look at the reckoner, and to transmit the numbers to the President. In case of a secret vote, secrecy is secured by an ingenious arrangement of the engineer, by which the vote is transmitted to any hole but that next the voter's name.

**REMOVING BONES FROM A CHURCHYARD.**—A curious case came before the magistrates at Raheny Petty Sessions on Monday last. The rector of St. Doulogh's was summoned for, as alleged, removing soil and bones from the graveyard. The reverend gentleman stated no body had been removed, and that he had a faculty from the Consistorial Court, authorising the removal of all graves, tombs, and monuments that might interfere with the rebuilding of the church. A map was produced showing the extent of the excavations which were necessary for the purposes of the new building. After a lengthened examination of witnesses, the magistrates decided on an adjournment for a fortnight, in order to take the opinion of the law advisers in the matter.

**GALWAY PACKET SERVICE.**—On Monday last an influential deputation waited on the Postmaster-General for the purpose of inducing the Government to grant a further suspension of the mail contract with the Atlantic Royal Mail Company. After a lengthened discussion on the various points submitted for his consideration, the Postmaster-General agreed to hold over for one month the cancelling of the contract, the company in the meantime to submit some definite proposition for the reorganization of the service and the satisfactory carrying on of it in future.

### TO CORRESPONDENTS.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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See Advertisement in another column.

A CARD.  
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**TESTIMONIALS.**

From WILLIAM TITE, Esq., M.P. for Bath, and Architect of the  
Royal Exchange, London.  
House of Commons, 2d March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have  
used both the sorts of Cement manufactured by your firm, and  
that of Messrs Francis & Son; I mean the Cement usually  
called Roman Cement, or the more recent introduction of  
Portland Cement. I believe these Cements, manufactured by  
either of your firms, to be equally good. I know no difference,  
chemically or practically, between them; and I should  
use, and authorize to be used indifferently, either one or the  
other. You are at liberty to use this note, if you think it ne-  
cessary.—I am, Dear Sir, your obedient servant,  
Messrs. White & Son. (Signed) WILLIAM TITE.

From R. O. MINNIE, Esq., Surveyor to the Board of Ordnance,  
London.

War Office, Pall Mall, London, S.W.,  
3rd March, 1864.

GENTLEMEN,—In reply to your request, I have much plea-  
sure in stating my favourable opinion of the quality of your  
Portland and other Cements, which have been extensively  
used in the Public Works connected with the War Department  
at home and abroad, especially in several of the fortifications  
now being erected in this country. On all occasions within  
my knowledge the quality has been equal to that of any other  
manufacturer, and has given great satisfaction.—I am, gen-  
tlemen, your obedient servant,  
(Signed) R. O. MINNIE, Surveyor.

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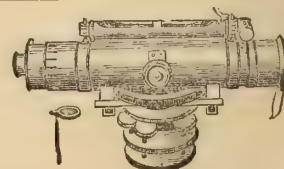
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workmen. The prices will be found considerably lower than  
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price list forwarded free on application. 8 inch Dumpy Level  
complete, 6 guineas; 10-inch ditto, 8 guineas; 14-inch ditto,  
10 guineas; with compass, 1 guinea each extra. Best 5-inch  
Theodolite, divided on Silver, 18 guineas.

# The Dublin Builder.

VOL. VI.—No. 109.

## THE O'CONNELL STATUE.

OUR city has been censured for the plain and unsightly appearance of most of its churches, but it has been positively laughed at for its statues. Whether we strain our eyes to contemplate the veteran admiral, whose image we have so highly exalted as to place it beyond the reach of criticism, thereby completely destroying the perspective of one of the finest streets in Europe; or turn to receive a sable smile from the blackened representative of the bard whom Ireland ought chiefly to honour, or proceed but a street's length farther where another horror awaits us in the shape of a Triton amongst the lotus leaves, or Moses in the bulrushes, or anything rather than a distinguished ornament of the medical profession. Wherever we turn, the finger of scorn has been pointed, and, we cannot deny it, most justly.

It has been long contemplated to raise a monument to the memory of one who, whatever may have been the tendency of his political opinions, has been admitted by all to have been one of Ireland's greatest orators and statesmen, and who won his way to the hearts of the Irish people to a greater extent than perhaps any other has ever done. It is well, therefore, that we should be careful that the memory of this truly great man should not be rendered ridiculous by another monstrosity similar to those with which our streets are disfigured; better far would it be, should an artist worthy of the task not be found at home, to bring sculptor and stone from the most remote parts of the earth, than to place it in the hands of one who, though an Irishman, might, through a deficiency of genius, convert into an absurdity the tribute due to the memory of a Patriot. The Committee of the O'CONNELL MONUMENT have been fully alive to the danger. They first determined to throw the matter open to competition, but on finding that the best artists would not compete, they agreed to consign the task to the care of a sculptor of well-known and tried talent. But here they made their first *faux pas*, and it will be well if, in striving to avoid Scylla, they have not fallen into Charybdis. Whether it was through one of those mistakes which the wisest men will at times most unaccountably commit, or perhaps more probably owing to that indisposition which pervades most public functionaries to take any extra amount of trouble, they precipitately placed it in the hands of a man whose nationality begins and ends with his name, without waiting to investigate if there was not one in the whole extent of the "green isle" who might execute the task in a manner that would be grateful to the wishes of his countrymen. We do not desire in thus speaking to say anything to the disparagement of Mr. Foley, whose genius we honour and respect, but we do wish most em-

phatically to protest against sending £10,000 out of the country for the execution of an undertaking which, above all others, should be thoroughly national; and as the monument originated from Irish hearts, so it should be sculptured by none but truly Irish hands. Are there none in Ireland who possess the genius of Hogan? Are there none upon whom his mantle has fallen? The question is answered triumphantly by the photograph which is at present exhibited of Cahill's statue of O'Connell for the Ennis monument. It can be denied by no one that it is everything that the most enthusiastic admirer of the great O'Connell could desire, and not one that has ever looked upon the living prototype can fail to be struck with the likeness; not only the features, but the figure and the attitude of the orator are perfect. We hope then, that the O'Connell Monument Committee will reconsider their decision, and not initiate a popular movement by taking a step that is contrary to the wishes of the people. O'Connell was the friend of the people; to them his life was devoted, and it is but just that in perpetuating his memory the wishes of the people should in everything be followed. Let it not be said that the people of Ennis are more national than the people of Dublin. And there is one point that we would wish to put forward, even leaving nationality out of the question. The features, figure, and gesture of O'Connell have been taken off to the life by Cahill, and he has proved himself to be a first-class artist. Is it not more natural to suppose that the man who has already once sculptured out the features in such a perfect manner, would go about the task with more confidence and more certainty of success than another who, however skilful, had not yet tried his hand upon the task, and was, comparatively, treading on new ground.

The following abstract from a report of an influential meeting of the trades held in the Theatre of the Mechanics' Institute, will show the *animus* of the people on the subject, and we trust that not only the Committee may have the good taste to yield to their wishes, but that the O'Connell Monument in Dublin may be an ornament to the city, and redeem its character from the disgrace into which, at least in this department, it has fallen:—

The Chairman (Mr. Clarke) in opening the proceedings, said there was a rumour that the object of the meeting was to oppose the action of the O'Connell Committee. The contrary was the fact. They were there to second the efforts of the committee to carry out their great national project. The tradesmen of Dublin were not actuated by selfish or factious motives; and all they desired was that this monument should be as Irish as O'Connell himself was. They had a right to ask, as Irishmen, for the honour of Ireland, that the monument to O'Connell should be purely Irish.

Mr. Ferris proposed the first resolution—"That the congregated trades of Dublin, and the other bodies interested in taking this mode of expressing their sentiments on the subject of the O'Connell National Monument, wish it to be clearly understood that they are not actuated by a spirit of hostility towards the committee as such. The circumstance of tradesmen who are eligible to sit as members of that committee being unable to attend in the daytime renders this step necessary." The tradesmen, he said, were not influenced by any spirit of hostility towards the O'Connell Committee; but, inasmuch as the tradesmen of Dublin could not conveniently attend the meetings of the O'Connell Committee, that committee was, as a matter of course, without a full knowledge of their sentiments on the subject, and it was in

order that the committee might be aware of their sentiments that they resorted to this meeting to give expression to them. The tradesmen of Ireland maintained that they had a right to express their opinion on the subject, and to say whether they were in favour of absentee art or not. They were not denying that they had artists of Irish birth all over the world, nor detracting from the sons of Erin wherever they were, and they now took their stand in defence of the honour and dignity of native art. They denied that the case had been established that a resident Irish artist was not fit to compete with non-resident. It was said by a member of the committee that the project being one of such vast importance, they should be careful to entrust the execution of the monument to the greatest man the country produced, lest there might be a mistake in it. Were they to be eternally anticipating mistakes, and endorsing the insults that were flung upon them for their backwardness? What encouragement was there for the rising men of genius in this country to stop in it if they found that they were ignored in connection with the erection of a monument to be paid for out of the public purse? The expression of their opinion might carry no weight with the members of the O'Connell Committee, but the step was necessary, so that in future time it would be seen that, so far as they were concerned, their hands were clean.

Mr. McNamee, in seconding the resolution, observed that being a member of the O'Connell Committee it would, perhaps, be more becoming of him to be a silent spectator, but he felt that he would not be doing his duty to the trade to which he belonged if he did not take part in the proceedings. On the 5th October, 1862, the bakers sent in £15 to the O'Connell Statue Fund. No doubt the officers forwarding the money were placed on the committee, but unfortunately very few of the trades representatives could attend the committee meetings. From time to time a non-resident Irish artist was mentioned as likely to get the execution of the statue. In February last a deputation from the trades waited on the committee, when a resolution was passed that as much of the work as was possible should be executed in Ireland by Irish hands. That, after all, was a delusion. His opinion was that it would be more consistent and more honest for the committee to say that, as a committee of gentlemen, they were pledged to Mr. Foley, and could not break with him, than to adopt that resolution. Certain members of the committee persisted in saying that the committee was actually pledged to Mr. Foley. A series of resolutions drawn up by a sub-committee recommended that £400 be set apart for competition, but where was the use of throwing away £400 if they persisted in saying that Mr. Foley was to do the work. It was said that they wanted to ostracise Irishmen because they were compelled by necessity to leave their native land; but he contended that it was Mr. Foley who had ostracised himself.

Mr. McCorry proposed the second resolution:—"That it is the opinion of this meeting that sufficient evidence exists in the country of the capacity of resident artists and artisans to execute the monument now about to be erected to O'Connell, and we therefore view the attempt which has been made from time to time to give its execution to those who are non-resident, as calculated, in a very high degree, if carried into effect, to militate against the best interests of our resident artists." He advocated the right of the artisans of Dublin to be heard on the subject. They were there that night to maintain that there was sufficient capacity within the city to execute the O'Connell monument. Mr. McDowell had executed many excellent works in the city, but he believed that Mr. Farrell stood pre-eminent, and Mr. Cahill was another man of genius. He asked them were they for a bronze statue. He would say no. Let it be developed by an Irish chisel from Irish limestone. They were not there in the spirit of impertinent dictation, but simply exercising the right of protest, which they were prepared to maintain.

Mr. Keegan, in seconding the resolution, said he knew they would act in the matter as Irishmen, tradesmen, and men of business.

The third resolution was proposed by Mr. Keegan:—"That the meeting indignantly repudiated certain remarks applied to the tradesmen of Dublin, which imputed to them that in desiring the employment of native artists they were urged on by some person outside their respective bodies."

Mr. Ferris proposed the next resolution:—"That the tradesmen of Dublin declare that the attainment of future prosperity for Ireland can only be secured by fostering the spirit of self-reliance, one element of which was the encouragement of native resident genius."

Mr. O'Halloran believed there were men in Ireland quite as competent to carry out the work as Foley.

Mr. McAnaspie expressed his opinion that the fairest way in which to carry out the object of the committee would be to have models supplied by the leading artists, irrespective of all considerations save that of merit.

## ON BENEFIT BUILDING SOCIETIES.\*

THERE has recently been so much publicity given to several societies of this class in this country, where hitherto little or nothing has been known of them, and where so little is even now known about them; that I have thought it would be no waste of time to lay before the Institute a statement of the principles on which they are founded, and the general details of their management and conduct.

The general principle of a Building Society is this—Several persons contribute to one common fund by periodic payments, until the contributions amount to a certain sum fixed beforehand, which is called the "share." In order that the money so contributed may be productive of interest, and thereby shorten the time in which the shares will be completed, fully paid up shares are advanced to certain of the parties joined in the scheme, which they pay back with interest, by fixed periodic payments spread over an optional number of years. Something very similar has been carried on by the Imperial Government for some years past in connexion with the Board of Public Works, who issue to landed proprietors, under certain conditions, loans for "land improvement," "farm buildings," "for the erection of labourers' cottages," and "flax-scutching mills," the government charging for repayment and interest, a fixed rate of  $6\frac{1}{2}$  per cent. spread over 22 years, which very nearly but not quite pays the advance at 3 per cent. interest. In a building society the investing members occupy the place of the Board of Works, the borrowing members that of the landed proprietors. The investors wish to increase at good interest the comparatively small sums that each individual can save from time to time. The borrower by being put in possession of the accumulated savings of many investors can use them in such a way as largely to benefit himself. Thus both parties are equally benefited. The investor waits patiently until his share is completed by the operation of time—interest—and his periodic payments. The borrower is put immediately in possession of his share, and pays for the enjoyment of it, at an agreed-upon rate for a time fixed beforehand. This is the whole principle of a building society, it is exceedingly simple, and only requires common sense, common honesty, and some knowledge of arithmetic to apply it safely, and make it productive of an amount of good that can only be thoroughly appreciated by those who have had the opportunity of seeing the aspect of the workmen's dwellings in those English towns where those societies have been some years established.

In applying the principle and carrying it out in practice, the first point to be attended to is to fix the value of each share, the amount of minimum contributions, the periodic times of payment, and the rate of interest at which it is calculated that the shares can be invested, from which data the date of the completion of the share can be calculated. As many of these data must vary with the paying powers of the proposed investing members, it is evident that some discretion must be used in not fixing too large a minimum of contribution, or by so doing you will exclude a class of persons of less paying or saving power. By experience it has been found to work best to fix the completion of the shares at from 10 to 15 years. In the Society to which I belong the amount of the shares has been fixed at £25, the minimum monthly payment at 2s. 6d. per share, which gives 13 years for the period of completion, at the minimum rate of payment, but there is nothing to prevent an investor taking any number of shares, or paying upon them at a greater rate than the fixed minimum rate. In fact it is better that he should take somewhat fewer shares than he can generally conveniently pay the contribution on, as the time may come when the payments would be embarrassing or difficult to meet, and the minimum contribution on the smaller number of shares might be manageable without his being compelled to expose his temporary difficulties and plead to the directors for time of grace. To create a fund to meet the expenses of management there is generally a small entrance fee charged, alike on investing and borrowing shares, generally of 10s. per cent. on the amount of the share. As the contributions are received in small sums, at short intervals, it is obvious that the labour of management and keeping accounts, if each month's contribution were separately accounted for, and its interest computed, would be enormous, it is therefore the fixed custom of these societies to consider the year's subscription, as if all paid at once in one lump sum at the end of the year—which is treated as bearing interest during the following year—at the end of which the interest, at the promised rate, is added, and the contributions of the next year, and any surplus profits that may have been made over the promised or guaranteed rate

of interest. Thus, from June, '64, to June, '65, suppose—

30s. has been contributed .. ..	£1 10 0
June, '66—Add Interest for one year .. ..	0 1 6
" Add contributions, year ending June, '66 .. ..	1 10 0
	£3 1 6
June, '67—Interest .. ..	0 3 2
" One year's contribution .. ..	1 10 0
" Bonus at (say) $2\frac{1}{2}$ per cent. .. ..	0 1 6
	£4 16 2

and so on to the completion of the share. No investing member can legally be paid interest or profits of any kind until the share is completed, nor can he withdraw from the Society until after he has been a member for one year without forfeiture of all his contributions, except by express permission of the directors. After the first year, on giving suitable notice, any member may withdraw or transfer his shares, receiving interest and share of profits, and bearing his share of any losses. In all societies, however, there is a power reserved to the directors of controlling and suspending withdrawals, otherwise an organized run, or a mere panic might cause immense loss to the body of the shareholders at large, by putting it out of the power of the directors to meet engagements made legitimately and in the proper course of the direction of the Society's affairs. It follows that should a member complete a share or shares in a shorter space of time by reason of increased contributions, or pay them up at once, the guaranteed interest and share of profits, are immediately payable, and may be received by him or left as an accumulating investment in the Society.

It will be seen that to the investor the Society offers the advantage of accumulating capital by bringing the multiplying powers of compound interest to bear on sums so small as one penny a day—and of the vastness of this power when applied through any long period, I may mention as an example that a single penny invested at 5 per cent. at the date of the Christian era would require a sum of 40 figures to express its present value in pounds sterling—and in addition to this great reproductive power it offers a security much greater than would be imagined at first sight. In this respect these societies present an anomaly which is equally curious and interesting. The saying of the late Duke of Wellington is well remembered, for the characteristic terseness with which it conveys what is almost universally true—"High interest is only another name for bad security." It is certainly the ordinary rule that the rate of interest and the amount of security are in an inverse ratio to each other. The government of this country is able to be in debt to the extent of seven hundred millions at very little over 3 per cent. The government of the Northern States of America, like a young spendthrift, is discounting bills on the future at more than double that rate; but I hope to show you that the working of building societies involve a high rate of interest with an amount of risk that is inconceivably small.

There is another apparent paradox exhibited by the working of these societies, which I must state to you and explain. It is this, that while the investor receives a high rate of interest and good security, the borrower is very largely benefitted also, to an extent that perhaps he could not realize by any other means short of the sacrifice of self-respect involved in receiving charitable assistance. To make this plain let us suppose him to take four paid-up or advanced shares of £25 each, or in other words to borrow £100 from the Society; he finds it convenient to pay this back in ten years. The rate being £14 5s. a year, or £1 3s. 9d. per month, he will have paid by the time he is out of debt £142 10s. Let the same man—who you must remember is not a capitalist—has only his income to trust to for present and future maintenance—suppose him to have got some private individual to lend him £100, the ten years' principal and interest will cost him £150—£7 10s. more than his payment to the Society—but who would lend him £100? and least of all at 5 per cent. on personal security, or little better. But this is by no means all or even any considerable portion of the benefits of the Society. Let the same man have the opportunity and desire to buy or build a house for his own residence. A house that would cost £100 in building would seldom be let under £12 a year—let us say £10—that is something over 4s. a week; he will have paid £100 in rent in ten years' time. By taking a loan of £100, he can pay it back by increasing his charge for rent for ten years, to 5s. 6d. a week; in the ten years he will have paid only £42 10s. more than his rent and will besides have accumulated a property of £10 a year, as long as the house will last. If his saving power is greater than 1s. 6d. per week, he can pay off the loan in a less number of years by increasing his payments. Thus, 9s. 6d. a week will clear off the mortgage in five years, and *vice versa* about 4s. 2½d. will clear it off in fifteen years. It really seems almost absurd to talk of a sum of 4s. 2½d. a week, paying a man's rent and at the same time accumulating a property of £10

a year for him and his family at the end of fifteen years. But it is, nevertheless, the fact, as you will find if you look at any table of the value of annuities, with this exception, that I am understating the case, for as these payments are really made monthly, and are only taken into calculation as if paid in single sums at the end of each year, the Society reaps a fractional advantage, inconsiderable in each particular case, but very important when the operations of the Society are numerous. Having shown, I hope satisfactorily, how both classes of members are simultaneously profited by the same transaction—how a building society can "pay Peter" well without "robbing Paul"—I wish to dwell a little on the anomaly I before mentioned, the co-existence of a high rate of interest and good security. The possible risks of all such associations are two-fold—dishonesty on the part of the managers, or want of care in selecting their investments. But let me, before I go farther, mention one circumstance which is rather important, as it has been attempted to raise a cry against building societies proper as not being constituted under the "Limited Liability" Act. It has been said that the Limited Liability Act was only passed in 1856, the Building Societies' Act passed in 1836, you cannot possibly, therefore, enjoy the privilege of "Limited Liability" which was only enacted so many years later. There is some plausibility in the objection; the dates especially are quite convincing. Any one can see that what was done in '36 cannot include what only became law in '56. It is certainly ingeniously put—and is very well calculated to mislead persons who do not know what a building society is and is not, and will not take the trouble to learn. To such persons it forms an admirable answer to all recommendations to take shares—"Oh! you are not under the Limited Liability Act!" "I won't have anything to say to you." My answer to that is, "If the Society were under the Limited Liability Act, I would not join it, I am safer as I am—I am liable to no man at present;" and therein consists the ingenuity and the fallacy—in the suppressed proposition which is taken as a matter of course. What is liability! technically, and as meant by the term "limited liability?" It is not the chance of losing the amount one may have subscribed—that is mere ordinary risk to which one is exposed in every investment, more or less, whether by individuals or societies, the comparative freedom from which so enhances the price of shares in the public funds. By liability the law means the exposure to being singled out and made responsible to the fullest extent of your means for debts incurred by the company of which you are a partner, just as if they had been incurred by yourself personally—this is a liability created by the law of partnership in the case of all parties trading in common, and is limited by the act in question—but this can never apply to a building society, inasmuch as it is not a trading company, it does not speculate, it neither buys nor sells, it may lose some money by lending on security which proves insufficient, or on a title which turns out to be bad, accidents, which must be expected to arise in a few cases among a large number of transactions, but which their very largeness of numbers causes to be unfelt by spreading the loss over a wide surface, but it cannot incur debts, and therefore its members can never be made liable for them. These societies do almost universally anticipate their resources by borrowing and receiving deposits, but in this they are incurring no risk, the money so borrowed is invested on good security at a much larger rate of interest than they pay for it, much to the profit of the members. But as regards the two risks I mentioned—dishonesty on the part of the managers and directors, and want of care in making the investments—both are certainly risks—the first is borne in common with all shareholders of every company, large and small, on the face of the whole earth; society must fall to pieces if you trust no man. If the directors and managers are men of ordinary fair reputation you must put confidence in them; but in the detailed working of these societies there is a very great safeguard against fraud and speculation. I do not say that they are impossible, but it is rendered difficult, for, in addition to all the checks in use in the ordinary savings' banks, a great check is afforded by the funds of the society consisting of a series of annuities paid in regular sums, at regular periods, and being constantly reinvested, so that a glance at the books is sufficient at any time to detect an error or irregularity. There is certainly the risk of loss from investments turning out badly, but with a competent surveyor and solicitor such risks are very much reduced, and are not likely to happen except in such accidental and unforeseeable cases, and so rarely as to be met by a very moderate rest fund kept for that purpose.

I fear I have detained you to a too great length on this subject which may be dry and uninteresting to some, but which, I confess, has to me an interest that is even exciting; I cannot help feeling it a pride and privilege to be associated in any way with an institution, the working of which requires on the part of

\* By J. H. OWEN, Esq. Read at meeting of Royal Institute of the Architects of Ireland, on Thursday, 23rd ult.

all who join it, and encourages in them, the growth of mutual confidence, self-reliance, thrift, self-respect, and manly independence. How many of us, who are looked upon by the world around us as occupying a respectable social position are, all our lives, living from hand to mouth, slaves of our circumstances, with claims and responsibilities increasing faster than our means of meeting them, our early manhood passing into middle age, and middle age surely and stealthily creeping on into old age and its weakness and weariness, and our hearts are sad and sick at the thought that there is nothing laid by for the future, and we look around us and see no prospect but one that we dare not face. Here is the true sphere of such a society as the Civil Service Building Society. It is the providence of the man living by his head or his hand—when he says, “I can’t save,”—“what is a shilling a week?” It answers—“It is only a shilling now—it is a shilling lost if spent—entrust it and its fellows to me, and it is consolation, peace of mind and honest independence now, and happiness and comfort hereafter.

#### AMERICAN MILITARY ENGINEERING.

ADMIRAL PORTER has sent to Washington an official report of a feat unequalled for daring in the annals of military engineering. It consisted in the construction of a dam, 600 feet long, over the Red River, a work executed in great haste and in the face of unusual difficulties, but which, by its success, was the means of saving a fleet of gun boats. Admiral Porter says:—

“I have the honour to inform you that the vessels lately caught by low water above the falls of Alexandria have been released from their unpleasant position. The water had fallen so low that I had no hope or expectation of getting the vessels out this season, and as the army had made arrangements to evacuate the country, I saw nothing before me but the destruction of the best part of the Mississippi squadron.

“There seems to have been an especial Providence looking out for us in providing a man equal to the emergency. Lieutenant Colonel Bailey, acting engineer of the nineteenth army corps, proposed a plan of building a series of dams across the rocks at the falls, and raising the water high enough to let the vessels pass over. This proposition looked like madness, and the best engineers ridiculed it; but Colonel Bailey was so sanguine of success that I requested General Banks to have it done, and he entered heartily into the work. Provisions were short and forage was almost out, and the dam was promised to be finished in ten days, or the army would have to leave us. I was doubtful about the time, but had no doubt about the ultimate success, if time would only permit. General Banks placed at the disposal of Colonel Bailey all the force he required, consisting of some three thousand men and two or three hundred wagons. All the neighbouring steam mills were torn down for material, two or three regiments of marine men were set at work felling trees, and on the second day of my arrival in Alexandria from Grand Ecore the work had fairly begun. Trees were felling with great rapidity, teams were moving in all directions bringing in birch and stone; quarries were opened, flat boats were built to bring stone down from above, and every man seemed to be working with a vigor I have seldom seen equalled, while perhaps not one in fifty believed in the success of the undertaking. These falls are about a mile in length, filled with rugged rocks, over which, at the present stage of water, it seemed impossible to make a channel.

“The work was commenced by running out from the left bank of the river a tree dam, made of the bodies of very large trees, brush, brick and stone, cross tied with heavy timber, and strengthened in every way that ingenuity could devise. This was run out about three hundred feet into the river; four large coal barges were then filled with brick and sunk at the end of it. From the right bank of the river cribs filled with stone were built out to meet the barges, all of which was successfully accomplished, notwithstanding there was a current running of nine miles an hour, which threatened to sweep every thing before it. It will take too much time to enter into the details of this truly wonderful work; suffice it to say that the dam had nearly reached completion in eight days working time, and the water had risen sufficiently on the upper falls to allow the Fort Hindman, Osage, and Neosho to get down and be ready to pass the dam. In another day it would have been high enough to enable all the other vessels to pass the upper falls. Unfortunately, on the morning of the 9th inst. the pressure of water became so great that it swept away two of the stone barges, which swung in below the

dam on one side. Seeing this unfortunate accident, I jumped on a horse, and rode up to where the upper vessels were anchored, and ordered the Texington to pass the upper falls if possible, and immediately attempt to go through the dam. I thought I might be able to save the four vessels below, not knowing whether the persons employed on the work would ever have heart to renew the enterprise.

“The Texington succeeded in getting over the upper falls just in time, the water rapidly falling as she was passing over. She then steered directly for the opening in the dam, through which the water was rushing so furiously that it seemed as if nothing but destruction awaited her. Thousands of beating hearts looked on anxious for the result; the silence was so great as the Texington approached the dam that a pin might almost have been heard to fall; they entered the gap with a full head of steam on, pitched down the roaring torrent, made two or three spasmodic rolls, hung for a moment on the rocks below, was then swept into deep water by the current, and rounded to safely into the bank. Thirty thousand voices rose in one deafening cheer, and universal joy seemed to pervade the face of every man present. The Neosho followed next, all her hatches battened down, and every precaution taken against accident. She did not fare as well as the Texington, her pilot having become frightened as he approached the abyss, and stopped her engines, when I particularly ordered a full head of steam to be carried. The result was that for a moment her hull disappeared from sight under the water. Every one thought she was lost. She rose, however, swept along over the rocks with the current, and fortunately escaped with only one hole in her bottom, which was stopped in the course of an hour. The Hindman and Osage both came through beautifully without touching a thing, and I thought if I was only fortunate enough to get my large vessels as well over the falls my fleet would once more do good service on the Mississippi.

“The accident to the dam instead of disheartening Colonel Bailey only induced him to renew his exertions after he had seen the success of getting four vessels through. The noble-hearted soldiers, seeing their labour of the last eight days swept away in a moment, cheerfully went to work to repair damages, being confident now that all the gun-boats would be finally brought over. The men had been working for eight days and nights, up to their necks in water, in the broiling sun, cutting trees and wheeling bricks, and nothing but good humour prevailed amongst them. On the whole, it was very fortunate the dam was carried away, as the two barges that were swept away from the centre swung round against some rocks on the left and made a fine cushion for the vessels, and prevented them, as it afterwards appeared, from running on certain destruction.

“The force of the water and the current being too great to construct a continuous dam of 600 feet across the river in so short a time, Colonel Bailey determined to leave a gap of fifty-five feet in the dam, and build a series of wing dams on the upper falls. This was accomplished in three days’ time, and on the 11th inst. the Mound City, the Carondelet, and Pittsburg came over the upper falls, a good deal of labour having been expended in hauling them through, the channel being very crooked—scarcely wide enough for them. Next day the Oyark, Louisville, Chillicothe and two tugs also succeeded in crossing the upper falls. Immediately afterwards the three former started in succession to pass the dam, all their hatches battened down, and every precaution taken to prevent accident. The passage of these vessels was a most beautiful sight, only to be realised when seen; they passed over without an accident except the unshipping of one or two rudders. This was witnessed by all the troops, and the vessels were heartily cheered when they passed over. Next morning the three remaining vessels and the two tugs passed over without any accident except the loss of a man who was swept off the deck of one of the tugs. By three o’clock that afternoon the vessels were all coaled, ammunition replaced, and all steamed down the river with the convoy of transports in company. Words are inadequate to express the admiration I feel for the ability of Lieutenant Colonel Bailey. This is without doubt the best engineering feat ever performed. Under the best circumstances a private company would not have completed this work in one year, and to an ordinary mind the whole thing would have appeared an utter impossibility. Leaving out his ability as an engineer—the credit he has conferred upon the country—he has saved the Union a valuable fleet worth nearly two millions of dollars; more, he has deprived the enemy of a triumph which would have emboldened them to carry on this war a year or two longer, for the intended departure of the army was a fixed fact, and there was nothing left for me to do in case that event occurred but to destroy every part of the vessels, so that the enemy could make nothing of them. The highest honors that government can bestow on Col. Bailey can never repay him for the service he has rendered the country.”

#### RETIREMENT OF SIR RICHARD GRIFFITH.

SIR Richard Griffith has retired from his position of Chairman of the Board of Public Works in Ireland. He is now nearly 80 years of age, 54 of which he has spent in the public service. So long ago as 1810 he acted as commissioner on an inquiry regarding the improvement of the bogs and waste lands of Ireland, and since that time, say the Lords of the Treasury, “scarcely an inquiry has been held or a measure carried out connected with the national improvement of this country with which Sir Richard Griffith has not been associated, and most usefully, for the public interest.” His name is more particularly associated with the general valuation of Ireland. The duties connected with this department are becoming more onerous and important, having reference not only to questions of local taxation and assessment, but to the assessment of property and income tax, and also to the elective franchise, of which “Griffith’s valuation” is the basis. We are happy to learn that, while obliged to relinquish a portion of his onerous duties, Sir Richard is still prepared to retain the conduct of this department, and of a cognate one connected with the Ordnance Survey and with the Towns’ Improvement Act. It is gratifying to receive the announcement that while expressing their sanction of this arrangement the Lords of the Treasury state that they have seldom had before them the case of a public officer with such extended and useful services. If he were to compare Ireland with what she was when he acted as a commissioner in 1810, he could present a contrast that would help the Committee on Irish Taxation to right conclusions on the subject of their inquiry. He remembers Ireland when there were scarcely any roads in Munster and Connaught, and the people of Kerry sent their butter to Cork on the backs of donkeys.

#### SECOND TRIAL TRIP OF MR. COXWELL’S NEW BALLOON.

THE following account of the recent trip of this balloon has been published by Mr. Glaisher:—The balloon left the gardens of the Crystal Palace at seven o’clock, with a temperature of 62 deg.; when 300ft. above the ground the temperature was 59 deg., and decreased gradually to 51½ deg. at 3,100ft. above the level of the sea. We then descended to 2,500ft., when the temperature was 53 deg., which declined to 46 deg. on rising to 3,500ft.; we remained at this elevation for 20 minutes, and the variations of temperature were very small. From 7h 53m. to 7h 30m., the height of the balloon differed but little from 2,700ft., with a temperature ranging from 51 deg. to 52 deg., being the same as when we first reached that elevation. At 7h 54m., the height was 2,000ft. and from that time till reaching the earth at 8h 14m., the temperature was 53 deg. without variation; on the ground it was found to be 53½. The temperature on the earth during the flight of the balloon had decreased from 9 deg. to 10 deg.; the air at 600ft. above the sea had decreased by about 6 deg. between the ascending and descending; but at heights exceeding 2,000 ft. no change had taken place. The temperature at which water was deposited on bright substances was 44 deg. on the ground, 40 deg. at 2,500ft., and 38 deg. at 3,000ft. The degree of humidity of the air was 51 deg. on the ground before starting, complete saturation being represented by 100; it was between 60 and 70 in the air till 7h 50m., and then increased to 77 on the ground. A very delicate blackened bulb thermometer in the full rays of the sun, read from 1 deg. to 10 deg. above another delicate thermometer placed near to it with its bulb shaded; at times when the sun did not shine on the blackened bulb the two thermometers read alike. The sky was cloudless, and the air was clear, excepting in the direction of London, and the successive views at the ordinary elevation we reached were very beautiful. Shooter’s hill and the several known elevations were dwarfed to plains. At the height of 3,000 feet sheep were readily distinguished, but the earth seemed to be without inhabitants; the naked eye could with difficulty distinguish man. The river was seen to its mouth, and the white cliffs at Margate were just visible through the mist; the horizon was misty all round. The contrast between the thickly studded towns and villages of Kent and the few in Essex was very marked. All who were in the balloon enjoyed the magnificent views so much that at times I think they forgot their position in the car, being themselves insensible of any motion, and all regretting our proximity to Sea Reach, which compelled Mr. Coxwell to descend. The balloon touched the earth at a quarter-past eight, about six miles from Brentwood.

## ROYAL DUBLIN SOCIETY'S EXHIBITION.

THIRD NOTICE.

(Continued.)

In our last notice we alluded briefly to the "Unvarying Water-line Gas Meter," patented by the Gas Meter Company (Limited), and manufactured at Hanover-street in this city. We believe we are justified in saying that this invention has completely removed the defects so frequently complained of in the old wet meter, by a device as simple as it is ingenious. It is well known that in the old meter the level of the water is subject to constant alteration through evaporation, and that when it becomes lowered to a certain extent the inlet pipe becomes closed by a float which sinks along with it, a necessary precaution, as the meter will not register correctly unless the water preserves a certain level. This occasions the sudden extinction of every gas-light in the house, a disagreeable occurrence with which every one who uses gas extensively must be familiar, and which cannot be rectified until the meter is refilled. The alteration of the water-level also occasions fluctuations in the lights, and many other well-known inconveniences. This defect has been remedied most ingeniously by substituting for the old float and valve a hollow semicylindrical float, rotating upon an axis in front of the meter. It is so constructed that as the water is removed by evaporation the float sinks into it more and more, and displaces a quantity equal to that which has been removed, and thus the level of the water remains unchanged. In a five light meter constructed upon this principle, we are told that sixty-six cubic inches, or nearly two pints, may be abstracted without producing any sensible alteration. The advantages which the company claim for their new meter are—unvarying registration while allowing seventy cubic inches of water for evaporation in a five-light meter, simplicity of construction, and increase of durability, the lights being unaffected by a variation of pressure, and, above all, a great saving in the cost of inspection, as the meter will in ordinary situations work accurately for twelve months without requiring to be refilled. The company have received the highest testimonials with regard to the efficacy of their patent compensating float, which we have good reason to believe will, after a time, be universally adopted, and it gives us much pleasure that such a valuable improvement is both an Irish invention and its manufacture has become a branch of Irish industry.

The display of building materials at the Exhibition is not very extensive, being chiefly confined to the Agricultural Museum at the south side of the building, where there are good specimens of the well-known Valentia slates, also slates from Carnew, and a variety of ventilating bricks, tiles, and drain pipes, to which we would direct the special attention of our readers, as from their situation they are liable to escape notice. Some specimens of peat fuel are exhibited in this department, as an example of a new branch of Irish industry which bids fair to become very extensive, a detailed account of its manufacture will be found in another portion of our columns; it is to be regretted that some person is not on the spot who could give a description to visitors of this most interesting branch of Irish industry, as the few specimens of peat in various shapes which are lying about are not likely to attract attention, although the process by which they are manufactured into these shapes, as an Irish invention, were it explained, would make them an object of special interest.

The element of house decorations and of internal household economy is, however, much more extensively represented. We have already noticed the improvement in kitchen ranges exhibited by Messrs Musgrave Brothers, and Messrs. Riddell and Co., of Belfast; Messrs. R. Perrott and Sons, of the Hive Iron Works, Cork; Messrs. Hodges, of Dublin. The chimney-pieces exhibited by Maurice Brooks, of Sackville-place, are very beautiful, and second to none as articles of Irish manufacture. Amongst the specimens of house decoration, however, the collection sent in by Mr. R. Mannix, of Merriown-row, are by far the most deserving of notice; they are exhibited in the gallery, on the north side, and are intended as an example of an application of the fine arts to the purposes of ordinary house decoration, as capable of being cheaply executed, whilst producing a far nobler effect than what is at present more commonly in use.

In the lower compartments are several specimens of Gothic, Celtic, and Arabesque ornamental painting, with copies of Murillo's assumption, and De La Roche's head of the Redeemer, treated in a decorative manner. In the centre of the ceiling overhead is a figure of Moses breaking the tables of stone, after Parmegian. On the left, in flat relief and gilding, a subject from Moore's "Paradise and the Peri"—

"One struggle, and his pain is past;  
Her lover is no longer living!  
One kiss the maiden gives, one last  
Long kiss, which she expires in giving."

To the right a Grecian panel with classic fret and

figure of Agamemnon, also panels of inlaid woods and marbles, with several examples of gilding and embossing, only less suitable for show boards, insertion in pillars, freizes, &c.

In the centre of the next ceiling compartment is an ornamental panel, with Chinese figures, after Bouchier, with specimens of stencil decorations, suitable for public buildings when paper hangings are not available.

In the third division is a geometrical design for a ceiling, with copy of a painting by Sant for a centre piece, and heads of the passions, fruit, and flowers in the surrounding panels, with ornaments in flat relief.

The entire of those specimens have been executed by Mr. Mannix himself, with palette and brush, and are intended to exhibit the amalgamation of the finer branches of painting with the business of an ordinary decorator. Most of them can be executed at prices much below what an ordinary observer would be led to suppose, and are in the end far the cheapest description of decoration, as, being executed in oil, they possess the elements of preservation for ten times a longer period than French ornamental papers or any other description of distemper work.

In the yard in front of the Society House is exhibited a house, the construction of which might well startle a contractor accustomed to specifications for brick and mortar, but the merits of which would be at once appreciated by an intending settler in one of the new colonies. It is composed entirely of wood, with the exception of the roof, which is formed of corrugated iron, and is so constructed that the whole structure can be taken down with great facility, and folded together so as to form seven separate boxes, each six feet long by four feet of depth and thickness. These boxes can contain all the requisite furniture of the house, in which it may be packed, and transported with the greatest security to the antipodes. The house, when erected, is twenty-four feet long and twelve feet broad, it contains a sitting-room, two bed rooms and a kitchen; it is said to form complete accommodation for six persons. We who are accustomed to the luxuries of home life would feel inclined to call this latter statement in question, and to look doubtfully upon the thin wooden sheathing and the open chinks while thinking of the closely curtained windows and listen-lined doors behind which we fortify ourselves against the severity of a long and harsh winter, but such luxuries are despised by new settlers, by whom these portable houses are extensively used, and who pronounce them to be amply provided with all necessary requirements. In a warm climate, at any rate, they would offer many advantages from the facility with which they can be set up or moved about when requisite. The exhibitor is Mr. Gregory Kane, of Dame-street, who has supplied many of these houses to emigrants. We should here notice also the "Patent Roofing Felt," manufactured by Messrs. Ritchie and Sons, Belfast, a material which is frequently used for covering this class of houses, although the one of which we speak is roofed with corrugated iron, the latter being by some preferred for that purpose. The roofing felt, however, is very extensively used for covering various classes of buildings, and has afforded general satisfaction. It is manufactured by powerful machinery, by means of which it is thoroughly saturated with bitumen, and then so closely compressed that it is rendered impervious to rain, snow, or wind, and can be employed as a covering, at one half the cost of slates. Its price is a penny per superficial foot, and it is manufactured in webs thirty-two inches wide and twenty-five yards in length. Messrs. Ritchie and Sons have designed a "bowstring girder" for crossing largespan, up to sixty feet, which, when covered with the patent felt forms a light and handsome roof, adapted for manufactories, railway sheds, &c.

Two descriptions of patent sewing-machines are exhibited, one in the Machinery Court, by Messrs. Newton, Wilson, and Co., of London, which has obtained some very high testimonials for its simplicity and the ease with which it can be worked; another by Messrs. Edmundson and Son of Capel-street, who are agents for its sale in Dublin, entitled the "Willcox and Gibbs' Noiseless Family Sewing Machine." The latter claims some peculiar advantages, amongst others, the introduction of a new kind of stitch, which can be ripped if necessary with the utmost facility, and yet the seam will resist being pulled asunder, even when cut into lengths of half an inch.

In noticing articles of Irish manufacture we should observe that Messrs. Curtis and Sons have recently erected at the orchestra two very fine mediæval gas standards, with five branches of treble burners to each, the workmanship of which is not to be surpassed; they were manufactured at their works in Chancery-lane. The same firm also exhibit at their stand in the south court some very fine specimens of steam, water, and gas cocks, valves, and fittings, force and lift pumps, and many other samples of hydraulic brass work; also various kinds of railway furniture, signal and railway carriage lamps of the most modern and improved construction. Castings are exhibited from the first stage of manufacture. A large num-

ber of first-class mechanics are always employed in making the foregoing.

We have yet to notice the Royal Panopticon of Mr. Simonton, of Grafton-street. One of the first objects that strikes the eye on entering the centre hall, immediately after passing the immense lighthouse of Messrs. Edmundson and Co., a veritable *pot pourri* of articles of taste and *virtu*, of which it would be difficult to say whether they afford more pleasure by their variety and great beauty or by their tasteful arrangement. We have here a collection of ornamental chimney-piece clocks, china vases, with pictured devices, inlaid and enamelled boxes, bog oak ornaments, jewellery, &c., and many curiously wrought articles well worthy of inspection. It would afford still more pleasure if the Irish element were more predominant in this collection, which is intended chiefly as a general exhibition of works of taste; we are happy to observe, however, that one or two of the finest specimens, in the shape of chimney-piece clocks, are of Irish manufacture, and we trust that in this branch also Ireland may, at some future exhibition prove herself worthy to compete with England, or even with her continental neighbours.

## TINODE HOUSE, COUNTY WICKLOW.

In our illustration we give a north-east view of Tinode House, near Blessington, the residence of W. H. F. Cogan, Esq., M.P. It is placed on an elevated position, commanding an extensive prospect of the surrounding country, the adjacent grounds being tastefully laid out in terraces to suit the sloping nature of the site.

It is built of granite; the dressings of the windows, door-cases, cornices, string-courses, &c., being finely chiselled, and filled between with broken ashlar punched work.

The hall-door shown in our engraving is of a very handsome design, with polished red marble pillars, supporting the canopy or hood of door. There are extensive stabling and offices now in course of erection. Architect, W. F. Calbeck, Esq., 24, Harcourt-street, Dublin.

## ROYAL MARINE HOTEL, KINGSTOWN.

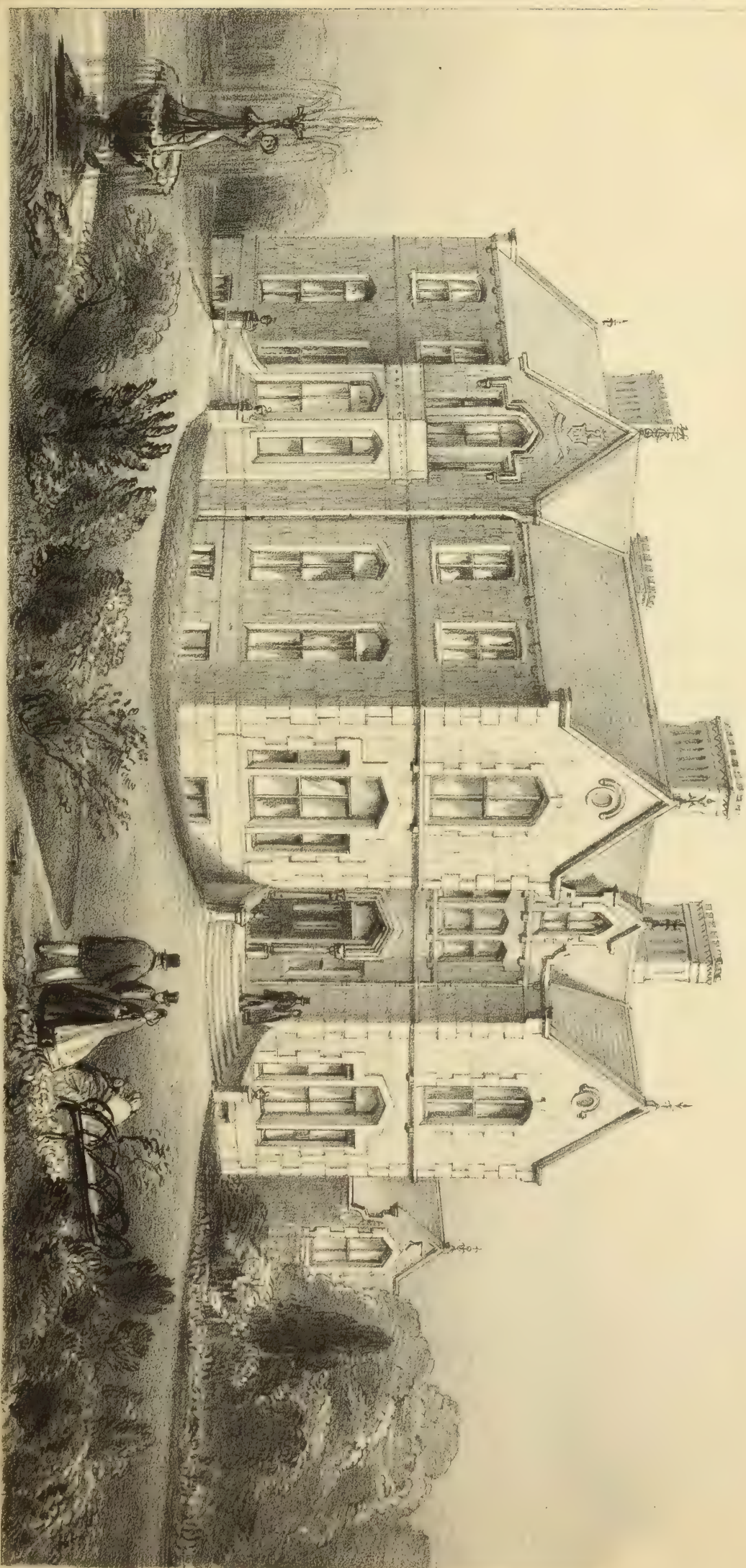
The workmen are actively proceeding in the excavations for the foundation of this hotel, the plans of which have been materially altered from the original design. The new hotel will be, in fact, only the present Royal Hotel, which has been purchased by the company, with the addition of a new wing on the east side. A meeting of the directors will be held on Monday next, to take into consideration further matters relative to the completion of the building.

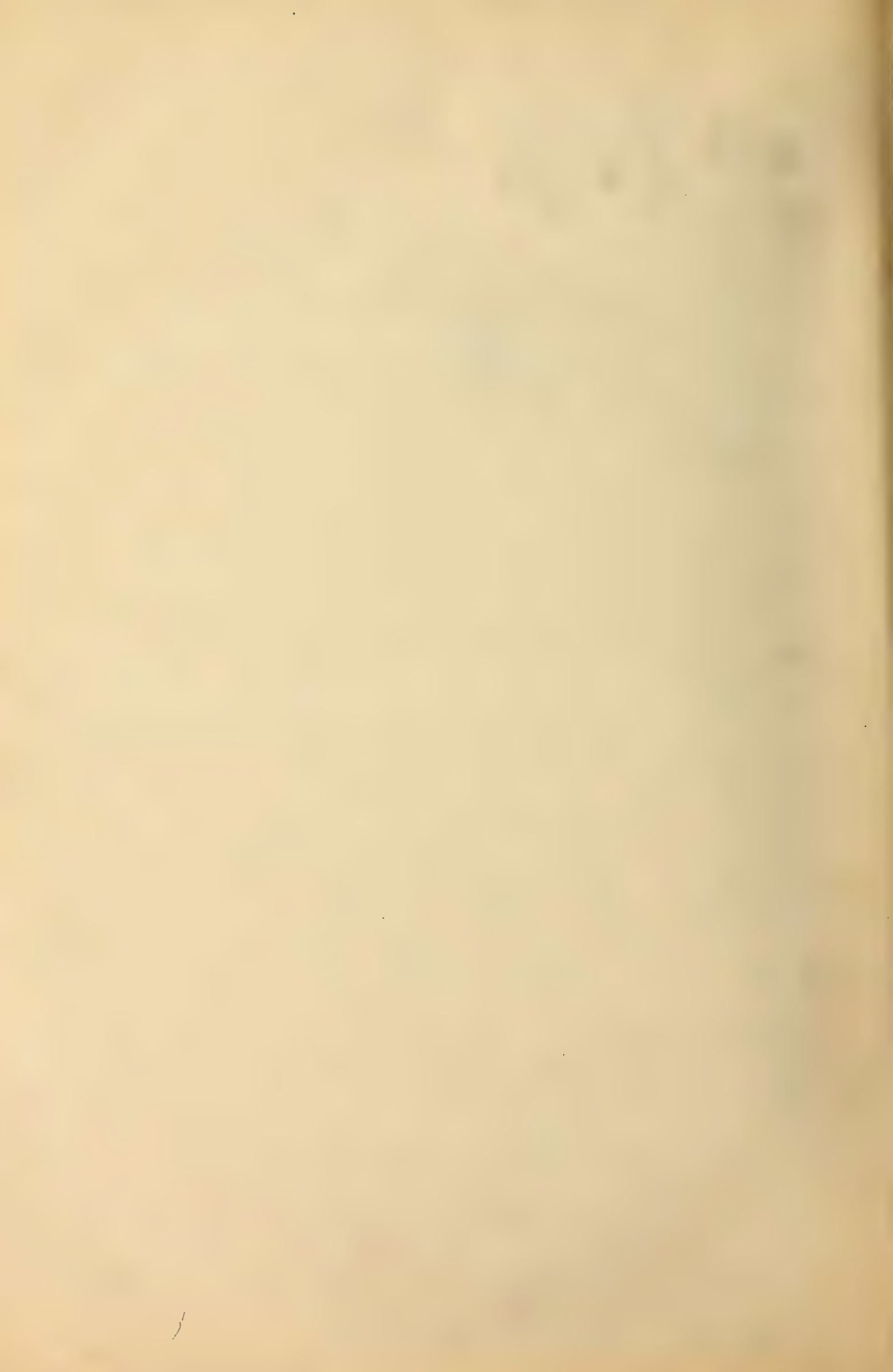
## ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A GENERAL meeting of the Institute was held on Thursday evening, 23rd ult., S. Symes, Esq. (Fellow), in the chair. Mr. James H. Owen (Fellow), Hon. Secretary, read a paper on "Benefit Building Societies," and which will be found on page 126.

Alfred G. Jones, Esq., 3, Molesworth-street, and Edward M'Allister, Esq., 17, Charlemont-place, were elected Fellows; and Alex. C. Macfarlane, Esq., a Student of the Institute.

The *Art Journal* of November, in its description of Benson's Great Clock, says—"It has attracted universal attention; its construction has, we believe, obtained general and strong approval; it is one of the largest chiming clocks as yet manufactured in this country." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting-house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate Hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H. R. H. the Prince of Wales.





## PLUMBAGO CRUCIBLES.\*

CRUCIBLES have been in use for melting and refining metals from that distant point of time when man exchanged his stone hatchet and bone chisel for implements of bronze. The earliest melting pots were doubtless made of the plastic and infusible substance, clay, and there is no reason to suppose that they differed essentially from the earthen crucibles now commonly used in our foundries.

As an instrument of scientific research the crucible has held an important position for at least a thousand years. It was constantly used by the first alchemists, and may, indeed, be truly styled the cradle of experimental chemistry.†

At the present time crucibles, of one form or another, are extensively employed by the refiner of gold and silver, the brassfounder, the melters of copper, zinc, and malleable iron, the manufacturer of cast steel, the assayer, and the practical chemist. They are made in many different shapes and sizes, and of many materials, according to the purposes for which they are intended. For certain chemical experiments requiring high temperature, vessels of platinum, porcelain, and lime are adopted; but for ordinary metallurgical operations "clay crucibles" and "plumbago crucibles" are exclusively employed. We have now to confine our remarks to these two important classes of crucibles.

On examining a clay or plumbago crucible we find nothing to excite our surprise. It seems to be merely a rough specimen of pottery that might be easily imitated. Yet, the successful makers of crucibles are so few that they might almost be counted on the fingers of two hands. When we take into consideration the qualities which are required in a crucible to enable it to pass victoriously through the ordeal by fire, the paucity of good makers becomes intelligible. The crucible should resist a high temperature without fusing or softening in a sensible degree; it should not be liable to break or crumble when grasped with the tongs; and it ought to be but little affected by the chemical action of the ashes of the fuel. Again, it may be required to withstand the corrosion and permeation of such matters as melted oxide of lead. In some cases crucibles should resist very sudden and great alternations of temperature so that they may be plunged while cold into a furnace nearly white hot without cracking. In other cases, they are merely required to resist a high temperature after having been gradually heated. Some crucibles are specially remarkable for one quality and others for another, so that in selecting them the conditions to which they will be exposed must be kept in view. The crucibles which present the finest combination of good qualities are those from which the Patent Plumbago Crucible Company takes its name. They support, even when of the largest size, the greatest and most sudden alternations of temperature without cracking; they can be used repeatedly, and their inner surface can be made so smooth that there is no fear of the particles of metal hanging about their sides. Their first cost is necessarily high, as plumbago is an expensive raw material; but the fact that they may be used for a great number of meltings makes them in reality cheaper than the ordinary clay pots. As fire-clay contracts considerably when exposed to a high temperature it cannot be used alone for large crucibles. The so-called "clay crucibles" are made of a mixture of the plastic clay and some other substance, such as highly-burnt fire-clay, silica, or coke, which counteracts in a measure the evil due to contraction, and so lessens the tendency of the vessels to crack. The large Stourbridge clay crucibles so extensively employed by the brassfounders of Birmingham contain both burnt clay and coke. The Cornish and Hessian crucibles are made of peculiar kinds of clay in admixture with sand. The great superiority of the Plumbago crucibles over these can be easily accounted for by the fact that graphite or plumbago is the most infusible of all substances known, and at the same time a material that can be thoroughly incorporated with the clay without impairing its plasticity.

The works of the Patent Plumbago Crucible Company cover a large space of ground at Battersea, and have a good river frontage. As we proceed along the lane which leads from near Battersea Bridge we find that the ground gets blacker and blacker, and before we reach the threshold of the office we notice the familiar blacklead polish beneath our feet. Passing a regiment of clerks we enter the private office of the manager of the works, where we put on a very large coat and a very old hat, which are kept for the use of clean visitors. There are many things in this little office which attract our

attention. The walls are covered with testimonials from British and foreign mints, respecting the excellence of the company's manufactures, with here and there a prize medal. The International Exhibition of 1862 is recalled, not merely by the prize medals awarded to the company for crucibles and blackleads, but also by the splendid collection of samples of plumbago, which formed such a striking feature in Class I. In this collection every quality of plumbago is represented by specimens from all the most celebrated mines, particularly those of Ceylon, Germany, Spain, Siberia, Canada, Finland, and Borrowdale. We learn from the manager that some of the samples would not be adapted for the manufactures of the company. The Siberian plumbago, for instance, contains too much iron, and although this could be entirely removed by the company's patented process for purifying plumbago, it is found cheaper to work with the Ceylon plumbago, which contains but little iron.

Before we leave this snug office for the busy factory we will jot down a few notes on plumbago, or, to use its more correct name, graphite. The old mineralogists, misled by its remarkable metallic lustre, placed graphite among the metals; and, at the present time, there are doubtless many persons who accept "blacklead" as an appropriate name for this substance. In most dictionaries graphite is defined as "carburet of iron," in accordance with the opinion formerly held by most chemists that it was a compound of carbon and iron. This definition is now known to be incorrect, for although iron is generally present in graphite, it must not be regarded as an essential constituent, any more than the silica or alumina which usually accompanies it. The iron, silica, and alumina, when present, are simply in a state of mixture, and not chemically combined. Graphite is one of the forms of carbon, that Protean element which also occurs native, as the sparkling diamond and the black and lustrous anthracite, and which also appears in the familiar shapes of charcoal, coke, and lampblack. According to Dr. Wood's analysis of a sample of the graphite used at these works, it contained upwards of 98 per cent. of pure carbon, the remainder being silica, with mere traces of iron and alumina. Few samples have been found to contain less than 95 per cent. The variform character of carbon is exhibited by graphite itself, for it is sometimes crystalline and sometimes amorphous. The crystallized or foliated graphite is found occasionally in six-sided tabular crystals, but commonly in foliated or granular masses. It is chiefly obtained from Ceylon, where it is found imbedded in quartz. It is also found near Moreton Bay, in Australia; in the States of New York and Massachusetts, and in Siberia. The amorphous graphite is that variety to which the terms "plumbago" and "blacklead" are ordinarily applied. It is much softer than the crystalline graphite, and makes a blacker streak on paper. Formerly it was obtained almost exclusively from Borrowdale, in Cumberland, but the mine there is nearly exhausted, and, we believe, is no longer worked. The bulk of that used at present comes from Germany, principally from Griesbach, near Passau. Both varieties are used in the manufactures of the company; the crystalline for crucibles, and the amorphous for polishing powders.

The consumption of Ceylon graphite at the Battersea works has had an extraordinary effect upon the price of the article. When the company commenced business it cost about £10 per ton; but now it cannot be bought at double that price. In Ceylon we hear that applications to dig graphite are daily on the increase, notwithstanding the rate of 14s. per ton, which has to be paid as royalty at the Colombo Custecherry. The following figures, giving the amount of revenue collected at Colombo and Galle, on account of royalty in 1862 and 1863, clearly show the extraordinary increase in the demand for Ceylon graphite:—

	1862.			1863.			Increase.		
	£	s.	d.	£	s.	d.	£	s.	d.
Western Province ..	472	4	4	1,272	10	2	800	5	16
Southern Province ..	112	2	8	282	8	5	170	5	9

The total quantity of graphite exported from Ceylon in 1862 was 40,895 cwt., of which no less than 34,730 cwt. was shipped to Great Britain. The Customs' returns for last year have not reached us. We do not wish it to be understood that the Patent Plumbago Crucible Company use up all the Ceylon graphite brought to the United Kingdom, but it is well known that they are the principal consumers. We must now take our leave of chemistry and statistics, and see what there is to be seen at the Black Potteries.

We commence our tour of inspection at the Receiving Stores, where we are shown the stock of raw material, which comprises, at present, about 2,000 casks of graphite, each one holding from 4 to 5 cwt. The heads of a couple of casks are broken open, in order that we may compare the hard iron-grey fragments of the Ceylon graphite with the

black, dull, friable lumps of the German variety. A piece of the latter, pressed between the finger and thumb, feels pleasantly soft, and flattens readily into a lustrous cake. From the stores we pass to the engine-house, to take a peep at the prime mover of the machinery employed on the factory. One horizontal engine, of 25-horse power, serves to do all the work that does not require skilled hands.

The grinding room contains several mills of different construction for grinding and mixing the materials of which the crucibles are formed. In one corner we see too huge stones chasing one another round a shaft, and pitilessly crushing the hard lumps of dried clay that are thrown in their path. Here we see a powerful mill for grinding the graphite; and here again, an ordinary pug-mill for incorporating the graphite with the clays. The noise made by these machines is almost unbearable, but it is not the only noise we have to put up with. A brisk rattle is maintained by a number of workmen who are occupied in sorting the pieces of graphite into different sizes and qualities by aid of metallic sieves. When the graphite is reduced to powder, it is conveyed to the upper floor of an endless band-lift, and sifted by a contrivance similar to an ordinary flour-dressing machine. One of these machines is provided with a silk-gauze drum of remarkable fineness, and is reserved for the preparation of plumbago for anti-friction purposes.

Following the graphite to the upper floor, we enter the mixing room, where the most important operation in the crucible manufacture is performed. A number of large bins, each containing a distinct variety of clay in powder or a certain quality of plumbago, are ranged round the room. Upon the proportions of these several ingredients taken to form the mixture or "metal," as it is technically termed, the quality of the crucibles depends. The actual proportions of Stourbridge and other clays used are of course kept secret. The ground graphite having been mixed with the clays, the whole is wetted with a sufficient quantity of water and allowed to soak for some time. Having been "pugged" in the mills the tempered "metal" is formed into blocks and then placed in a store-room, where it is allowed to remain for several weeks.

We now enter the potter's room, where the crucibles are fashioned. This room might be a part of any large pottery were it not for the funeral hue of everything around. On each side are ranged the lathes or wheels, all driven by steam power, but resembling in other respects the potter's wheel of the earliest ages. Let us watch the growth of one large crucible. The "thrower" takes the necessary quantity of "metal" and submits it to the operation of "wedging," which consists in tearing or cutting it into two pieces and striking them together again with great force. This he repeats until the metal becomes perfectly tractable. He then dashes the mass upon the revolving disc of his lathe and presses it with his wet hands till it assumes an irregular conical form. He then makes it take a variety of forms with the object of getting rid of all air bubbles. It is impossible to follow the mass through its numerous changes, but suddenly, when we least expect it, it takes the shape of the crucible. This shape is very rude at first but under the skilful hands of the thrower it soon becomes beautifully symmetrical. A wire guide is fixed at a certain height above, and at a certain distance from, the revolving mass, and to this the thrower gradually brings the edge of the crucible. With this simple guide he can make a dozen pots resembling each other so perfectly in shape and size, that the most experienced eye can hardly detect any variation in them. The skittle pots are made in precisely the same way, but are contracted at the mouth after the inside has been properly shaped. Many of the fire-resisting goods manufactured by the company are shaped by moulds, or by the aid of modelling tools. One of these miscellaneous articles which we see in course of construction is a large bath, five feet long by a foot and a-half wide, intended to hold molten zinc. This we are told is for a French order.

We now follow the pots to the drying-room. Through the centre of this room the upper part of one of the kilns passes, and the heat which would otherwise be wasted is thus applied to a useful purpose. Here we find regiments of pots undergoing the drying process. Many of them have the graceful form of the once-celebrated Picardy pots, and are intended for the French mints. Though unbaked each article that has remained sufficiently long in the room gives a clear metallic ring when struck.

The kilns are large conical chambers like those of ordinary potteries. The goods to be "fired" are packed in cylindrical cases of fire-clay called "seggars," and these are piled one above the other in the kiln like the basaltic columns of Staffa, and are luted closely together. These seggars protect the goods from the action of the air, which at a high temperature would have the effect of whitening

\* From an account recently published by Mr. J. G. Brough, entitled, "A Visit to the Works of the Patent Plumbago Crucible Company."

† The word "crucible," from the Latin *crux*—*crucis*, recalls the alchemical practice of marking the vessel with the protective sign of the Cross.

the external surfaces, and so rendering them unsightly. We have the good fortune to be present as the workmen are engaged in emptying a kiln. We see that the crucibles come from their fire-clay cases exactly as they are sent out from the works. The absurd practice of giving plumbago crucibles a factitious polish and smoothness generally followed by Continental makers is not adopted by the company.

From the kiln the goods are conveyed to the store-room, or to the packing-room if they have to be shipped at once. The goods are nearly always packed in old sugar hogsheads, which are strong, large, cheap, and plentiful. Turning out on to the wharf we see thirty of these hogsheads packed ready to be shipped for Vienna; and, lying alongside, 150 cases containing crucibles for the Italian Government. These orders, not by any means unusual in magnitude, will enable our readers to form an idea of the scale upon which the operations of the company are conducted.

We now cross the yard to the workshops of the clay department, where various descriptions of crucibles are manufactured. The larger sizes, as in the case of plumbago crucibles, are made at the potter's wheel, but the smaller, in which the company can successfully compete with the best French makers, are fashioned by beating the clay upon boxwood mandrills. The so-called "white-fluxing pots" are really beautiful specimens of earthenware, and are acknowledged by the best authorities on metallurgy to be very refractory, and to withstand the action of fluxes in a most remarkable manner. Every pot is made by gauge, and each moulder is consequently provided with a great number of pattern ribs cut from boxwood and ebony. The little crucibles used in assaying almost equal the German porcelain crucibles in thickness and smoothness. The smallest are not much more than an inch high. Besides crucibles, all kinds of clay instruments used in assaying are here manufactured, such as scorifiers, roasting dishes, and muffles. The convenient clay furnaces used by assayers, dentists, and experimental chemists, are also made in great numbers.

Let us now turn back to the store-rooms and look at a few of the curiosities that are to be found there. We have just been speaking of a crucible about an inch high. Here is one of the pattern supplied to the Royal Mint, intended for melting 600 pounds weight of silver. Here again is another plumbago pot, made specially for zincing the Armstrong shot, and which will hold 800 lb. of molten zinc. The medium sized plumbago pots now so extensively employed for melting silver, gold, copper, brass, and malleable iron, are, of course, the most important products of the works. All the pots are numbered according to their contents, each number standing for one kilogramme, or a little over two pounds; thus—a No. 2 crucible contains two kilogrammes; a No. 3, three kilogrammes, and so on. Covers, stands, and stirrers of plumbago are kept in stock with every conceivable article of fire-clay from the huge glass pot down to the humble fire ball for the parlour grate.

The graphite imported by the company is not used solely in the manufacture of melting pots and metallurgical apparatus. A good proportion of this valuable raw material is prepared for domestic purposes, and sent from the Battersea works in the form of ordinary "black lead." As this article is used wherever there is a grate or stove to be kept bright, its annual consumption must be very large. There is no substitute for it—nothing that can be employed in the same way to polish and protect the ironwork of common fire-places. Without the factitious lustre produced by the action of "elbow-grease" on black lead, the most elaborate kitchen range would soon become unsightly, the trim parlour grate would blush with rust, and the cottager's "wee bit ingle" would leave off "blinkin' bonnily."

The various qualities of black lead which the company sends into the market under different fanciful names are all prepared from graphite or plumbago, and nothing else. The higher qualities are distinguished from the lower by their superior fineness, softness, and lustre; but chemically they are identical. The article sold under the sentimental name of "Servants' Friend" at 28s. per cwt. is quite as pure as the "Prize Medal Lustre," which fetches double the price, or "Halse's Roman Lustre," the best quality of black lead manufactured by the company. Again, the analytical chemist would fail to detect any essential difference between either of the above named products and the article labelled "carburet of iron," in remembrance of the exploded opinion respecting the nature of graphite. How comes it, then, that one quality is so much superior to another? The explanation is simple enough. The differences in the manufactured article may be traced to certain variations in the physical properties of the raw material. Thus one sample of graphite may be soft and lustrous, while another, equally pure, may be hard and dull. These vari-

ations are subordinate to the distinction between amorphous and crystallized graphite to which we have already referred. For making domestic black lead, the amorphous or soft graphite is almost exclusively used.

The separation of the different qualities of graphite is a labour which demands great experience and judgment, and can only be successfully performed by the old hands. The best pieces are soft and unctuous, perfectly free from grit, and capable of receiving a very high polish. The worst pieces, technically called "gruffs," are, on the contrary, harsh, gritty, and deficient in lustre. The latter are only employed for making "leads" of the lowest brands. The numerous intermediate qualities are distinguished one from another by characters which are only apparent to the experienced eye.

The manufacture of black leads includes three distinct operations—grinding, sifting, and packing. At the Battersea Works, the first operation is performed by means of a large mill driven by steam power. The ground "lead" is conveyed to an upper floor by an endless-band elevator, and is then sifted through the finest silk in the simple dressing machine already noticed. The packing is chiefly done by boys, who work with marvellous rapidity. The powdered black leads are done up in neat packets in quantities from two ounces upwards; they are also packed in 1 lb. tin canisters and in wood boxes. Papers of various colours are used to form the small packets, so that the different qualities may be readily distinguished. A paper covered on one side with burnished black lead is employed for wrapping up some of the higher qualities.

Two descriptions of "blocked black lead" are manufactured by the company. The blocks are formed by pressing the powdered and sifted graphite into suitable moulds by the aid of machinery, very similar in construction to that employed for making bricks, though, of course, on a much smaller scale. There are two blocking-machines constantly at work, and the number of little bricks they turn out annually would amply suffice for the building of a Liliputian city.

The organization of labour is thoroughly understood at the Battersea Works. There is a place for every man and every man is in his place. A strict code of rules is enforced by fines; but these fines are paid over to the fund of the Workmen's Provident Club. We have been over many great industrial establishments, but have not seen any better managed than this crucible factory.

A few days after writing the above we paid a visit to the establishment of Messrs. Browne and Wingrove, the refiners to the Bank of England, where we saw a hundred ounces of silver poured out from a plumbago crucible which had been used again and again. Here, indeed, as at many other great establishments, the patent plumbago crucibles are alone used. We were informed by the courteous manager of the refinery, that the pots never cracked, but gradually become thinner until a poi it was reached, when it would be unsafe to trust a charge in them. He assured us that 50,000 ounces of silver and upwards had been melted in one 1,000 ounce pot. We were glad to receive such good testimony to the value of the plumbago crucibles, for all that we saw at Battersea gave us a most favourable impression of the manufactures of the company.

#### DERRYLEA PEAT WORKS.

THE utilization of the bogs of Ireland, whether as regards their reclamation and conversion to the general purposes of agriculture, or the possibility of obtaining from them a fuel of superior quality to the ordinary hand-made turf, is a problem which has long occupied some of the most ingenious and practical minds in the country. Parliamentary commissions have inquired into the subject, engineers of eminence have surveyed, examined, and reported upon the principal peat districts in Ireland, and much valuable information has been collected as to the best methods of bringing bogs into profitable cultivation. Hitherto these investigations, necessary and useful as they were, have not been attended with much practical results. The circumstances of the country have prevented the extensive recommendations of the Parliamentary Commissioners, whose last report was published in 1814, from being carried out in the reclamation as tillage and pasture land of the flat red bog which constitutes the larger portion of the peat soil in Ireland, or in the plantation of the mountains, which would add so much to the wealth of the proprietors, while it enhanced the picturesque scenery of the country. Bit by bit, and in a piece-meal fashion, a considerable extent of bog, contiguous to arable land, has been brought under cultivation, and wherever there has been a suitable subsoil of limestone gravel, or marl, the finest green and cereal crops, wheat excepted, have been produced. But for the general reclamation of the bogs extending

over an area of nearly three millions of English acres, a general and systematic plan of drainage is necessary, which can hardly be expected from private enterprise, and which, with the present depopulated condition of the country, looks more hopeless and distant than ever. Can anything then be done to utilize the bogs of Ireland in another way—to make them more profitable, for example, as a source of fuel? At present they supply all the fuel of the rural districts, and in this respect their importance can scarcely be over estimated, for we have seen within a few years past how widespread and intense may be the distress occasioned by the failure to save one season's crop of turf. The bulk of the turf, however, as compared with its actual value, renders it objectionable in many respects, and it has been found that country gentlemen use coal in preference wherever it can be procured at 20s. or 22s. per ton. It is natural, therefore, that attempts should have been frequently made so to manufacture peat as to produce a compact, solid, and useful fuel, valuable not alone for domestic use, but for locomotive and manufacturing purposes. The efforts heretofore made in this direction, to make a serviceable fuel, to manufacture gas, and to extract paraffin wax and oil from the raw peat, have proved comparative failures. The results have been in many instances very beautiful and perfect, but not commercially profitable. One of the most promising of the various processes for making peat fuel was that of passing the wet bog stuff through a cylinder inside of which an Archimedian screw revolved that collected the fibrous materials together and pressed out the pure peat, which became condensed, and dried into a hard substance without any external pressure. The article thus produced was of a very superior quality, very hard, of considerable specific gravity, giving out much light and heat, and capable of standing the blast in a furnace. If it could have been obtained cheaply and in large quantities, we have no doubt the process would now be in general operation all over the country. But an obstacle stood in the way of producing any large quantity of "condensed peat" which has proved the bane of all similar experiments that have been heretofore undertaken. We refer to the difficulty of drying the peat, which has been attended with an amount of trouble, time, and expense that rendered profit impossible. This formidable difficulty has at length, we believe, been overcome by the ingenuity and perseverance of Mr. Hodgson, the inventor and patentee of the "compressed peat fuel," who with indefatigable industry has carried on a series of experiments on this subject for a period of seven years. We paid a visit some days ago to the works of the company that has been formed to carry the manufacture according to Mr. Hodgson's plan, and we think it may prove acceptable to our readers if we lay before them a brief description of what we witnessed on that occasion. The works are situated at Derrylea, a few miles distant from the railway station at Monasterevan, on the borders of Kildare and King's County. Here on the margin of a bog, about 800 acres in extent, which has been leased for the purpose, a building has been erected containing a compressing machine, drying tables, and other requisites for the manufacture, the machinery being driven by a steam-engine of 12-horse power. A neat wooden house has been provided for the managers and foremen, and larger structures have been put up for the accommodation of the labourers employed on the works. They are charged 1d. per night for their lodging, and a shop has been established at which they can obtain provisions at first cost. It will be seen, therefore, that the company have made adequate provision for the comfort of their workmen, of whom they employ at present, in what may almost be termed the experimental stage of the manufacture, about 200 men and boys. The process of manufacturing the patent fuel is very simple, rapid, and apparently inexpensive. As already stated, the great difficulty which has brought all previous undertakings of this kind to grief has been the time and cost involved in the drying of the peat. Mr. Hodgson has devised a method of accomplishing that object which is as simple as it is efficacious. The bog is first thoroughly drained by deep ditches, intersecting each other at intervals of about 60 yards. The upper surface of heather and loose sod is then removed, and the compact bog, thus laid bare, is scarified all over by light harrows drawn by men; the loosened surface, which dries very rapidly, is scraped off, and collected into heaps, and the harrowing is resumed. The operation in fine weather is performed twice a day, and the peat thus collected is found not to re-absorb moisture, although not exposed to the weather. During the two or three hours that the loosened surface remains on the bog, if the weather be fine, it loses about 40 or 50 per cent. of its moisture. We examined some which had been harrowed a very short time previously, and found it comparatively dry, whilst a handful of peat from the bog immediately

underneath was saturated with water. The drying of peat then is partially caused by the natural process of evaporation, no larger extent of ground being required for the purpose than the actual surface of the bog from which it has been detached by the operation of the harrows. The partly dried turf, or "mull" (as it is locally termed), is brought from the bog in waggons running on light rails. Having arrived at the works, it is thrown into an inclined revolving riddle, which deposits the finer portions on the drying tables or plates; the coarser portions fall out at the lower end, and are ground fine in a mill. This is the only place at which the turf has again to be handled; but in the proposed new arrangement of the works this defect will be obviated, and the mill arranged to act automatically. The drying tables consist of four sets of plates 250 feet long, and about 8 feet 8 inches wide; three-fourths of these are heated by the waste steam of the engines, and one-fourth by the flue of the boiler, the hot smoke of which is blown in by a fan. The advantage of this arrangement is an economical point of view is apparent. The mull is moved along over the heated tables by means of two pairs of endless chains, having iron rakes secured to them at intervals of six feet. The upper part of the chain carries the mull 250 feet along the upper table, and pushes it down to the lower plates, along which it is brought back by the lower half of the chain, performing the entire 500 feet in about an hour. It then passes out in a state sufficiently dry for the pressing machine, and is conveyed by revolving buckets into a loft from which it is let down by a shoot into the machine. This is a simple and ingenious apparatus. It consists of a tube about 5 feet long and 3½ inches in diameter, into one end of which works an iron ram, making 60 strokes a minute, and at each stroke forming a cake of fuel. The resistance to the pressure of the ram is supplied by the friction of the cakes passing through the tube, from which they issue at a considerable temperature in the form of a solid cylinder, and are conveyed by a wooden shoot about 300 feet long direct either into the canal boat or the store; this tube is an essential feature in the manufacture, as the solidity and durability of the fuel depend in a great degree on its cooling under pressure. As the end of this solid cylinder of peat passes into the window of the store, propelled forward about an inch and a-quarter by every blow of the ram, a cake is detached and falls down. The whole process of manufacture, from the time the mull is thrown into the riddle till the compressed fuel drops into the boat or store, occupies from three to four hours—a guarantee, to some extent at least, that the operation is not expensive. All the machinery employed is of a simple and durable character, and, we were informed, has been found to work with perfect regularity and freedom from accident. Those parts of the pressing machine liable to wear are inexpensive, and so constructed as to be easily replaced. The important question now arises, will the manufacture of the compressed fuel pay? The directors of the company are very sanguine on this point, and, so far as we are able to judge, their expectations of success are based on solid grounds. They recently deputed two able engineers, Mr. Charles P. Cotton, and Mr. William Anderson, to investigate the subject; and those gentlemen have written an elaborate report comprising a description of the process of manufacture—an investigation into the present cost of production, and the probable saving to be derived from a largely increased scale of operations—an inquiry into the cost of transit, and the best means for facilitating communication with Dublin and the provinces, and a consideration of the economic value of the fuel. They have added a very full appendix, containing the data on which their report is founded. From this document we find that the production during the month of January last was at the rate of 84 tons per week, and that the cost of the patent fuel at the works was 6s. 4d. per ton. They estimate that, if the establishment be enlarged to produce 400 tons per week, the cost of production can be reduced to 3s. 11½d., exclusive of Mr. Hodgson's royalty. At present the fuel is loaded directly from the store into boats capable of carrying about ten tons each, drawing two feet of water. These boats are towed down a small canal from the works to the river Figgle, and are then guided down the stream to the landing place, near the aqueduct. The cargo, which is in bulk, is then transferred by sackfuls to the regular canal boats, if intended for the Dublin market, or to the Great Southern and Western Railway, if for stations along the line. Messrs. Cotton and Anderson offer suggestions as to the improvement of the water carriage, and the formation of a tramway from the works to the Grand Canal, which is now in course of construction, and, when made, will effect a great saving in cost of transit. With reference to the economic value of the fuel we think it important to quote the whole of

the passages in the report dealing with that subject. They say:—

"The commercial value of compressed peat for raising steam or other uses in the arts is not yet fully ascertained. It is well known that every kind of fuel, and even every variety of one kind, requires an arrangement of grate and furnace peculiar to itself, in order to give the best results. Hitherto, however, compressed peat has been burned in grates adapted to coal; and experiments under such circumstances will only indicate the lowest duty that may be expected. By the kind permission of Messrs. Findlater and Co., and Messrs. A. Todd, and Co., we have been enabled to make two very fair experiments. On the 25th January, 1864, one of the coppers in Messrs. Findlater's brewery was boiled in the usual manner with a consumption of 37½ cwt. of peat; and on the 28th January the same copper was worked by means of 21½ cwt. of Whitehaven coal, making the value of the peat 56·6 per cent of the coal. On the 26th January Messrs. Todd's flour mill was worked twenty-nine hours at an expenditure of 9 tons of peat; and on the 29th January the mill was worked for the same time with a consumption of 5½ tons of Wigan coal, making the value of the peat 61·1 per cent. When the boiler power is ample, no difficulty is experienced in using peat in coal-burning furnaces, and the labour of firing is very little greater than with coal; for although the fuel has to be thrown in a little more frequently, there is no occasion to rake or clear the fires, as no clinker is formed, and the fire-bars, consequently, do not wear out. The importance already referred to of treating fuel in accordance with its peculiar nature was strikingly exhibited in some very careful experiments made in May, 1862, at Messrs. Courtney, Stephens, and Co.'s works. It was found that a boiler which evaporated 7·2lb. of water per lb. of Welsh steam coal, boiled off 3·15lb. of water per lb. of compressed peat where the latter was treated as coal; and 3·89lb. of water where the fuel was allowed to burn without being disturbed, raising the duty from 44 to 54 per cent. We are of opinion, therefore, that the value of the patent fuel may be taken as at least 60 per cent. of that of Whitehaven or Wigan coal, the price of which varies from 14s. to 17s. alongside of the Dublin quays. If peat can be sold in Dublin at 10s. per ton, it will become economical to use it when the price of coal reaches 16s. 8d. per ton."

Should the company succeed, several improvements in the present process, and the use of steam power in the preliminary work of harrowing and conveying the mull from the bog to the works will doubtless be introduced, which will cheapen the cost of production. It is also highly probable that it will be found practicable, so to improve the manufacture as to produce a fuel admirably suited for the production of gas and for other purposes. The ordinary compressed peat has now for some time been supplied to the Dublin market, but in quantity unequal to the demand. It has been found a very pleasant fuel for the parlour and bedroom, and would doubtless be found more useful for those and other domestic purposes if burned in grates specially adapted for it. We hope, in a national point of view, that the company may prove a commercial success. The conversion of our bogs, now lying useless, into a source of wealth—the establishment throughout every part of the country of peat works, giving extensive employment, distributing cheap fuel, and facilitating iron and other manufactures—present advantages sufficiently obvious and important to justify us in taking a warm interest in the success of this undertaking.

The *Daily News*, July 1st, speaking of Benson's watches in the Exhibition, says, "Here are arranged a fine selection of watches manufactured by him on the latest and most approved principles of horological science. When we compare them with the specimens of ancient watch-work which are placed beside them, or even with those worn by our grandfathers, the immense advance in this branch of the mechanical arts is at once apparent." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's Illustrated pamphlet on watches (free for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## MR. RAWLINSON'S REPORT ON THE BRADFORD FIELD RESERVOIR.

AFTER some delay the report of Mr. Rawlinson, the Government inspector, on the bursting of the Bradford dam, and the state of the other works of the Sheffield Water Company, has at length made its appearance. Mr. Rawlinson repeats the views he expressed at the inquest with respect to the material and mode of constructing the dam, &c. As to the cause of the catastrophe he says:—"The objectionable mode of laying the outlet pipes most probably fractured the puddle-wall at the point of crossing. The loose state of the material at the top of the bank let in the water. As it rises in the reservoir this water has most probably found its way down the face of the puddle to the fracture in the puddle-wall above the outlet pipes, and hence the destruction so swift and terrible in its effects. Cast-iron pipes ought never to be laid under such conditions as these were. A culvert of masonry with an inner valve-well, as in the Bradford reservoirs, should have been provided. This culvert should have been on one side of the valley, and in solid ground, free from the loose earth of the embankment. The lower twenty feet of any reservoir, formed on the plan of this at Dale Dyke, may, if required, be drawn down by a syphon arrangement, and all the valves may be within reach for examination or for repairs. The by-wash arrangement at Dale Dyke was inadequate for the drainage area. The length provided, 64 feet, ought to have been not less than three feet for each 100 acres of drainage area, or 129 feet, and extra power for lowering flood-water during a storm should, even with such a length of by-wash, be provided. The embankment was not properly designed. The material and mode of construction were alike defective. The following recommendation of the jury, 'That in our opinion the Legislature ought to take such action as will result in a governmental inspection of all works of this character, and that such inspection should be frequent, sufficient, and regular,' has received our serious attention. We cannot, however, recommend it for adoption. Any approval of plans or casual inspection of waterworks' embankments cannot insure ultimate safety in such work. The responsibility must remain as at present, with the engineer and persons immediately connected with the works. Magistrates have jurisdiction under clauses inserted in recent Waterworks Acts. In our opinion a longer period than is usually inserted in such acts for the construction of works of this character should be allowed, and arrangements should be made gradually to test the strength and soundness of the work. For this purpose, ample means to draw the water down should be provided considerably below the permanent full-water level."

## THE RESTORATION OF THREE CATHEDRALS IN IRELAND.

SAINT PATRICK'S—TUAM—AND SAINT CANICE, AT KILKENNY.

AFTER the lapse of thirteen hundred years, the Cathedral of St. Mary, at Tuam, is being raised on the ancient foundations of the edifice erected by Eadon O'Hoisin, the first Archbishop of Tuam, who received the Pall A.D. 1152. The restored cathedral once more encloses the beautiful red sandstone arch, characterized by Dr. Petrie as "the most magnificent specimen of its kind remaining in Ireland." This arch, still wonderfully preserved, was the chancel arch of Eadon's Cathedral, and in the new edifice retains the place it occupied seven hundred years ago. The architect, Thomas Newenham Deane, Esq., son of Sir Thomas Deane, has found a means for overcoming the difficulty of incorporating this ancient arch and chancel with the stately portions of the building, thus rendering the restoration acceptable to all. Already the new edifice has risen to some height, and the most expensive part of the work is done.

At the same moment the unparalleled munificence of an individual has reared again in all its perfect beauty the noble cathedral of St. Patrick, and made it a shrine at which the architects of distant ages shall gather inspiration, the Bishop and Dean and Chapter of Ossory are restoring the singularly beautiful cathedral of St. Canice; and in the West—in ancient Tuam—the Bishop, the Dean his Chapter are rebuilding a cathedral which will be an honour to the country, and a proof that in Ireland, at least, for the sacred precincts of our temples was not dead, but only sleeping. The cost of raising the Cathedral of Tuam is great—the district poor. All classes have combined with churches to make the building what it ought to be; the work is not merely a diocesan or provincial, but a national one.

It rarely falls to one mind to have two cathedrals of such archaeological interest to restore in integrity as Tuam and St. Canice at Kilkenny. To the architect, T. Newenham Deane, Esq., this privilege has arisen.

## CHURCHES RECENTLY CONSECRATED.

THE new district Church of St. John, Monkstown, was consecrated on Sunday, the 19th ult. It is a handsome edifice, of solid granite, in the Early English style. The builders were the Messrs. Cockburn and Sons of Brunswick-street, but subsequently transepts were added by Mr. Bolton of Richmond-street. It contains about 800 sittings, is heated by the most improved apparatus, and lighted with gas. The design was by Messrs. Welland and Gillespie, architects to the Ecclesiastical Commissioners. The handsome chancel furniture and other upholstery work was supplied by Mr. Joseph Digges, of Lincoln-place; and the organ, which is placed at the end of the principal aisle, was erected by Messrs. Bevington, of London, at a cost of £300. The ground upon which the edifice stands is a free grant from Viscount de Vesci and the Earl of Longford. The entire cost of the building is estimated at £4,500, contributed by private subscription.

A similar ceremony has also been recently performed in Tullow Church, Carickmines. It a small, but very neat building, the style of architecture being Gothic, of the middle period, and is constructed of granite stone, with dressings of cut granite. The architects are Messrs. Welland and Gillespie, architects to the Ecclesiastical Commissioners. Mr. Thomas Waldron, Kilcullen, was the contractor. The stained glass windows are the work of Messrs. Sillery, and the painting that of Mr. Stevenson, of Golden Ball. The seats, and entire furniture are in strict keeping with a building of the mediæval style. The church is handsomely situated on a rising ground, commanding extensive views of the beautiful scenery surrounding it in all directions, forming itself a very pleasing object in the landscape. It is situated on Mr. Bentley's property, who generously made a grant of the ground.

## Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.]

## "THE LAW OF BUILDING SOCIETIES."

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—In your last issue an anonymous writer refers to "the law of building societies," and in doing so attempts to pass off with pretended indifference the great advantages enjoyed by the Alliance National Land, Building and Investment Company over the ordinary building societies. Your correspondent professes to have closely examined the Act of Wm. IV. and the acts incorporated therewith, and he is apparently satisfied with his investigation. Now, sir, I have no hesitation in saying that in all our statute books there does not exist so complicated a piece of legislation as the Building Societies' Act and all the Friendly Societies' Acts "incorporated therewith." There is not a counsel in Ireland whose opinion would be worth having who would give a positive and decided judgment on the real meaning of those acts in their several phases. I could produce dozens of instances wherein Mr. J. Tidd Pratt, the registrar in England, and Mr. Griffin, the registrar in Ireland, have contradicted in one year their own proceedings and decisions of the previous year. I can also produce proof that Mr. Griffin and Mr. Pratt hardly agree on any single point in relation to the law of these societies. As one instance, Mr. Griffin, with whom the "Civil Service Society" is registered, holds that not one farthing of the funds, or of the profits of such societies, can be used for "management expenses," but that the members must defray the same by distinct contributions out of their own pockets, and this the building societies hitherto registered in Ireland have done; and, at this very time, the members of the Dublin Building Association, with its offices in Eustace-st., pay 2s. a share per annum for "management expenses." Now, Mr. Pratt holds that this is not at all necessary under the act. Thus do the Registrars themselves differ in opinion. I have given considerable attention to the whole question, and have been for years mixed up in various societies under these acts, and have seen counsels' opinions on different points raised, and I must say that, though Mr. Griffin's views sometimes press severely on societies, yet I believe he is more generally correct than Mr. Pratt on these points.

But your correspondent pretends to quote an opinion of Mr. Pratt, which he does not give you. Mr. Pratt is not the registrar in and for Ireland, and his opinion is therefore not worth the paper it is written upon, for it would soon be found that the Irish judges would pay very little attention to such an opinion, and would ask, as I have known them to do—"Who is Mr. Pratt? we cannot recognize him at all in Ireland."

You are told, and your readers, I suppose, are expected to believe it on the assertion of an anonymous

writer, that there is non-liability under the 6th and 7th. of Wm. IV. cap. 32. Is it not sufficient contradiction of this to state that this act was passed in 1834, when "limited liability" was actually *unthought* of in public companies and societies? But it is said, "all the building societies in England are registered under this enactment." And let me ask what other enactment had they to register under when they first registered? The "Companies act of 1862" is rather a recent enactment under which societies registered in 1836, 1840, 1850, and subsequent years could hardly have enrolled themselves. Even the company your correspondent refers to was registered as a society, but has been re-enrolled under "the companies' act" as being more advantageous and much more secure and safe. Of course there can be no controversy as to the respective merits of the act of 1834 and that of 1862. It would be offering insult to your intelligent readers to begin to discuss such a question. But perhaps your readers are not aware that many building societies, co-operative store societies, co-operative factory societies, and even benefit sick societies in England and Ireland are re-enrolling under the "companies' act." In Belfast, within the last month, a local building society has re-enrolled under the act of 1862.

I feel confident, sir, that the members of the Civil Service Building Society will one day have cause to thank the company with which I am connected for having called their attention to the advantages of "the Companies' Act" over the 6th and 7th of Wm. IV.

I will not occupy your space by going into all the details of these advantages. Suffice it to say that under the 6th and 7th of Wm. IV. there is no such thing as limited liability, or, if any one likes it better—it is ill-defined and a question in dispute; under "the Companies' Act" this limitation to the liability of shareholders is well defined and clearly set forth. Under the 6th and 7th of Wm. no deposits of money can be legally received; under the act of '62 any amount can be received at interest as provided for in the articles of association. Under the act of Wm. a society can pay out no annual dividend, it must only be allowed to accumulate to realise the shares; under the act of Vic. the company can pay half-yearly dividends in the usual way. Under the act of Wm., as interpreted and enforced by Mr. Griffin, the registrar in Ireland, not one farthing can be taken out of the funds to defray even the legitimate expenses, though many societies' officers try to hoodwink the registrar and their own members on this point, and the "management expenses" often amount to the interest, and leave the investors no profits; under the act of '62 the expenses are of course fairly and equitably borne out of the profits. Under the act of Wm. the loans are lent by so many shares of the society, viz.: a borrower from a society, with its shares £50 each, payable at 5s. a month, if he wanted £400, borrow eight shares, he is registered on the books for eight "advanced shares," and a mortgage is registered against him in Henrietta-street for £400; after he has satisfied the mortgage he is still liable for the eight shares on which he never invested anything; under the act of '62 the borrower is only liable for the monthly repayments on his loan, and for nothing else. Other points of distinction as important as these might be put, but I am trespassing too much on your space. Permit me, however, to say that instead of "vainly endeavouring to obstruct the progress" of any building society, the directors of the company which I officially represent are most anxious for the success of all such organizations. I personally tendered every assistance and aid to the Civil Service Society. Prior to its being enrolled under the 6th and 7th Wm. IV. I voluntarily furnished to its secretary and other gentlemen connected with it every document in my possession calculated to assist them in avoiding the disadvantages of the act of '34, and pointing out to them the advantages to be gained by enrolling under the act of '62. They selected the former act, and now they must take the consequences of its defects being pointed out to the public for the protection and guidance of the masses.

I observe by the prospectus of the Civil Service Society that the directors purpose to lend "the value" of house property. I am sure I need not waste time nor space, nor offer insult to the practical experience of the professional gentlemen for whose special benefit the DUBLIN BUILDER is published, nor to the common sense of your general readers, by pointing out the absurdity of this proposition. No one having the slightest knowledge of the safe management of a building society would have ever made such a rule; or would propose to pay for a bidder the deposit on a purchase at an auction out of the funds of a society. Any society which would attempt to lend "the value" of house property could not prosper—it could not continue to exist. Would any gentleman on the board of any building society lend out of his own private funds "the value" of house property or pay for another deposit money where no deed of security had been executed, and where the party might never

complete the purchase? Surely not. Then why propose or profess to lend "the value" or to pay deposits out of other people's savings? The thing would be most suicidal. Of course needy borrowers, who would be very glad, no doubt, to get a house with other people's moneys, would desire the loan of "the value;" but, the man who has no savings of his own to embark in a house for himself, or having them would not trust them in a building, is surely neither fit nor entitled to be entrusted with the savings of others.

Mr. Gernon, in his speech as reported correctly in your last, says the Civil Service Society is "the first started in this country." There have been half-a-dozen such societies in Dublin alone, some of them failures; there have been such societies, well worked, in Belfast for the last quarter of a century; there are five or six societies in Belfast at present—it was there I first became a member of one; there is a very excellent society in Cork; there is one in Derry; there is one in Eustace-street, Dublin; and there are three in Kingstown. So much for Mr. Gernon's knowledge of his own country and of these organizations which exist in it.—Yours truly,

J. A. MOWATT.

84, Middle Abbey-street,  
Dublin, June 24, 1864.

## THE KINGSTOWN ROYAL MARINE HOTEL.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—Since writing my few hurried lines for your last issue, I have read in the Kingstown Correspondence of a morning journal that "a large number of men continue to be employed daily in the clearing and cutting of the grounds upon which it is intended to build the new monster hotel. Ships are also engaged in transporting massive blocks of Portland stone pipes, and other materiel necessary for the work." Now, sir, I have paid frequent visits to the ground, and have never seen more than half a dozen of labourers shovelling and barrowing earth from one spot to another. The "special" correspondent states truly that "massive blocks of Portland stone" (and, he might have mentioned, Bath stone, from the quarries of Messrs. Pictor and Son) pipes, and other materiel have arrived; but he should have told us why the native granite (plenty of which can be had in the neighbourhood) has not been considered suitable for the "monster." The omission from the latest revised plan of the large public room has caused much disappointment here, as the want of a convenient hall for lectures, &c., is sadly felt by the inhabitants of Kingstown. I look forward with deep anxiety for the result of the meeting called for next Monday, when, as stated in the company's advertisement, their "affairs and prospects" will be the topic for discussion.—Excuse again, one who is

NOT A VICTIM.

Kingstown, June 27, 1864.

## Law Intelligence.

COMMON PLEAS.

*Armstrong v. Breslin.*—Action for damages for alleged breach of covenant. Plaintiff alleged that by a certain deed made in 1861, the defendant covenanted that he would not build any houses upon a certain piece of land at Bray, and that he would not allow to be used there anything which would be offensive to plaintiff. Five distinct breaches of covenant were complained of. Plaintiff leased to defendant a plot of ground (and which he intended to have as a passage to his hotel), under covenant that defendant was not to build on his garden, or do anything that would injure the property of plaintiff. Defendant, however, built a stable, and allowed to be placed there two manure heaps and an ashpit, to the annoyance of plaintiff and family. After hearing the evidence, the Chief Justice said that this was not a case for damages, but simply for the establishment of a right, and as there was no question as to the nuisance created by defendant, he should remove the manure, and that damages of 1s. should be entered against him, and also the costs in the action.

CONSOLIDATED CHAMBER.

*Irish Iodine and Marine Salt Co. v. J. S. M'Ardele.*—Action to recover damages laid at £4,500 for deceit. The defendant was a chemist, and the deceit was alleged to have been practised by him in the sale of a patent for extracting iodine and marine salt from seaweed. There was a cross action by defendant against the company for price of patent. Mr. Todd moved, on part of plaintiffs, for liberty to substitute service of summons and plaint on Mr. Fottrell, attorney for Mr. M'Ardele in cross action. Condition 1 order granted.

## Received.

*The Life-Boat; or Journal of the National Life-Boat Institution.*

THE quarterly number of this valuable journal has just reached us. We have to call the attention of our readers to the directions for the restoration of the apparently drowned contained in its opening columns, and regret that we cannot afford space for their transfer to our publication. We learn from the worthy secretary of the Institution that the directions can be had in a separate form on thick paper from Messrs Clowes and Sons, London, at 5s. per 100. The circulation of these in the neighbourhood of bathing places would be of use at the present season. The present number contains the usual reports of service rendered by the Life-Boats, by which, in 1863, the number of lives saved was 714!

*Delany and Oke's Wage Table.* London: E. and F. N. Spon.

THIS carefully-compiled and well-got-up broad sheet will be found exceedingly useful in workshops and factories where hands occasionally work for broken periods. The calculations are made from one quarter of an hour up to ten days, at various rates per day.

*Mr. S. O. Beston's Monthlies* have been received; they contain the usual amount of valuable and instructive articles.

## General Items.

A monument to the memory of the late Town Clerk is intended to be erected in Finglas churchyard. The expense will be defrayed by the officers and members of the Town Council.

An effectual and inexpensive method of cleaning monuments and tablets, by which the lettering is not defaced, nor the marble injured, has been suggested by Messrs. Allen, of Henry-street, who will afford clergymen and others interested every information as to the preparation.

The time for receiving tenders for the new National Bank-house at Thurles, has been extended to Monday next, 4th inst.

Tenders are required for the erection of weaving sheds, warehouses, boiler-house, &c., at Greenhills, Drogheda, for the enterprising firm of Whitworth Bros., of Manchester. It is expected that considerable employment will soon be afforded to the working classes in the locality.

The Corporation of Sligo invite plans for the erection of a Town Hall; the cost to be about £5,000.

The prospectus of a new "Monster" Hotel Company has been issued. The promoters say that—"The rapid growth of the business of the hotel on the Fox-rock estate having rendered it imperative to make important additions to the existing premises, it is proposed to meet the pressing demands of the public for accommodation, by forming a company, upon the principle of 'limited liability,' for the enlargement of the establishment, and its future direction on a sufficiently extensive scale."

A *conversazione* by the President and Council of the Royal Hibernian Academy of Arts is announced for this evening, to be held in their exhibition rooms, Lower Abbey-street.

The contractors for the Enniskillen and Sligo Railway require an inspector. Salary £2 to £3 weekly.

The ground known as the "Portobello Gardens," on the South Circular-road, is to be let for building purposes. The situation is most desirable, and should be a good speculation for capitalists or builders.

At the recent meeting of the Board of Guardians of the Rathdown Union, a second complaint was made as to the delay on the part of the contractor in finishing the works at the Dean's Grange Cemetery. The foreman, who was present, was directed to inform Mr. Douglass that if the neglect was persevered in the board would direct its officer to finish the work at the expense and risk of the contractor. The immediate attention of Mr. Frith, County Surveyor, under whose superintendence the works are being carried out, was also called to the matter, he having been in receipt of a percentage on the outlay for his trouble, and failed to carry out his obligations to the board.

## Miscellaneous.

**THE ST. DOULOUGH'S CASE.**—The inquiry into this novel case was resumed on Monday last, before the magistrates, an order to that effect having been received from the Crown. After the hearing of a mass of evidence for and against, Mr. M'Alister, Inspector to the Ecclesiastical Commissioners, deposed as to the faculty having been given for the building of the church, but from it there appeared to have been no

power granted to interfere with the graves. He further deposed to the nave of the church having been lowered; it was necessary to do so to erect the church according to the plans; the ground round the church was in some places five feet higher than the nave; if the walks and approaches had not been made he would have had to report to the Commissioners of the fact; it was essential to make the slope to prevent the mound falling. The further hearing was adjourned to the 31st prox.

**THE EMPRESS EUGENIE AND ROSA BONHEUR.**—The Empress a few days ago went to the pleasant village of Thomery, near Fontainebleau, to visit the studio of Mdlle. Rosa Bonheur, and requested to see her studio. The artist showed her Majesty the different paintings on which she is at present engaged, as well as many fine studies of animals. A painting representing a stag leading a herd of hinds along the summit of a rocky eminence especially attracted the notice of her Majesty. After passing an hour in the studio, the Empress took leave, having first obtained a promise that her private collection should be enriched by a picture by Mdlle. Bonheur, and that the artist would pay her a return visit at the Palace.

**A DARK HOUSE.**—A dark house is always an unhealthy house, always an ill-aired house, always a dirty house. Want of light stops growth, and promotes scrofula, rickets, &c., among children. People lose their health in a dark house, and if they get ill they cannot get well again in it. Three out of many negligences and ignorances in managing the health of houses generally I will here mention as specimens. First—That the female head in charge of any building does not think it necessary to visit every hole and corner of it every day. Second—That it is not considered essential to air, to sun and clean rooms while uninhabited. Third—That one window is considered enough to air a room.—*Florence Nightingale.*

**A LOCOMOTIVE PALACE.**—The following are the particulars of the domestic arrangements of the Imperial couple during their journey from St. Petersburg to Berlin:—The Imperial train consists of 12 carriages, so connected as to form a whole, and allow the travellers to pass from one to the other without being seen. This locomotive home, being heated and lighted by gas, and protected against the rigors of a northern season like the best furnished palace, is about as comfortable an abode as the Hermitage, Peterhoff, or the vast but elegant château Zarsko Selo. The Empress has three carriages, which may be described respectively as bed-room, sitting-room and drawing-room. Each of these is divided into different compartments, furnished in the most gorgeous and expensive style. Another carriage—devoted to the use of the Emperor—is fitted up with green leather, and remarkable for its simplicity. In a fifth carriage—a kind of dancing saloon, flanked by diminutive boudoirs—a harp and piano have been placed; in a sixth a billiard table invites the travellers to shorten the weariness of the journey by play; whilst the seventh contains a batterie de cuisine. The five others are appropriated to the use of the gentlemen and ladies, the adjutants and physician, the valets and the maids of the suite. The whole properly constitutes the best adaptation of the comfort and luxuries of a permanent residence to migratory purposes ever invented. There is some difference between the present Alexander sweeping over his icy steppes, sitting in a warm and cheerful apartment, and his uncle, who 50 years ago had to push his way on horseback over the road between his two capitals, and was nearly lost in the snows of a winter night.

**THE BRIDGE OVER THE SCHELDT,** at Anderarde, is a rather singular specimen of the way in which Belgian engineers have attempted to apply the "bowstring" principle of bridge building. It was erected on the railway called the Hainaut and Flanders line, and it crossed the Scheldt at Anderarde, at an angle with the axis of the river of 59 deg. 41 min. 25 sec; the width required to give a free passage to the waters was about 63 ft. 6 in., and the extra width of the towing path was about 10 ft., measured normally to the opening, so that the clear span of the arch was made 91 ft. 2½ in. on the skew. The designer of this work was M. Auguste Dallet, Ingénieur ordinaire, acting under the orders of M. Léon Marillon, Ingénieur en chef of the line. The peculiarity of this bridge lies in the application of the arcs, which are made in two pieces, and butt together freely, being maintained in their position by keys and wedges; and in the roadway, which is made of brickwork, carrying the ballast, which serves to diminish the noise made by the passing train. Necessarily the weight of iron thus employed is very great, but we cannot conceive that this fact should alone account for the excess of weight of this bridge over the ordinary form of girder generally employed. Thus the weight that would be ordinarily given to the ironwork of a straight girder bridge would be about 12 cwt. per foot forward; in this case, however, the weight was at least 18 cwt. per foot, and the results of the trials showed that there was not too much strength in the arch. There are three bowstring girders, which are main-

tained in their position by the roadway at the bottom, and by a cross piece of + iron measuring six inches in the side at the top. The height of the assemblage is 19 ft. 8½ in., composed of the bottom girder of about 3 ft. high; the arc, which is of 14 in. thickness or depth at the junction, and the rise of the arc, which is about 15 ft. 6½ in. The pieces that thus form the bridge are spaced at the distance of 14 ft. 6 in. apart from centre to centre, and the distance between their inner borders is 13 ft. 2 in.; comprehending 5 ft. for the roadway, and two side spaces of 4 ft. 1 in. each.

The *Mechanics' Magazine* of September 5th, in its description of Benson's Great Clock, says:—"Benson's great piece of clock work is certainly a marvellous achievement in clock-making, both as regards the workmanship, and its capacity under difficult circumstances for time measuring." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate Hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

**SWIMMING.**—A recruit, on entering the French army, is early taught to swim. Water, when it becomes familiar, is the best of friends. Soldiers have been known to march fifteen miles further (after a long march) under a sultry sun, when the officers have given them orders to bathe for half an hour. The recruit is enticed to the river on a sultry broiling day. There the fear of water naturally seizes him; but he is intrusted to the hands of a veteran swimmer, who gives him his first lesson, and, little by little, he becomes expert: he learns to dive, too, and ascertain the nature of a river bed, so that the engineer may judge from his report what sort of bridge may be thrown across a stream. He is taught to swim a long time, how to rest himself, how to save a companion; he is trained to swim with his clothes on, to carry his musket dry, and to practice a thousand dodges, by which he may approach, unnoticed, the opposite bank of a river, where an enemy is encamped. The medical authorities of the French army recommend that men inclined to diseases of the chest should be frequently made to swim. The following are the effects (which M. Le Dr. Dudon attributes to swimming) on the organs of respiration:—"A swimmer wishing to proceed from one place to another, is obliged to deploy his arms and legs to cut through the liquid, and to beat the water with them to sustain himself. It is to the chest, as being the central point of sustentation, that every movement of the limbs responds. This irradiation of the movements to the chest; far from being hurtful to it, is beneficial; for according to a sacred principle of physiology, the more an organ is put in action, the more vigour and aptitude it will gain to perform its functions. Applying this principle unto natation, it will easily be conceived how the membranes of the chest of a swimmer acquire development—the pulmonary tissues firmness, tone, and energy." We are glad to observe that this useful art is now rapidly becoming popular. A few years ago, not one in a hundred could swim—and such was particularly the case amongst our seamen and fishermen. Observing this lamentable deficiency amongst a class of our countrymen whose vocation calls them to spend more than half their time on the water, induced the National Life-Boat Institution, six or seven years ago, to direct public attention to the subject. Cases had often been brought under its notice of persons perishing simply because they could not swim a few yards. Happily such a state of things is rapidly disappearing, and high and low are now practising the useful art with an assiduity becoming its importance; and we trust the day is not distant when it will become a part of the education of all classes of people. It may here be mentioned as a fact not generally known, that when a person is drowning, if he is taken by the arm from behind, between the elbow and shoulder, he cannot touch the person attempting to save him, and whatever struggles he may make will only assist the person holding him in keeping his head above water. A good swimmer can keep a man thus above the water for an hour. If seized by any other part of the body, the probability is that he will clutch the swimmer, and perhaps, as is often the case, both will be drowned.—*Life-Boat Jt.*



# The Dublin Builder.

VOL. VI.—No. 110.

## THE SANITARY CONDITION OF OUR CITY.

THE course of lectures which are at present being delivered at the Royal College of Surgeons by the learned professor of Hygiene, Dr. Mapother, are of a character perhaps the most important and instructive that it has ever been our province to record, and the subject has been handled in a masterly manner that is well worthy of the reputation which the lecturer has so justly earned. We are fully alive to the subject of church decoration; we devote much time to the introduction of novel effect by the display of various antique styles curiously blended together; we construct reservoirs, tunnels, viaducts, aqueducts, at a vast expense, while we are asleep to the fact that from overlooking the neglect of the most common principles of building, ventilation and drainage, multitudes of the poor are perishing around; and down in the dingy lanes and alleys, in the dark cellars where a ray of sunlight never enters, the hand of the Destroyer is doing its silent work. It is only lately that, though the beneficial influence of social science meetings, coupled with the praiseworthy exertions of some private individuals, the attention of the public has been called to notice this fact. We have in a recent number noticed that in the construction of modern buildings, while an undue amount of attention is often bestowed upon the decoration of the exterior, and an elaborate finish given to those portions that are most likely to catch the eye, the construction of the interior, which most nearly concerns the sanitary condition of its future inmates, is either through false economy or the force of a pernicious habit most carelessly carried out. The generation to which we belong is in many places reaping the fruits of the negligence or ignorance of our architectural forefathers arising from damp and insufficient ventilation and drainage, who have thereby bequeathed us a legacy in the shape of cholera and typhus, but we have suffered far more from the want of a proper system of sanitary inspection, in the absence of which the poor are huddled together in crowds in apartments not sufficient to contain one-third of the number, and often rife with infectious disease. While, therefore, the onus of the task will chiefly devolve upon the sanitary officers of the city to remedy the glaring evils pointed out by Dr. Mapother, there is much yet to be done with a view to the improvement of the dwellings of the lower classes, and much that deserves the most serious attention of the Architect and of the City Engineer.

We have often noticed that, except in the fashionable thoroughfares, the public street is made the receptacle for the liquid drainage of the houses, shewing a total deficiency of sewerage in the rear of the premises. Were the

manholes and gutters of the streets in proper order, this practice might not perhaps be the cause of any serious nuisance, for the redolent and steaming fluid would find its way to the placid stream of Anna Liffey, and the inhabitants of the houses on the quays alone would reap the benefit of the odoriferous concentration; but fortunately for the latter, this case forms the exception to the rule, and there is not a street in the Liberty that is not more or less pervaded with unsavoury pools, which find no escape until they are dried up by the sun, and then leave in their place a still more pernicious deposit. The poisonous gases which are thus exhaled have their injurious effects on the constitution, but when to these are added the emanations from the gullies, opening as they do directly into the sewers, evolving ammonia and sulphuretted hydrogen under the very windows, it is only wonderful that there should be any freedom from disease. We are informed by Dr. Mapother that the presence of this latter gas, even in such proportions as to be almost imperceptible, is injurious to health, and yet there is not a street or a square in which, before a shower of rain, its existence is not most disagreeably perceptible to our olfactory organs. The subject of town drainage, as a matter of daily-increasing importance, was brought before the London Institution of Civil Engineers about a twelvemonth since, and many valuable improvements in the construction of sewerage were there described. Amongst other remarks it was stated that the only method of obviating the disagreeable exhalations from a sewer was by ensuring its thorough ventilation, and by providing the ventilating shafts with charcoal filters or deodorizers the foul air could be completely purified before reaching the street. This simple expedient has been adopted in several places, and were it tried in our city no doubt the effect would be very beneficial.

Another serious obstacle to the health of our city was stated by the lecturer to exist in the presence of gas works, chemical and manure works, slaughter houses, &c., in places that are thickly crowded with inhabitants. It would be well if we could take a leaf from the book of our French neighbours, and copy the regulations instituted at Paris with regard to places of the last-mentioned class. Since such places are absolutely necessary it would be only in keeping with the progress of the march of intellect that a certain amount of space should be set apart for their exclusive occupation, that sanitary officers should cause the removal of a crowded population from their immediate neighbourhood, and that houses should not be erected in their vicinity. There can be no doubt, however, that if the proprietors of such establishments were compelled to take precautionary measures, methods could be adopted by which the escape of noxious vapours from chimneys, and even of smoke, might be prevented. The employment of wet lime purifiers at gas works effects but a trifling economy in comparison to the fearful nuisance which they occasion when they are opened; we know at this moment a most

fashionable locality where the houses are at times almost uninhabitable from this cause, and we would cheerfully pay another sixpence in the thousand feet to have it removed.

In our last number we advocated an amendment in the ornamentation of our city, in a hope that, as one more statue has been called for to perpetuate the memory of one of Ireland's greatest men, the new creation of genius may redeem us from the ridicule and disgrace which the last two or three have brought upon us, and pointed out a plain fact, that the man who would be the most likely to ensure to us a triumph of art would be the man who has once triumphed already; we also hope that in our arrangements for domestic health and comfort our architects and builders may prove that they are by no means unworthy to compete with either their English or Continental brethren, and that, now that the public attention has been awakened to the important subject of Hygiene our Corporation may not be slow to adopt the improvements and precautionary measures that have been so successful in other cities, and we earnestly call attention to the course of lectures which are being at present delivered on that subject, not only for the sake of the practical and scientific instruction which they convey, fraught with the utmost importance to the public welfare, but from the elucidation which the learned lecturer gives of many social and domestic evils at present existing, the removal of which is within the reach of every one, and may conduce to an improvement of our social condition in all its grades.

### THE O'CONNELL MONUMENT.

NATIVE TALENT *versus* ABSENTEEISM.

We are happy to learn that the protest which we made in our last number against the threatened sending out of the country, *volentes volentes*, of £10,000 of the people's money, has met with the approbation of a large majority of our readers, and that further steps are likely soon to be taken in the matter. We trust that no efforts may be spared to induce the O'Connell Committee to revoke their inconsistent determination, ere it be too late, and that vigorous measures will be adopted to secure honour to whom honour is due.

### NAVIGATION AND EMBANKMENT OF THE FERGUS.

THE plans, specifications, and notices connected with this great national undertaking have arrived in Ennis. The quantity of slob land to be reclaimed is over 7,000 acres, and the engineering difficulties in the way are not great. The first section of the embankment will include at least 1,200 acres, from Island M'Grath to Island Nevan, the estimated cost of which is £28,000, according to the plans of Mr. Hemans, the eminent engineer, who has very properly presented the plans to the public in the most expansive form lest hereafter it may be alleged by contractors that they had not the full particulars of the engineering difficulties sufficiently put forward. The value of the first section when reclaimed is estimated at £3 per acre, or £3,600 interest on the capital involved. The land, if sold by public auction at the rate of £3 per acre at twenty years' purchase would produce £72,000. These figures prove what immense profits are to be realized by investments in Irish projects, many of which still await the hand of labour and the power of capital to usher them into useful and prosperous existence.—*Irish Times Cor.*

## ROYAL DUBLIN SOCIETY'S EXHIBITION.

SCHIELE'S Turbine wheels, the wonderful efficiency of which has gained for them a world-wide celebrity, are now manufactured exclusively by the North Moor Foundry Company, of Oldham, to whom the patent has been assigned by the inventor. Perhaps the best proof of the advantages of the turbine over the ordinary or common water wheel, is in the fact, that in those countries where water power is of most value, on account of the scarcity or dearth of fuel rendering steam power very expensive as a motive agent, the Turbine has almost entirely superseded the ordinary water wheel. It has been proved that the best description of the ordinary water wheel, or those that give the best percentage of useful effect, are, "the overshot," and "the pitch-back" wheels. To utilize the power of a fall of water, these wheels must necessarily be of a diameter about equal to the height of the fall; this gives a very ponderous machine, requiring very expensive foundations and other similar preparations, and as it runs at a very low speed, it must be connected with a great deal of expensive auxiliary gearing to produce the rapid motion invariably required in any kind of manufactory; the consequence is, that a great amount of the water power is uselessly expended or absorbed by the friction of this additional gearing.

On the other hand, the Turbine is comparatively very small, and requires scarcely any foundation or other preparation, while its speed is so much higher, that its power can be transmitted at once; thereby dispensing with expensive intermediate gearing, and giving at the same time an increase of effective power. A Turbine can also, in many cases, be applied where a water wheel could not, on account of limited space, or in high falls, where a series of common water wheels would be required. Another important feature of the Turbine is that its motion is much more constant and uniform than that of the common wheel, in consequence of the equal diffusion of the water over the whole of its circumference at the same instant, but in a common wheel there is always a great irregularity of speed, and backlash. The Turbine will also work under *backwater of any depth*, and will only suffer so much diminution of power as is just proportional to the decrease of fall; but a common wheel gives a very inferior effect when working in tail water, and has frequently to come to a complete stand, to the great annoyance and loss of the manufacturer. Again, with common over-shot wheels, &c., there is always a loss of fall, through it being necessary to place them a certain distance above the tail-race or bottom of fall, to allow of a free escape of the water; and, in many cases where the tail-race is very liable to backwater, this distance or loss of fall is further increased, or otherwise the wheel would be almost continually working in backwater. Besides the over-shot wheels, &c., there are other descriptions, such as the "breast-wheel," and the "under-shot," but these give a very inferior percentage. Professor Beardmore, in his recent work, "Manual of Hydrology," finds that the best "under-shot" wheel utilizes only 33 per cent., and the best "breast-wheel" only 52 per cent., of the power which is really contained in the water, and can be utilized by Schiele's Turbine.

Of the efficacy of these Turbines on tidal rivers, or to work by the tide alone, the North Moor Foundry Company cite the following instance as an example:—Most tidal rivers form "creeks" on their banks, which are filled by the rise of the tide, and run empty at the ebb. These "creeks" are easily and cheaply made into large reservoirs by partly closing up the mouth, and fitting it with a pair of lock-gates; these gates open to admit the tide, and are closed when it is high water. After the tide has fallen, say 4ft., the Turbine is started, and its power gradually increases as the tide falls, until at low water it has, say 20 to 25ft. fall on it. The Turbine continues to work until the tide rises again to within 4ft. of high water, and the gates being again opened a fresh supply of water is obtained. The Turbines may be placed at low water level, as their efficiency is not impaired by any depth of immersion in back-water; or they may be placed at high water level, and act by vacuum or suction.

This water wheel, affording an effective power of 89 per cent, is without doubt the most perfect machine for the utilization of water-power yet brought out, being free from the defects which have hitherto limited the application of Turbine wheels. Many constructions have been from time to time invented, but practical trials have proved them to be very defective. Amongst these may be mentioned, the parallel flow Turbine, in which the water enters and leaves the Turbine in a direction parallel with the axis. If properly made it gives a good percentage of effect, but is very difficult of access, so that if any accident occurs, the whole must be taken to pieces, and it is very liable to damage from the entrance of drift. There is next the outward flow turbine, in which the water enters at the centre of the wheel, and leaves at its periphery; it is inferior to the one above mentioned, and is more complicated and difficult of access. And there is again the inward flow Turbine, in which the water enters at the

periphery and leaves at the centre. In this the power of the water is greatly neutralized by centrifugal force, and as the latter absorbs power in itself to produce is, there is evidently a twofold waste of effect, and it may be therefore looked upon as the most objectionable form of the three.

None of these wheels possess the peculiar advantage of Schiele's, that it is enabled to afford the same percentage of effect for any decreased water supply; it is also so constructed as to obviate all of the defects above pointed out. It is manufactured in two distinct forms, the Turbine with vertical shaft, and the Turbine with horizontal shaft. In the former the water is conducted to the Turbine either in an open canal, or in a range of piping, passing to the spiral water-chamber surrounding the wheel, from which it is guided through the water-ports, on to the middle of the wheel's circumference, in such a direction as to enter the buckets of the wheel without any shock; it gives its power off by a steady pressure while it is passing along the curved wings or buckets, after which it exits on *both sides* of the wheel upwards and downwards to the tail-race, quietly and silently; a clear proof that the whole of the power has been taken off.—In thus acting towards *both sides* of the wheel the water exerts no pressure on the footstep.—The wheel is also cast hollow, and is made water tight, so that being full of air it is partly floated by the water, and, by allowing more water to flow through the buckets on the upper half of the wheel than through those on the lower half, the water exerts more pressure upwards than downwards, and this surplus pressure upwards just balances the weight of the wheel and shaft, so that there is *no pressure whatever on the footstep*.—The footstep is made adjustable, and is constructed to Schiele's Patent Anti-friction Curve, which is unsurpassed for little wear and the least possible friction. The construction of the Turbine is as simple as can be imagined; the wheel is quite free to access, and can be lifted out without removing any other parts; it is also not liable to touch, as in other Turbines, by any wear of the footstep, as it can freely sink in the cylinder or water-chamber that surrounds it.

In the Turbine with horizontal shaft the water as it leaves the wheel on both sides is collected in a chamber or casing enclosing the whole, from which it is taken by a pipe to the tail-race. In all other regards the action is the same as already described. This arrangement of Turbine is particularly well adapted for high falls and moderate quantities of water. They require scarcely any foundation, and can in some cases be supported by the piping alone; they can be placed in the exact position where the power is wanted, the water being conducted to and from the Turbine in pipes. All the working parts can be easily taken out without breaking any joints or removing the outer casing.

The wood cutting machinery of Messrs. Robinson and Son, of Rochdale, near Manchester, is now in working order, and the rapidity and neatness with which it performs the various operations of sawing, planing, moulding, tenoning, &c., is truly marvellous. Messrs. Robinson exhibit four machines. There is, first, a circular saw-bench, for sawing, tonguing, grooving, rebating, boring, and cross cutting. This bench is capable of doing a great variety of joinery and cabinet work. It is fitted with a rising and falling spindle, for the purpose of adjusting the saw for rebating and grooving. The saw end of the spindle is so arranged that the saw can be easily removed, and a circular block with cutters put in its place, for grooving and tonguing. The other end of the spindle is arranged to receive an augur, for the purpose of boring. The parallel fence can be adjusted so that the wood may be cut at any angle, and it can be easily removed for the purpose of cross cutting. There is next a sweep-saw, for cutting wood into circles and ornamental shapes, it consists of a thin blade, which oscillates up and down through a table with great rapidity, and by merely pressing the wood against it it can be cut into any shape. The table can also be set to an angle for bevil cutting. The tenoning machine, for sashes, shutters, and every description of joiner's work is so constructed that the whole tenon is cut at one operation, the timber being passed between two cutters which revolve with great speed; the cutters are adjustable for various sizes; the machine is also fitted with apparatus for scribing sash-work at the same operation with the tenoning. The moulding and planing machine performs four operations at once, by being fitted with four sets of revolving blocks which act upon all the faces of the timber; the bearings of these blocks are peculiarly arranged to revolve with great speed without getting any play, by which means the mouldings are cut with great accuracy. Both mouldings and boards are fed through the machine at the rate of from ten to thirty feet per minute. Messrs. Robinson and Son also exhibit a very fine specimen of a horizontal high pressure engine, fitted with feed pump, fly-wheel, governor, equilibrium valve, and stop valve. They have recently built additional works, with a

view to the greater development of the trade in this form of steam engine, believing that from the simplicity of its construction, the ease of its working, and the very great saving in first cost, it is calculated eventually to supersede both the vertical and beam engine.

## BUILDING PROGRESS IN CORK.

NOTWITHSTANDING the somewhat retrograde tendency observed of late in the trade of Cork, as well as in other parts of the south of Ireland, it is certain that in one branch of business great activity prevails. According to the last census it would appear that the number of new houses built in Cork between 1851 and 1861 was but forty-seven. It is probable that the operations of the last year alone at least quadruples that increase. Indeed, within twelve months there have been built in, or quite close to the city, one hundred houses of a value ranging from thirty to sixty or seventy pounds a-year; and a very large number of a class below those. Those are absolutely new houses. But there has been beside a good deal of work in the way of rebuilding and remodelling, more especially in tenements of the humbler class, which, in the south side of the city especially, are being much improved. The splendid establishments in course of erection for the Union and Provincial Banks will add greatly to the beauty of the city, and we understand that many similar are contemplated. At Queenstown, the rapidity with which new houses are springing up is quite unexampled. Of these a very large number bring rents as high as eighty or even a hundred pounds a-year. In Youghal, likewise, building on a very large scale is noticeable, the new houses being of excellent construction, and, so far as we can learn, most profitable as an investment. In Mallow there has been some building of villa residences, and a handsome hotel in connection with the Great Southern and Western Railway has been erected by Mr. Ward. In Kinsale, a railway hotel, which is still in progress, forms the principal evidence of building activity.

## PRESERVING RAILWAY TIMBER.

THERE are several modes in use for chemically preserving timber. One recently adopted with success in America, consists of Burnetising, or using a solution of chloride of zinc, one pound of chlorite to about eight and one-half gallons of water. The liquid is forced into the pores of the wood under heavy pressures, and by this process the wood is not only preserved from decay, but in a degree rendered incombustible. The stronger the solution the less danger from fire. The wood is treated when newly cut, and as the salt does not injuriously affect iron, and it is a powerful deodorizer and disinfectant, it has some positive merits. The cost of this process per sleeper in ordinary times is about seven cents. The annual report of the Philadelphia, Wilmington, and Baltimore Railway says:—"From every appearance this mode of preparing cross-ties and timber will result in the end in great savings, as it promises to greatly increase the durability of all kinds of lumber, and greatly diminish the expense of labour in removing defective materials. As a case in point, we may mention that about two-and-a-half years since we caused to be placed in the track, side by side, two cross-ties of gum, a wood the most perishable, when placed in exposed positions. One was Burnetised and the other was in its natural state. A few days since both were examined; the one that was Burnetised was found to be as sound as when put in, and the fibre of the wood had become hardened in the meantime. The one that was not Burnetised was found to be entirely rotten and useless." The time occupied in the process for completely saturating sleepers is about seven and one half hours, so that two charges per diem of the solution can easily be prepared.—*Building News*.

The *Times*, May 7th, speaking of Benson's Watches in the Exhibition, says:—"Undoubtedly, however, the finest show in this respect is made by Benson, who offered prizes for designs for watch-cases at the South Kensington Museum, and who by this means has secured some of the most exquisite ornamental details for watch-cases that are shown in the building." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Ben-on's Illustrated Pamphlet on Watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, and Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

## THE WATER SUPPLY AT SHEERNESS.

PEOPLE who live in the metropolis, or in any of the large towns of the United Kingdom, where water, bountifully supplied by nature in the outlying districts, is carefully collected, treasured up, and conveyed by mains and service pipes to every dwelling, will scarcely believe it possible that an important naval station, where ships are being constantly built and fitted, or re-fitted, and where there is always a powerful reserve of steam ships requiring daily very large quantities of fresh water, should have remained up to the present moment quite destitute of anything approaching an adequate supply of that great necessary of life. It seems incredible that a town, or rather a series of towns, containing an aggregate population of nearly 10,000, did not years ago call into requisition the engineering skill necessary to raise from the buried reservoirs of nature that which she did not provide for them on the surface of the island. It is true that stern necessity compelled the sinking of certain wells; but this was done only on a very limited scale, and in the rudest and simplest fashion. Nor was the water thus procured pumped into tanks so elevated as to enable it to be conveyed by pipes to the dwellings of the people. For years the only means by which the inhabitants could obtain fresh water was by purchasing it at the rate of a halfpenny a pail-full from the men or boys who obtained it at the wells and conveyed it through the streets in large barrels, placed upon wheels, and drawn by worn-out horses or donkeys. This state of things is likely to terminate. The Government has recently successfully constructed an Artesian well in the north-east corner of the dockyard, and another has been completed in Mile Town by the "Local Board of Health," and it is expected that in a short time all the necessary arrangements for conveying the water to the houses of the people will be accomplished.

Owing to the nature of the soil, and from the fact of the land being naturally below the level of the sea at high water, in that portion of the island where the dockyard is constructed and the population reside, the boring of the new well in the dockyard has been attended with considerable difficulty, and has required all the patience and skill of the engineer, Mr. Thomas Tilley, of London, to bring the work to a satisfactory conclusion. By way, however, of an introduction to a description of the means by which this has at length been done, we will take a cursory view of the previous sources of supply.

Originally, all the water required for Government purposes was brought from Chatham, a distance of 18 miles, in vessels constructed for the purpose, whilst the town was supplied by wells which yielded a very limited and precarious supply. Several years ago a private company sank a large well in Chapel-street, Blue Town. Its depth was 300ft., and the brick steining was carried entirely down. The water was raised in buckets by means of machinery of the most primitive character, worked by horse power. When raised it was sold to the proprietors of donkey barrels, and by them conveyed through the town and retailed to the consumers. About six years ago the steining gave way, and choked up the well, and as the proprietors could not agree among themselves the affair was abandoned, and the well is now nearly filled up.

About the year 1800 the Board of Ordnance decided to sink a well in a marsh within the fortifications, and since known as the "Well Marsh." This well is 9ft. in diameter, and is carried to the depth of 333ft. When the water began to accumulate in this well, the good folk living in Southend, on the opposite coast of Essex, were filled with alarm, for although the distance across the estuary is eight miles, the supply of water in the wells at Southend was materially diminished, and it was for some time feared would be absolutely cut off. The water of the Ordnance well was raised for more than 50 years by horse power, as in the case of the one already alluded to, but in 1859 a cast iron tank was fixed on the reservoir previously used, and a high pressure steam engine of five horse power was erected for the purpose of keeping the tank constantly filled. This well is used exclusively for the supply of the military, and is conducted to the garrison by mains and service pipes. The supply is not, however, adequate to the increased demand of the large force now generally stationed at Sheerness, and it is contemplated by the authorities at the War Office to sink a 9in. bore pipe, 480ft. from the ground line, so as, if possible, to tap the chalk and obtain the quantity of water required.

In a brewery yard in Mile Town a boring was made some years since, for the supply of the brewery. It is known as "Rayner's Well." The water is lifted by a small engine erected for the purpose, and when there is an abundant supply the donkey barrels are allowed to fill from the well; but the yield of water is very uncertain.

A fourth well remains to be noticed. It is called the "Navy Well," and is made in the Royal Dockyard. Its diameter is 6ft., and its depth 330ft.; thence a bore pipe is carried about 50ft., so that the

supply is obtained from a depth of 380ft. A large cast-iron tank capable of holding about 500 tons is erected over one of the storehouses in the dock-yard, and the water, which is remarkably pure, is pumped into it by means of a 14-horse power steam engine. By an elaborate system of high-pressure mains the supply is conducted throughout every part of the yard, to the official residence of the commander-in-chief and the quarters of the officers generally. A public conduit, which was constructed about 1850, at the top of the High-street, Blue Town, is also supplied from this source. This was erected at the sole expense of the Admiralty, and the public are allowed to supply themselves during certain hours of the day. Owing to the great augmentation of the Steam Marine, the enlargement of the Government works, and the increase of the population consequent thereon, even this supply was found very inadequate, and, consequently, in 1861, it was determined by the Admiralty Board to construct a new well on the Artesian principle, and the work, which we will now describe, was commenced by Mr. Tilley in the autumn of 1861.

The locality fixed upon was the north-east corner of the dockyard, and this portion, before its enclosure by the Government (when the surface was raised 5 or 6 ft.), must have been a burial ground, for when the excavation had proceeded about 13 ft. below the present surface, a tombstone was brought to light, and a few feet further down the remains of eight human bodies were disinterred. These remains were re-interred in consecrated ground. The stone bears the following inscription surmounted with a Death's head and cross-bones carved in the stone:—"Here lies Y<sup>e</sup> body of Eliz. Morison, wife of Alex. Morison, who departed this life, November 15th, 1729, aged 49 years." This memento of a departed graveyard has been inserted in the plinth of the engine-house, connected with the well and occupies a position almost immediately over the spot where it was discovered. The excavators met with running silt at the depth of 27 ft. from the surface, and here their difficulties began. In order to get through this stratum recourse was had to iron cylinders, cast in lengths of 5 ft. and having a diameter of 6 ft. inside measurement clear of the flanges. These lengths were secured to each other as occasion required by bolts and nuts, the joints being carefully caulked with iron cement, so as to keep out the salt water which filtered through the silt. The cylinders were weighted and gradually forced down, and the soil removed from the interior, so that, as the well progressed, the work presented the appearance of a circular excavation 18 ft. in circumference, with an inner lining of iron. This cylindrical lining was strongly shored with solid timber balks; still it was found impossible to keep it perpendicular. It drove slantwise, and, under the efforts made to restore it to the perpendicular, the first portion of the cylinder, when about 25 ft. from the surface, succumbed to the strain and broke. It became obvious that the whole of the cylinder must be raised and the work re-commenced. This was done. The broken portion was removed and the work commenced afresh. Slowly and with great difficulty a depth of 80 ft. was gained and the excavation completed. It was found that 50 ft. of running silt had been passed through, and about 3 ft. of hard shingle, when the cylinder, although weighted with 70 tons of iron, refused to go any deeper; moreover, the silt and salt water, by blowing in underneath the cylinder, offered serious impediments to further progress. In the 80 ft. thus attained there was a divergence of 2 ft. from the perpendicular, and, as great danger was apprehended from any attempt to correct this, the iron shafting was allowed to retain its position.

The great object being to force the shafting well into the stiff blue clay known to underlie the shingle, in order to be secure from the underblowing of the silt or the percolation of the salt water, it was resolved to insert a telescopic cylinder just narrow enough to clear the flanges of the outer and larger one. This inner shafting being prepared, it was driven through the remaining 3 ft. of shingle, and pierced the underlying clay to the depth of 5 ft. It was now hoped that all difficulties of a formidable character was at an end, and that the excavation might be completed and the brick steining be forthwith commenced, but the running silt passing through the 6 ft. of shingle and piercing the 5 ft. of clay passed through, blew in under the cylinder, and rose to the height of 30 ft. In this dilemma it was resolved to insert a third cylinder sufficiently narrow to clear the flanges of the inner shafting already fixed. The silt was drawn up, and a second inner cylinder, 10 ft. long, was inserted and driven 5 ft. deeper in the clay, thus making a total of 10 ft. of cylindrical shafting below the bed of shingle. The brick steining was now proceeded with: it was made 9 in. thick, was set in cement, and by being under-sailed for a depth of 15 ft. the surface diameter of 6 ft. was recovered. This was carried on to the depth of 280 ft. from the ground line, when an invert in

cement was turned, an orifice being left for the insertion of an 18 in. bore pipe. The stratum passed through between the termination of the series of cylinders and the invert was one of uniformly stiff clay. The caulking of the joints of the cylinders was obliged to be performed by a diver, as there was a depth of 60 ft. of salt water which had blown in with the silt. The spaces between the external and internal shaftings were carefully filled up with brick and cement.

The operation of boring was commenced with an 18 in. auger for about 60 ft., and the pipes inserted, when it was found that the bottom portion of the pipes had become fractured and resisted all efforts to remove it. Under these circumstances Mr. Tilley resolved to remove the invert, continue the excavation, and carry the brick steining down to where the fractured pipes had become embedded. This was accordingly done, and at the depth of 50 ft. below where the invert had been made, the pipes were released. Here, 330 ft. from the ground line, a new invert was formed: and boring with the 18 in. auger recommenced, and having progressed 19 ft. through the stiff clay, at 349 ft. from the ground line a bed of green sand about 8 in. thick was tapped, and water first presented itself on the 14th of October, 1863, about two years from the commencement of the work. Between the 15th of October and 29th of December the water rose to the height of 224 ft. above the brickwork, or within 107 ft. of the ground line.

The boring was continued 21 ft. deeper, passing through a bed of light-coloured sandstone, 14½ ft. thick and 6½ ft. into a dark loam. The total depth now reached was 370 ft., and this was the lowest point originally contemplated. But the yield of water not realising the anticipations that had been formed, it was determined to secure a more favourable result by carrying on the boring with a 12 in. auger, until the desired results were obtained. Accordingly, the water was pumped out, and on the 19th of January last, a 12 in. piping, consisting of 33 lengths of 9 ft. each, was inserted, passing successfully through 8 ft. of dark loam, 5 ft. of shells and dark-coloured sand and clay, 8 ft. of stiff dark clay, a few inches of iron pyrites, 5 ft. of stiff dark clay, 15 ins. of green sand, 11 ft. of hard dark clay, 2 ft. 6 ins. of dark green sand, 3 ft. of stiff dark clay, 8 ft. of clean sharp light-coloured sand, and about 1 ft. of iron pyrites and pebbles on the top of which the 12 in. piping rests.

It appears the beds of hard clay and sand alternate, and that the water-yielding strata are those of sand. It was when the first stratum of sand was tapped that water first rose in the pipe; when the second was reached it flowed in so rapidly that in twelve hours it stood within 70 ft. of the ground line; and when the third bed was pierced a still more rapid influx took place. A 6-in. pipe was now inserted, and the boring continued, passing through the iron pyrites and pebbles, 17 ft. of green loam, and terminating in 2 ft. of sand and loam combined, just 436 ft. from the ground line.

The sand and shell were then removed, the pipe extending to the depth of 450 ft. from the surface, and resting upon a stratum of green sandy loam, which was further pierced to the depth of 5 ft. The water at once rose to within 26 ft. of the ground line, and the boring was discontinued.

The most difficult strata to pass were those containing the iron pyrites, the chisel frequently becoming embedded, and suspending operations for days together in consequence of the difficulty in getting it free. It is impossible at present accurately to state the quantity of water which this well will yield, but very sanguine expectations are indulged in. The water is very pure in quality, and as soon as the pumps can be got into operation its value as a source of supply will be tested. There are three 6-in. pumps complete in the well; the engine-house, a very neat building, with an octagon shaft, 60 ft. high, is erected; the boiler is fixed, and the engine, which is exquisitely finished and of 25 horse-power, is in working order. A large cast-iron tank, capable of holding 50,000 gallons, is fixed over the saw-mills, and into this the water will be pumped for conveyance by various mains and service-pipes to the places where it will be required. The entire cost of the undertaking, including the building and machinery, is about £4,000, and reflects the highest credit upon the skill, patience, and perseverance of the contractor, whose efforts successfully to fulfil his contract have been most indefatigable, and have given the highest satisfaction.

Mr. Tilley has also just completed the well in Mile Town, constructed for the Board of Health. Although a mile distant from the one described, the depth is about the same, and the strata which have been passed are almost identical. The Board have recently accepted the tender of Mr. Nun, of Mile Town, Sheerness, to erect eighteen stand pipes in different parts of the town to enable the inhabitants to procure an immediate supply of water pending the completion of the water works, which are intended

to convey a bountiful supply to every dwelling. When this is accomplished, Sheerness may be congratulated upon having supplied itself with that long-felt desideratum, an abundant supply of good water, and the owners of the donkey barrels may send their mokes adrift upon the marshes, hang up the largest barrel they possess in the Co-operative Hall, and emblazon it with the trite old motto, *Sic transit gloria mundi*.—*Building News*.

#### THE MINING COMPANY OF IRELAND.

THE usual half-yearly meeting of this company was held on the 7th inst. at their offices, 30, Lower Ormond-quay.

FRANCIS CODD, Esq., in the Chair.

Mr. Heron, the secretary, read the following report of the directors:—

"The company's operations for the past half-year have resulted in a nett profit of £19,373 4s. 9d.

"At the Knockmahon mines there were raised 3,406 tons of copper ore, as compared with 3,385 tons in the previous half-year, and 3,278 tons in the corresponding period of 1863. The quantity shipped was 4,105 tons, value £34,182; nett profit, £14,886 11s. 3d.

"At the Laganure mines 813 tons of lead ore were raised, as compared with 903 tons the previous half-year, and 899 tons in the corresponding period in 1863. The deliveries to our smelting works were 870 tons, value £10,856 16s. 5d.; the nett profit in this establishment, £2,808 9s. 7d.

"The output of coal and culm at the Slievadagh Collieries amounted to 22,091 tons, and the sales to 21,353 tons. In the corresponding period in 1863 the raisings were 22,035 tons, and the sales 20,073 tons; the nett profit is £1,732 13s. 7d.

"At the Duballow Collieries the raisings were 2,291 tons, and the sales, 1,772 tons. In the corresponding period in 1863, the output was 1,476 tons, and the sales 4,085 tons. A further sum of £2,067 0s. 1d. has been expended during the half-year on the new fitting, which, with £1,298 14s. 7d. expended in the preceding half-year, makes a total cost of £3,365 14s. 8d., as set forth in the balance-sheet. From this sum has been deducted the profit on the half-year's working, £252 10s. 7d., according to the arrangement sanctioned by the proprietors at the last meeting.

"At the Ballycorus Lead Works the operations have resulted in a profit of £1,545 3s.; a moiety of this sum has been carried, as usual, to the credit of the 'Improvement Fund,' together with £1,500, the estimated value of the dust returned from the flue, and applicable to the year ended May, 1864.

"In conclusion, the directors recommend a dividend at the rate of twenty-two and a-half per cent. per annum, free of income tax, payable on and after Monday, the 11th inst. (By order)

"ROBT. HERON, Secretary."

The chairman, in moving the adoption of the report and statement of accounts, said that the board had the pleasure to present the shareholders with the most satisfactory record of a half-year's proceedings that had been ever presented to the proprietors; and what they would perhaps regard with greater satisfaction, they had the pleasure to recommend the largest dividend that was ever paid by this company. The directors were still more gratified by the fact that these results did not arise from any casual circumstance, but they were permanent, resulting entirely from the care, economy, and enterprise which for some years have been applied to every branch of the business. He then brought forward some statistics of great interest with regard to their several establishments. The quantity of ore raised in the Knockmahon Mines in the County of Waterford was about the same as for some years past, but the quality was much improved as they went down in the great lode. They were now sinking a large shaft, and when this was completed they expected to lift to the surface a much larger quantity than heretofore. The large profit of £14,860, realised by the operations of this mine, was due principally to the high price which copper ore had obtained.

The Slievadagh Collieries was the best matter to be referred to. He told them on the last occasion that he anticipated no material change in their coal districts. The habitude of their people now to use artificial manures had in some degree removed the necessity of using lime, and, of course, had lessened the consumption of culm. Besides, they could not conceal from themselves that emigration deprived us of customers for their coal and culm. Still, upon the whole, they might always count upon a steady profit upon their collieries; and the result of the half-year justified that observation, for they had not only maintained their position, but increased their sales and their profits.

The Laganure Mines, County of Wicklow, left a profit of £2,808 9s. 7d., though the produce of the mines had been eighty or ninety tons less than

before. This profit had resulted from an increased price in lead ore, upon which there had been a considerable increase within the last year.

Ballycorus yielded a profit of £1,545. They had applied—according to the directions of the shareholders—the half-year's profits to the credit of the Ballycorus Improvement Fund, and £1,500, the estimated value of the dust taken from the chimney. The result of several years' experience showed that £1,500 was about the value, and they rather thought it would be something more this year. That chimney originally cost them about £3,000. They had already derived from it £6,600, and they might count on an actual profit of about £1,500 a-year. The whole result was, after putting aside the deductions from Ballycorus, a net profit of £19,373. The board had then to consider how they should best allocate that amount, and their first move was to place to the credit of the capital account £3,156 13s. 11d., which raised the floating capital to £60,000, which would be, as he had before informed them, amply sufficient for all their purposes. The result would be, that whereas for some years they had been deducting from their profits, and applying to their capital £5,000 or £6,000, this sum would be henceforward made applicable to the increase of their dividends. They therefore proposed, and he felt sure they would not object to it, that they should vote a dividend of 22½ per cent.; that would be £15,750, which would leave £466 14s. 1d., which they proposed to place to the credit of the rest account to be supplemental to some future dividend, or available in any other way for the benefit of the company. The expenditure on the Ballycorus works, amounting to from £25,000 to £27,000 had, by the plan of applying half the profits and the entire of the dust from their flue to the credit of the account, been reduced to £3,314. In addition to the £5,000 or £6,000 they had a further sum of £3,000 or £4,000 applicable to dividends, and which required no deduction.

#### Book Received.

*Transactions of Society of Engineers for 1863.*  
London: E. and F. N. Spon. 1864.

EXTRACTS from the papers contained in this volume have, from time to time, appeared in various scientific journals, but their merit can only be fully appreciated by a perusal of them in their entirety in the volume just issued from the press. The well-executed lithographed illustrations contained in the work will be found valuable to the engineer. Premiums were assigned to Mr. Colburn for his paper "on the Ultimate Strength of Iron," and to Mr. George Gordon Page, for his description of the construction of Chelsea Bridge. An account of the latter has appeared in a recent number of the DUBLIN BUILDER. The following are a few of the practical remarks which occur in Mr. Colburn's interesting paper:—

"A great number of experiments have been made by many experimenters to ascertain the ultimate resistance of iron to tension and compression, and its strength has thus been determined with perhaps as much precision as is possible in the case of a material presenting almost constant variations of quality. Every engineer is now aware that, as an average result, the tensile strength of good cast-iron may be taken as about 8 tons per square inch and its crushing strength as 48 tons. Wrought-iron of fair quality will bear not far from 22 tons per square inch in tension, while its crushing strength is variously stated at from 12 or 15 tons per square inch up to 28½ tons, the last named being given by Mr. Mallet as the result of experiments upon large hammered bars which bore but from 23 tons to 24 tons in tension.

"When, however, we come to the question of safe working strength much difference of opinion exists among engineers, the permanent supporting power of iron being variously estimated at from four-tenths down to one-tenth of its breaking strength. Thus, when some fifteen years ago, a royal commission sat to inquire into the application of iron to railway structures, the late Mr. Glynn, in his evidence, recommended that a cast-iron bridge should never be loaded beyond one-tenth of its ultimate strength. The late Mr. Stephenson, with several other engineers, thought a ratio of one-sixth sufficient, while the late Mr. Brunel was satisfied with a ratio of from two-fifths to one-third; or, in other words, if a girder would just bear 100 tons of distributed load, he would put from 33 tons to 40 tons upon it, where Mr. Stephenson would allow not more than 17 tons and Mr. Glynn only 10 tons.

"Were we now to have another commission entrusted with the same inquiry, it is not unlikely that as great a difference of opinion would be found still existing. For there is no acknowledged natural principle upon which the safe load of iron has yet been determined, and in the absence or oversight of

such a principle each engineer must be governed by his own judgment of what is safe and prudent. It is true that the authority of the Board of Trade has been so far exercised in this matter as to have limited engineers, in the design of wrought-iron railway bridges, to maximum tensile strains of 5 tons per square inch; and although it is commonly believed that with wrought-iron a compressive strain of from 4 tons to 4½ tons corresponds to a tensile strain of 5 tons, the Board of Trade impose the same limit of strain for both the top and bottom chords of a wrought-iron girder. The limit of 5 tons per square inch, it is hardly necessary to say, is an entirely arbitrary one, nor is it modified according to the quality of the iron and workmanship in a structure. Thus, in girder bridges, plate-iron is used of which the breaking strength is occasionally not more than 18 tons per square inch. In punching the rivet holes, however, and irrespective of the loss of the metal actually punched out, the solid iron remaining between the holes is injured, so much so, that in a series of experiments made many years ago by Mr. Fairbairn, the mean tensile strength of seven specimens was reduced from 52,486 lb. per square inch before punching to 41,590 lb. per square inch of solid iron left between the holes after punching—more than 20 per cent. of the strength of the iron being destroyed by punching, a loss distinct from that of the metal actually punched out. Drilled rivet holes, it is satisfactory to know, are now being adopted in the best class of bridge work, but in bridges already erected and containing plates occasionally no stronger than 18 tons per square inch before punching, the loss of strength ascertained by Mr. Fairbairn would diminish this to about 14½ tons for the net section of metal between the rivet holes.

"Iron, it is still to be remembered, has not been employed long enough for purposes of construction to enable us to compare its endurance with masonry, of which there are abundant examples still perfect after many hundred years. At the same time it must not be forgotten that, while we can never know the absolute strength of a bar of iron without destroying it under strain, neither can we always infer its strength from its deflection, or apparent range of elasticity. For we are not yet secure against flaws or those other faults of molecular structure which Mr. Mallet so well describes as 'planes of weakness.' A bar of iron may have a general strength of 22 tons per square inch, except at a single point in its length, where for an almost inappreciable linear distance, the strength may not exceed 10 tons. If the bar be broken this fault will be detected, but hardly, if at all, otherwise. For under a strain of even 8 tons or 9 tons, the extension at the precise point of weakness would be so slight as to be quite overlooked in a general observation of the total deflection or extension.

"In this fact, which was mentioned thirty years ago by M. Vicat, and in the known effects of suddenly applied strains, vibration, impact, &c., we have abundant reason for extreme caution in the use of iron for permanent structures of any kind. It can hardly be said that the Board of Trade limit of 5 tons, arbitrary as it is, is too moderate, although there should be some account taken of the known quality of the iron to which this strain is to be applied; and it may not be necessary to adopt an unlikely load as that which is to produce the maximum strain of 5 tons. The recent discussion as to the security of Chelsea Bridge affords much suggestive material upon these points."

IMPROVED MACHINERY AT RAILWAY STATIONS.—The goods station of the new line between Liverpool and Garston, at Northumberland-street, Brunswick Dock, is large and commodious. Its area is 400 ft. in length and 300 ft. in breadth, exclusive of the yard and enclosure. There are two levels or rails inside the station, the lower level being constructed to suit the cotton and similar traffic, and the upper level for goods coming to the station and intended outwards. The traffic inside the station will be managed by steam cranes, worked by shafting in tunnels underneath the ground floor of the station—a novel plan, leaving the platform free from machinery and materially facilitating the removal of goods. The only portion of the machinery to work the cranes situated above ground is in the upper warehouse. In addition, there is a further novelty in the working of cranes, which is an entirely new invention, and introduced here for the first time. The principle is that of circular cranes, having no pillar whatever, which are suspended from the ceiling of the room over the upper warehouse floor. The crane is the invention of Mr. Brydone, engineer.

Signor Verdi has been elected by the Academy of Fine Arts, at Paris, as successor to Meyerbeer. The *Gazette Musicale* informs us that M. George Kastner is to write a life of the composer, by special permission of the Master, who seems (unlike many other great musicians) in the midst of life to have looked forward to his death.



J. LEWIS LITH 29 DAME ST. DUBLIN

THE CHURCH OF THE HOLY TRINITY - CORK.

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DIRECTIONS FOR THE RESTORATION OF  
THE APPARENTLY DROWNED.

We reprint the valuable directions published in the *Life-Boat*; or *Journal of the National Life-Boat Institution*, a notice of which appeared in our last issue. We feel confident they will be read with pleasure, and studied by those who occasionally may be called on to aid at a time of accident by immersion in water. The secretary having placed at our disposal the illustrations, we willingly allow them to accompany the directions. The *Life-Boat Institution* is a noble one, deserving the support of all; it seeks to succour in time of peril, "those that go down to the sea in ships, that do business in great waters;" and we gladly lend our aid in bearing testimony to its usefulness:—

## 1.—Inspiration.

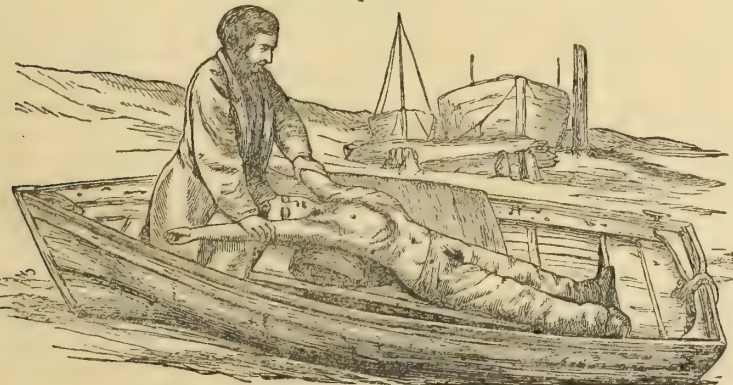


## 2.—Expiration.



The foregoing two illustrations show the position of the body during the employment of Dr. Marshall Hall's Method of Inducing Respiration.

## 1.—Inspiration.



## 2.—Expiration.



The foregoing two illustrations show the position of the body during the employment of Dr. Silvester's Method of Inducing Respiration.

I.—Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly* on the spot, in the open air, with the face downwards, whether on shore or afloat, exposing the face, neck, and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces.

The points to be aimed at are—first and immediately, the restoration of breathing; and secondly, after breathing is restored, the promotion of warmth and circulation.

The efforts to restore breathing must be commenced immediately and energetically, and persevered in for one or two hours, or until a medical man has pronounced that life is extinct. Efforts to promote warmth and circulation beyond removing the wet clothes and drying the skin must not be made until the first appearance of natural breathing. For if cir-

they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water alternately, on them.

If there be no success, lose not a moment, but instantly—

To Imitate Breathing—Replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress.

Turn the body very gently on the side and a little beyond, and then briskly on the face, back again; repeating these measures cautiously, efficiently, and perseveringly about fifteen times in the minute, or once every four or five seconds, occasionally varying the side.

[By placing the patient on the chest, the weight of the body forces the air out; when turned on the side, this pressure is removed, and air enters the chest.]

On each occasion that the body is replaced on the face, make uniform but efficient pressure with brisk movement, on the back between and below the shoulder-blades or bones on each side, removing the pressure immediately before turning the body on the side. During the whole of the operations let one person attend solely to the movements of the head, and of the arm placed under it.

[The first measure increases the Expiration, the second commences Inspiration.]

••• The result is Respiration or Natural Breathing;—and if not too late, Life.

Whilst the above operations are being proceeded with, dry the hands and feet; and as soon as dry clothing or blankets can be procured, strip the body and cover, or gradually recloth it, but taking care not to interfere with the efforts to restore breathing.

III.—Should these efforts not prove successful in the course of from two to five minutes, proceed to imitate breathing by Dr. Silvester's method, as follows—

Place the patient on the back on a flat surface, inclined a little upwards from the feet; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades.

Draw forward the patient's tongue, and keep it projecting beyond the lips: an elastic band over the tongue and under the chin will answer this purpose, or a piece of string or tape may be tied round them, or by raising the lower jaw, the teeth may be made to retain the tongue in that position. Remove all tight clothing from about the neck and chest, especially the braces.

To Imitate the Movement of Breathing.—Standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upwards above the head, and keep them stretched upwards for two seconds. (By this means air is drawn into the lungs.) Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest. (By this means air is pressed out of the lungs.)

Repeat these measures alternately, deliberately, and perseveringly, about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to induce circulation and warmth.

IV.—TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.—

To promote Warmth and Circulation.—Commence rubbing the limbs upwards, with firm grasping pressure and energy, using handkerchiefs, flannels, &c.: [by this measure the blood is propelled along the veins towards the heart].

The friction must be continued under the blanket or over the dry clothing. Promote the warmth of the body by the application of hot flannels, bottles or bladders of hot water, heated bricks, &c., to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet.

If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room.

On the restoration of life, a teaspoonful of warm water should be given; and then, if the power of swallowing have returned, small quantities of wine, warm brandy and water, or coffee, should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

General Observations.—The above treatment should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours.

APPEARANCES WHICH GENERALLY ACCOMPANY DEATH.—Breathing and the heart's action cease entirely; the eyelids are generally half-closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue approaches to the under edges of the lips, and these, as well as the nostrils, are covered with a frothy mucus. Coldness and pallor of surface increase.

CAUTIONS.—Prevent unnecessary crowding of persons round the body, especially if in an apartment.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet.

On no account place the body in a warm bath, unless under medical direction, and even then it should only be employed as a momentary excitant.

## THE GAS POWER ENGINE.

THE following account of the gas-power engine, which may be seen in the Machinery Court of the Royal Dublin Society's Exhibition, will be read with interest:—These machines possess the great advantages of economy, compactness, and efficiency combined; they will, no doubt, gradually come into use. They require no boiler, chimney, or expensive setting; they are of neat appearance, clean, free from all smell and danger, can be instantly set at work, and as readily stopped, all expense ceasing with the stoppage. The Lenoir gas engine consists of a cylinder laid horizontally on a cast-iron frame, and a piston which is moved in the cylinder, and which, by a connecting rod, transmits the motion to the horizontal shaft on which the fly-wheel and motive pulley are fixed. The gas is introduced from the ordinary service-pipe, through a vulcanised india-rubber bag, the object of which is to regulate the flow of gas, and to prevent any sudden jerking in the gas pipe. The valve opening to the cylinder is connected with an eccentric in the usual way. Two Bunsen's piles, sufficient to produce the electricity, are placed at a little distance from, and in communication with, a Ruhmkorff coil. The electric current of this apparatus is conducted by means of insulated wires to the distributor, placed on the front part of the frame of the machine; and the course of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston rod, which, by an ingenious combination, impels a small movable slide before the distributor. The burnt gas, after having done its work in the machine, escapes, and a supply of cold water is admitted to cool the passage. The machine is easily started and stopped, and a meter such as is ordinarily used for twenty burners will pass sufficient gas for a one-horse power engine.

To keep the apparatus in good order, it is recommended that the machine should be carefully cleaned when stopped, and occasionally thoroughly examined, and the inlet and outlet vents cleaned of any deposit from the gas. Among the general directions, it is recommended to avoid as much as possible, for rubbing the polished pieces, the employment of emery paper, clay, ochre, sand, dust, and all hard substances reduced to powder, for if any grains remain between the parts rubbed they will alter them sensibly. It is well in a manufactory to keep the machine in a glass closet. Examine the covering and the pipes through which the water circulates, to see whether, under the influence of heat, the water has not deposited calcareous incrustations, which it will be necessary to scrape off in order to avoid obstructions. Keep in good condition the packing through which the piston rod passes, by changing from time to time the hemp. This care is very important, to prevent losses and exhaustion. From time to time ascertain whether there is too little or too much water in the box of the meter, either of which is prejudicial to the working of the fly-wheel, and also completely interrupts the passage of the gas. If the motor should remain a long time without work, have the fly-wheel worked occasionally by the hand, to change the position and contact of the parts. If, after the machine has been at work a few weeks, it be found that the valves have too much play, fasten with precaution the bolts that keep them in place; but if fastened very tight it will increase the friction. Examine frequently—at least every morning—before work is begun, the inflammators; clean the platina burners and the porcelain buttons with water made strongly alkaline with potash. Replace the piles every four days, and if you do not wish to lose electricity, remove the zinc cylinders after the work, and let them dry; they will last a long time. It is equally important to take from the acidulated bath water the porous jars that contain the nitric acid.

As has been already explained, the principle of the machine consists in employing an explosive mixture for propelling the piston, and igniting the same to produce the necessary vacuum. The principal difference in outward appearance between the Lenoir engine and an ordinary horizontal steam engine is, that the former has on each side of the cylinder a large rectangular hollow slide, which so communicates with the cylinder, that at each end of the stroke there may be admitted a mixture, consisting of one part gas, which is supplied from the ordinary main, and nine parts atmospheric air. Upon the piston reaching the end of the stroke, the mixture is ignited by an electric spark, obtained from an ordinary voltaic cell, the product of the combustion escapes through the exhaust, and the process is repeated. The engine works with the greatest regularity, and under certain circumstances would possess undoubted advantages. No boiler, fire, or other supplementary apparatus is required; and, on the gas being turned on, the engine is in full work in less than 10 sec. The engine consumes about 50 cubic feet of gas per horse-power per hour, and works with the greatest regularity and precision. In cases where steam power would be

totally inapplicable, owing to its being required only for a brief period of time daily or weekly, the gas engine would prove invaluable, the engine necessitating no expense whatever, except whilst actually employed.—*Mining Journal*.

## THE SCIENTIFIC INSTITUTIONS OF DUBLIN.

THE following are the resolutions agreed to by the Select Committee on the Dublin Scientific Institutions, and which will be the basis of the report of that committee:—

"1. That it would be injurious to the interest of the public that the Museum of Irish Industry should be suppressed, or amalgamated with the Royal Dublin Society."

"2. That whether the Museum of Irish Industry be placed on the same footing as that of Jermyn-street, or whether its functions be extended, it may be made as an independent institution of great utility to Ireland."

"3. That the Museum of Irish Industry is distinct from the Royal Dublin Society, as being a public institution, supported by public funds solely for the use of the public, directed by a permanent scientific head, responsible to the Government, and administered exclusively by scientific men, selected on the grounds of fitness. That the Royal Dublin Society, founded by royal charter, is composed of a number of subscribing members, and is so far a private body, the members of which have some preferential privileges; it is directed by a Council, whose members are fluctuating, and have no individual responsibility, and it is administered by committees of the same nature as the Council."

## ROYAL DUBLIN SOCIETY.

"4. That the Royal Dublin Society was originally intended, according to its charter, for the encouragement of husbandry and other useful arts. Its scope was subsequently extended, and educational functions in art and science were assigned to it. There is, however, nothing now in the circumstances of Ireland which renders it expedient that the technical and scientific instruction given in that country, at the expense of the State, should be entrusted to the management of a body of private gentlemen, rather than to a public scientific institution, as in England."

"5. That the Royal Dublin Society should be relieved of those educational functions for the management of which it is not specially adapted. It has been proved by unanimous testimony that the establishment of a veterinary school would be of great importance to Ireland. This would legitimately fall within the province of the Royal Dublin Society. Their agricultural chemist should also be retained. The Royal Dublin Society, however, moreover, being entrusted with funds forming a botanical garden, a museum of natural history, and a library, it is expedient that it should be enabled without further loss of time to make these several departments efficient and complete; and also that it should be assisted in obtaining proper facilities for its cattle shows and periodical exhibitions of manufactures. These objects would be effected by the sum of money recommended by the report of the commissioners of 1862, and approved of by the Secretary of the Treasury 16th June, 1863, being placed at the disposal of the Royal Dublin Society, together with such future grants, annual or otherwise, as Parliament may judge necessary, to enable the society to carry out its duties; certain conditions should be attached to the granting of the funds necessary to these objects."

"Council—Such a modification of the charter and bye-laws of the society should be effected as shall delegate to the council the general management of the society, the appointment, control, and dismissal of officers, and full authority to act on its behalf."

"Library—The resolution unanimously agreed to by the committee on the Royal Dublin Society of 1863, 'that books should not be lent out of the library,' should be accepted by the society. Admission to read should be obtained on presentation to the librarian of a recommendation, signed by a member of the Royal Dublin Society, or at the discretion of the librarian on the recommendation of two respectable persons."

"Museum—The museum should be opened to the public on Sundays after the hours of Divine service."

"Botanical Gardens—The botanical gardens should be open to the public every day of the week, free of charge, as at Kew. On two days in the week they might be closed till two o'clock for the delivery of lectures, for shifting plants, and for cleaning."

## MUSEUM OF IRISH INDUSTRY.

"6. The Museum of Irish Industry should be placed on a similar footing to that of the Jermyn-st. Museum, as regards its collections, professors, and lectures, or those lectures and collections might be extended to the illustration of such other industrial objects as may be sanctioned by the Government."

"The museum of this institution should be opened

to the public on Sundays, after the hours of Divine service."

"7. That courses of systematic lectures entirely free are inexpedient, and that henceforth it shall be no part of the duty of any lecturer to deliver such lectures gratuitously."

"8. That all systematic instruction followed by examination and prizes, or certificates of competency, should be given under the direction and control of one officer, responsible to Government for the efficiency of the system, under similar arrangements to those existing in Jermyn-street."

## PROVINCIAL LECTURES.

"That provincial lectures are calculated to be of great use in arousing and spreading a desire for scientific knowledge throughout Ireland, and for that purpose the annual grant of £500 should be continued."

"10. The committee disagrees with the recommendation of the report of the committee of 1862, on the Royal Dublin Society, &c., 'that advantage would be gained if all parliamentary grants in aid of science and art at Dublin were included in the estimate of the Royal Dublin Society, and were paid through its medium, inasmuch as they then would be brought under consideration in one point of view, and the Council of the Royal Dublin Society would have an opportunity of making any representations which the circumstances of the time might render proper in reference to them.'

"The unanimous opinion of the other scientific societies is opposed to this recommendation as being unsupported by evidence, injurious in its effects, and unsought for by the Royal Dublin Society, and the committee concurs in the objections urged by the societies against this proposal."

## ZOOLOGICAL SOCIETY.

"11. This well-managed society contributes in a high degree to the instruction and amusement of the public. At the present time the society is endeavouring by private subscriptions to erect a fence with the view of enclosing an additional space which is necessary for the security of the gardens. The Board of Works requires that the fence should be of peculiar construction, involving a large expense. As this society has been the first to give what may be called almost gratuitous admission to the poorer classes, it is advisable that assistance should be granted towards the completion of this and other necessary works."

## ROYAL IRISH ACADEMY.

"12. The Royal Irish Academy combines the objects of the London Royal and Antiquarian Societies, and has acquired the highest reputation for the learning and activity of its researches. The Museum is the richest and most important in Europe in Celtic antiquities. The Library contains manuscripts and works of great value, illustrative of early Irish history. It has published papers, scientific and antiquarian, of no ordinary interest. Differences have arisen between the representatives of science and antiquities as to the distribution of the annual parliamentary grant of £500. These differences are owing to the small amount available for the passing and absolute want of each of these departments. Assistance is required to enlarge the museum, to increase the staff, and to aid scientific researches. This society has the strongest claims on the liberality of Parliament. The museum should be open to the public on Sundays, after the hours of Divine service."

"It has been proved that free courses of popular lectures has been productive of good, and might be given occasionally with advantage."

The *Engineer* of August 15th, in its description of Benson's Great Clock, says, "As engineers, we can say that it really approaches much nearer the perfection of mechanism than any other example of clock work we have yet seen on anything like the same large scale." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a Prize Medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## LECTURES ON PUBLIC HEALTH.\*

## LECTURE I.—INTRODUCTORY.

The lecturer commenced his observations by stating that the so-called science of Hygiene is an application of the laws of physiology to the maintenance of the health and life of communities by means of those agencies which are in common and constant use, and is therefore a department which the medical profession can share advantageously with the public, who, through the medium of Social Science Associations, &c., are rapidly advancing in sanitary knowledge. After a rapid retrospect of the sanitary measures which had been adopted by various nations from the commencement of historical record, the lecturer enumerated three epidemics which have been the scourges of mankind from time to time, the plague, typhoid fever, and the cholera, and proved that their prevalence was mainly to be attributed to the want of the adoption of proper sanitary precautions; with regard to the latter he showed a diagram to prove that the increase of mortality from that disease in various quarters in London was proportional to the lowness of level of the locality in which it occurred; and cited as an instance that this theory holds good in general cases the fact that during the cholera epidemic of 1849, in the town of Kells, out of 4,205 inhabitants, 330 were attacked during a period of seven weeks. In the neighbouring town of Navan, containing one-third more inhabitants, owing to its being situated on hills, and well watered and drained, only 38 cases occurred.

After many instructive remarks to illustrate the many social evils that are occasioned in various places by the neglect of proper sanitary precautions, the lecturer concluded his discourse as follows:—

During the few remaining minutes of my hour I will invite your attention to the present sanitary state of Dublin, as far as it can be displayed with a system of death registration but six months old, and a medical officer of health but a fortnight in office.

I trust the time will come when sanitary statistics will be taken on so philosophical a scheme as to bring home to the mind of the most indifferent or selfish the chances of health or life in every class of street. For three years—1839, 1840, 1841—the death-rate was estimated at 30, and but 17 in the surrounding country, and considering the absence of many manufactures which prejudice the health of English towns, though they enrich them, the impression that mortality is high in Dublin has been very general, and is constantly expressed in the writings of great medical authorities of former days. Short (1750) asserts, "That sickly years are more fatal in Dublin than in London." Ritty (1772) remarks, "That those who know the situation of the poor here can be at no great loss to account for the frequency and mortality, especially of fevers, several families being in one room, which must undoubtedly contribute not only to the propagation, but also to the malignity of these diseases."

The status of disease in Dublin is shown by the medical tables of the last census, so admirably arranged by Sir William Wilde, for in a population of 254,293 persons, 5,646 "laboured under temporary or permanent disease on the night of the 7th April, 1861," and of these 1,763, or over one-third, were ill of diseases which were plainly preventible, or to be much diminished by attention to sanitary condition.

It has been calculated that out of 100 children of the labouring classes born in Dublin, but 34 live to be 20, 20 to be 40, and only 14 to be 50. Such premature deaths cannot be attributed to want of provision of curative medicine, but must in a great proportion of instances be assigned to ignorance of, or inattention to the teachings of preventive medicine. Over-crowding, impure air, insufficient water, imperfect sewerage, debility, pauperism, contagious scourges, death, widowhood, orphanage, and high taxation, have been then in this city sequential terms.

The density of the population and the over-crowding of some of the poorer districts of our city are shown in the following tables:—

DENSITY OF POPULATION.  
Census 1861.

	Population	Houses	Aver. to each house	Acreage	Aver. to each acre
Dublin City ..	254808	23001	11	3592	71
St. Michael's ..	20085	1417	14	122	165
St. Nicholas' ..	11322	922	12·3	58	195

## POORER DISTRICTS.

Streets and Alleys	Houses	Rooms	Beds and Straw	Inhabitants	Aver. to each room	Aver. to each bed
134	2102	11214	14850	40519	3·59	2·71.

\* By E. D. Mapother, M.D., Professor of Hygiene, and Medical Officer of Health for the City.

Instances of much greater overcrowding, I could very easily adduce from my own experience, but I prefer to offer you the evidence of others. I have elsewhere quoted the following extract from Dr. Willis's work "On the Sanitary State of Dublin," but it is so striking, and yet so true, as I have had lately many opportunities of knowing, that I shall again read it for you. "In some rooms in these situations it is not an unfrequent occurrence to see above a dozen human beings crowded into a space not 15 feet square. Within this space the food of the wretched beings, such as it is, must be prepared; within this space they must eat and drink—men, women, and children must strip, dress, and sleep."

The air in nearly every one of the rooms of the poor I have visited is most foul, the windows very rarely being made to open above, and are almost never opened at the bottom, there being in many sleeping rooms no fire-places, and at night when every crevice is closed the air is so poisonous that they are only saved from suffocation by the endurance which habit produces. The sunlight, which is most healthful and purifying to the air, rarely enters such rooms, as they are surrounded frequently by very high houses, and the windows are darkened by dust. What has been done to remedy these fearful evils by providing fit habitations for the poor? The Towns' Improvement Clauses Act declares, that no cellars less than 7 feet high, without a window, and of which more than two-thirds is below the level of the street, shall be inhabited, and upon this authority our Corporation has done immense good by closing over 3,000 such dens. There are many alleys and courts which should be pulled down, for they are too dilapidated and ill-constructed to be repaired, such as Gill's-square, Calford's-court, and many places in the parish of St. Michael's, or at least in the case of courts, they should be converted into thoroughfares by removing the end houses.

The Rathmines and Rathcoole Railway, which will run through Exchequer-street, Fade-street, Stephen-street, Wood-street, Bishop-street, and Kevin-street, will remove many wretched dwellings; but it is much to be desired that benevolent and enterprising men will be found to substitute other more decent houses for the poor, as has been done on so large a scale by the Imperial Government in Paris while the magnificent improvements in that city are being carried out. Should this be neglected the only effect will be to drive the poor from one nest of unwholesome dwellings to others in the neighbourhood, and thus make matters worse than before.

The only efforts in this direction in this city which I am aware of have been made by Mr. Thomas Vance, Dr. Evory Kennedy, and Alderman Martin. Mr. Vance has built houses capable of accommodating thirty families in the most comfortable way—baths, lavatories, wash and mangling rooms being provided free of expense, in Chapel-lane, Lower Bridge-street, and he is adopting the same plan in Bishop-street and Kevin-street. Dr. Kennedy has erected admirable houses, now set in rooms, off Summer-hill. I believe that no pecuniary loss has resulted from these most praiseworthy efforts; and if they were carried out extensively, as by a company, like those in London, where they are commercially successful, the moral, social, and sanitary conditions of the poor of Dublin would be amazingly elevated.

I shall now bring forward the statistics of one disease—namely, fever—because it is an unwelcome visitor from which we are never free, and is most largely preventible by sanitary measures, yet some years ago, within twelve months, 80 cases had occurred in one house, 50 had been admitted into hospital from another, and in a third, at the same time, 15 persons were lying ill of it. At the same period it was shown that, owing to imperfect traps, fever was more rife in places where there were sewers than in those altogether undrained. Last January was not remarkable for any climatic condition likely to promote the spread of fever, yet 229 cases were admitted during that month into the Hardwicke, Cork-street, and Meath Hospitals. These institutions have received 35,657 patients with fevers during the past ten years.

The only remaining subject which I shall in this lecture allude to is the contamination of our atmosphere by impurities from causes which I trust will be soon removed. The inhabitants of the south-eastern part of this city have complained that it is infested by certain smells which have been assigned to various causes; thus, the manure works, chemical works, gas works, and creosote factory, have all had their accusers; and others assign the stench to the mist which, in an easterly wind, is blown back up the river, charged with the odour of decomposing seaweed and sewage matters. Yards where rubbish is stored abound in this neighbourhood, and for some months two large sewers have been opened for cleansing, and these may contribute their fœtid exhalations. Amidst such a mixture of perfumes you will understand it is not very easy to determine with the nasal organ the real offender. I have examined into some of these alleged causes, and although my investigations are not completed so as

to allow me as yet to come to any positive decision, I notice them to show the difficulties which surround the question. Hydrochloric acid and chlorine are the vapours said to be given off from the chemical works, but after a careful examination of one of them, I could not discover any of the former, in the atmosphere, except immediately near the retorts, and that the chlorine must escape to some amount is admitted and recognized by the enactment on the subject passed this session. The acid is, however, under control, yet that it escapes occasionally is said to be shown by injury to vegetation in the vicinity, and the corrosion of metals. Its effects upon animal life I will hereafter treat of. It was shown before the Committee of the House of Lords in 1860 that plants were injured by this vapour for two miles round such an establishment as St. Helen's, Lancashire. I would not regard chlorine in the air in small quantity as injurious, remembering its disinfecting powers.

In the manure works, blood is dried, and if it be not kept till it decomposes, or be charred, no smell ought to issue; and fish oil is dissolved by sulphuric acid to mix with greaves, coprolites, wool, and other refuse. Upon three separate occasions, when I made the experiment, I have not been able to detect sulphuretted hydrogen or ammonia in the air about this yard, and the smell, which is disagreeable no doubt, depends on some organic matter, probably fatty acid, emitted from the fish under the action of the sulphuric acid. The soil in this neighbourhood seems soaked with sulphur compounds, for some water which I obtained from a shallow well contained sulphuretted hydrogen abundantly, and smelt very badly. This, in my opinion, is due to the lime water charged with sulphur compounds, or what the workmen call "blue Billy water," which has been used for purifying gas, being cast into the sewers. It is certainly to be regretted that the dry purifying process is not adopted in the Dublin gas works, as it is with the greatest advantage in London. In treating this delicate subject, in which equal regard must be paid to the commercial interests involved and the general salubrity of the city, the duty of the medical adviser is concerned with the question, whether this or that establishment is prejudicial to the health of the citizens. The question whether certain smells are nauseous or not, is a very interesting one for those who live in the vicinity, but is one which I do not think the Legislature contemplates, and of which the physician is no better judge than other people.

Undoubtedly most of these evils are remediable by such means as tall chimneys, plans for consuming smoke, and improved chemical appliances; and after some further investigations upon the matter, I shall feel it my duty to advise the authorities to check them by the powers invested in them under the Acts of Parliament bearing on nuisances. With regard to another fertile source of stench I trust we may promise ourselves a most essential improvement in the sewerage of our city—namely, that the refuse shall not be discharged into the Liffey, to decompose upon its shores at low water and emit the most poisonous exhalations, but shall be carried into two main sewers parallel to the river and cast into the sea as far out as practicable. At present, at low water, wind blows up the sewers and forces their fœtid gases into our houses, but if the discharging orifices were far down this could not occur. No parsimonious spirit will prevail when it is remembered that the thousands expended will be repaid in scores of human lives and hundreds of sicknesses prevented. Between our unrivalled quays there will then course a pellucid and health-giving instead of, as at present, a poisonous stream. Our able city engineer has, however, wisely advised the Corporation to postpone any action in these intercepting sewers till we have the advantage of knowing the results of the similar extensive plan in London, devised by Mr. Balgazzette, by which the sewage will be carried to Barking's Creek, fourteen miles below London Bridge, and being let in during the first two hours of ebb tide, will be carried off to sea. There is little doubt now of the efficiency of this plan, and I may mention the corroborative fact that a large salmon was lately taken in the river near Greenwich.

I am strongly of opinion that as soon as the new abundant water supply renders the waters of the present basins unnecessary for domestic purposes, it should be used to flush the sewers twice daily. I have found the remarkably small amount of two and one-third grains of organic matter per gallon in the Liffey-water at the Metal Bridge, and the fact suggests to me the belief that the many large sewers, including the Poddle, which open above this point, do not efficiently carry down the refuse from the districts they are supposed to drain.

If, then, it be true that Dublin has been more unhealthy than needs be, I feel confident that the authorities into whose custody its well-being is entrusted, are determined that it shall be so no longer. Their achievements in improving the drainage of the city, closing uninhabitable cellars, inspecting lodging-houses, slaughter-yards, bake-houses, and other pre-

mises, where nuisances are apt to arise, and above all, their labours to procure an abundant supply of pure water, show that they are not at least behind the times in their appreciation of the value of sanitary reforms. I rejoice to say that I am now associated with them in such good works, and in performing the duties of Medical Officer of Health, I shall attain the same measure of success which has followed the labours of my colleagues in other cities, and become the humble instrument by which discomfort or disease among the citizens shall be diminished, or mortality reduced, I feel that no energy which I can command could be better rewarded.

#### LECTURE II.

##### *Air: Its Impurities, and Diseases due to them.*

The prime necessity of human life is Air, the first and last act of our existence to breathe it, and the most essential condition of health is its purity, therefore all-sufficient Nature provides the most perfect means for accomplishing these requirements. The atmosphere around us extends to the distance of forty-five miles from the surface, but with uniformly decreasing density, and thus forms a covering for the earth in thickness about 1-160th of its diameter. This medium moderates and diffuses the heating and lighting rays of the sun, which, were it absent, would scorch the living world, and we would be submitted daily to a sudden and painful transition, from glaring sunshine to total darkness at sunset, and the reverse at sunrise. By becoming rarefied by the sun's heat, endless motion is produced in the atmosphere, giving rise to winds varying in force from the gentle breeze to the all-destroying tornado. The sun's heat raises water from the lakes and oceans, and steeps the air with moisture, which returns again to earth after washing the atmosphere and charged with the foods of plants as refreshing rain. Without an atmosphere, all would be silence; the thousand cheering murmurs of natural moving objects about us, entrancing music and articulate speech could have no existence.

Oxygen has been long regarded as the essential material of air, and as its effects would be too stimulating if pure, it is diluted by four times its volume of nitrogen—a gas whose negative properties admirably fit it for this office. By volume the amount of oxygen in the 100 parts is 20.80, and so perfect is the admixture of gases by diffusion that, at great heights at the sea level, in open country, and confined city, it varies but little from that standard:—

Paris	..	20.93	Simplan (6000 feet)	19.98
London sea level	..	20.92	Snowdon (3570 feet)	20.65
Open country	..	21.00	Mont Blanc (16,000 ft.)	20.96

When this uniformity was first considered, the chemist was almost disbelieved, as every one felt the difference between the bracing country air and that of the crowded city; but we shall see hereafter that these characters depend on far different constituents. Oxygen is the supporter of combustion, and so much is thus used that it is calculated that one ordinary iron-smelting furnace consumes daily over sixty tons weight, or as much as 200,000 men would require in the same time. In the human body oxygen is the great motor power; introduced by breathing into the lungs, it is seized by the red cells of the blood, carried throughout every tissue to combine with its carbon and hydrogen, thereby producing combustion, extricating heat, and is concerned alike in such opposite functions as the contraction of our muscles, or the production of thought. Complete denial of oxygen must then prove rapidly fatal, and a diminished supply should be injurious; but so perfect are Nature's provisions for affording an equable supply, that we do not meet death or disease from this cause unless produced by violent mechanical means. In 1840, Schönbein discovered at the platinum pole of the galvanic battery while decomposing water, a body which, from its peculiar smell, he named "ozone." It is not a new body, but oxygen, either in an allotropic form, or in some peculiar electric state. It is evolved while the electric machine is being turned, when sparks are transmitted through a confined portion of air, or most readily prepared by placing a clean stick of phosphorus covered by distilled water in a large bottle of air with a close fitting stopper. When the bottle is kept at about 65°, for from twenty to forty minutes, the phosphorus is oxidized, and ozone is set free in the air above it. Its chemical powers are those of producing the most intense oxidation and bleaching of all organic colours; for instance, uric acid is converted into urea, and litmus blue is discharged; but the property which interests us most is that of disinfecting all foul organic effluvia by oxidation, and therefore its absence is a fair presumptive test that such matters are being emitted in the vicinity, and *vice versa*. It is Nature's great scavenging agent, and is for this purpose being constantly generated by electrical disturbances.

In March last I made several experiments, and I was unable to discover ozone in many close places within this city; but in Stephen's-green it was abundant, the calico slip being stained in one hour and a

quarter. At Kingstown eastern pier three-quarters of an hour produced an equal effect. It is stated never to have been found in the interior of inhabited houses; but I have found that when the slip was suspended in my bedroom in Stephen's-green, five feet from the window, which was left open, it was coloured in four hours, but was not at all affected in twenty-four hours when the windows and doors were kept closed. Fixed to the sill the stain was apparent in three hours.

Mixed but not combined with the atmosphere, there is always a variable amount of watery vapour, 0.35 grains being the utmost quantity which 100 cubic inches at 57° can take up. This is equivalent to about .017 of its volume. As the temperature increases the air becomes more dry, and is capable of absorbing more water. The spontaneous evaporation which supplies water to the atmosphere varies with the motion of the air as well as with temperature—facts which were demonstrated by Dalton.

While water is evaporating much heat is rendered latent by the vapour, and is abstracted from the wet surface, so that water may be even frozen by producing evaporation around it; thus it is that we are the more apt to take cold with wet clothes the warmer the air about us is, and the danger can be avoided by wrapping round us a dry covering to check evaporation—a principle the Scotch shepherd follows when he rolls himself in his plaid, kept dry during the shower. The aqueous vapour in the air is essential to vegetation and to animal respiration, and if decreased or increased beyond the normal point, injury results; and we shall hereafter see that one of the evils of a want of ventilation is that the air of our rooms becomes almost saturated to the utmost by the moisture evolved from the lungs and skin of the inmates and the combustion of our lighting agents.

About 1-2000th of the volume of air is carbonic acid, more in summer, less in winter, and so perfect is the diffusion of gases, that although this gas is one and a-half times as heavy as air, there is no more of it on the surface of the earth at sea level than at the summit of Mount Blanc. Indeed, in very high places, from the absence of vegetation which in other situations removes it, there is found the greatest proportion of this gas. Nature's means, then, for distributing this gas are perfect. Are those of Art? Let the following facts answer:—Professor Roscoe found the amount of carbonic acid in the air of the gallery of a theatre to be nine times, and that of a crowded schoolroom eight times, as much as in the surrounding open air, and Leblanc found it respectively five, ten, and twelve times as abundant in the air of three Paris hospitals as in the atmosphere outside them. Combustion, respiration, fermentation, and decay produce this gas so abundantly that animal life would be extinguished, did not plants proportionally remove it in performing their function in that organic cycle which has always been regarded as one of the marvels of creative perfection.

The deadly lake of Java, whose borders are strewn with human and other skeletons, and the Grotto del Cane, are well-known natural lurking places for carbonic acid, and brewers' vats and deep wells are artificial ones, due to the generation of the gas being more rapid than it can be removed by diffusion; and death has often occurred from entering them until purified by free airing or the action of slaked lime. It is often said that if air in such situations will support the burning of a flame it will sustain life; but this is a fallacy.

Other sources by which the atmosphere of towns is polluted are the carbonic acid and ammoniacal gases which issue from intramural churchyards and burial vaults, the air in the latter having been found so impure as to extinguish flame. Legal enactments have to a great extent checked this evil.

I now proceed to those constituents of the atmosphere which serve no useful purpose, but, on the contrary, are most injurious to human health; and remember that Man, not Nature, is to be blamed for their presence.

The gases which sewers and cesspools emit into the air are mainly sulphuretted hydrogen, sulphide of ammonium, carbonic acid, and nitrogen. As regards the influence of the first on animals, the experiments of Dr. Herbert Barker are very conclusive. A dog was placed in an atmosphere consisting of 12 cubic inches of sulphuretted hydrogen to 5,820 of air, or about 2 per 1,000. "Within a minute he fell on his side and was seized with tremors; the action of the heart became irregular, and within four minutes the respiration had apparently ceased. It returned, however, and became very rapid. He was exposed one hour forty-eight minutes. He next became universally cold, jerking of his muscles followed, and he died eight hours after removal." The most frequent post-mortem conditions in this and similar experiments were extreme fulness of the right side of the heart and a crenated and broken up state of the blood cells. In one case "but one was natural." I shall quote another experiment.

"A common hedge-sparrow was put into the box as before with six cubic inches of sulphuretted hydro-

gen (to 5,286 of air). Within two minutes he fell down insensible, and continued in this state for the space of one minute. The respiration then became very hurried and gasping. He rose, but staggered a good deal, and fell again on his back. Six minutes after the commencement of the experiment he vomited, became convulsed, and died in fifteen minutes." Now, the proportion of this gas to the atmosphere in the vicinity of neglected sewers and some manufactories may be quite as great as in these experiments, although imperceptible to the senses.

This gas issues from fissures torn open in volcanic countries, as at Puzzuoli in Italy, and is disengaged when iron pyrites from coal mines is allowed to decompose in the air, or from some ill-arranged chemical factories, and in all these cases effects very similar to those described by Dr. Barker have occasionally followed exposure to it.

The air in sewers is generally strongly alkaline from ammonia, its carbonate, or sulphide of ammonium, which faecal matters evolve; and in addition to the characters we have mentioned it shows a deficiency of one-third of its oxygen, and a very large amount of peculiar organic vapour. The proportion of sulphuretted hydrogen has been found 6 per 1,000, or six times as much as sufficed to kill the animal in the last-quoted experiment. If, then, we are alive to the pernicious character of sewer gases, with what feelings will we regard an untrapped or badly trapped gully!

Suspended impurities include both mineral and organic particles which float through the air usually invisibly, but if a ray of sunlight be let through an aperture into a dark room, such particles will be seen in rapid motion. The mineral are mainly chalky or aluminous dust, which become deposited in the lungs, although there are millions of little hair-like bodies fixed along the lining of the breathing organs to fan them out, and thus it is, the inhabitants of cities, and of mines especially, are found after death to have much blacker lungs than those who live in a cleaner air.

In a closely packed railway carriage, in his laboratory where sewage was leaky, and in a yard behind some filthy houses, there was twenty-five times as much organic matter in the air as on high ground thirty miles north of Manchester; in a bedroom there was three times as much, and the amount was considerably increased after the room had been slept in.

In applying this method to determine the purity of the air in various places in this city, I modified the plan merely for convenience sake. I filled this accurately graduated aspirator with water, and attached it to a set of Ure's bulbs, containing a measured number of grains of a solution of permanganate of potash of strength determined by the effect of oxalic acid upon it. As the water flowed from the aspirator the air bubbled slowly through the solution, and the number of cubic inches which passed before the solution was decolorized was an index of its purity. I quote the three following experiments as affording the best comparative results:—

Centre of Stephen's green	..	3000 cubic inches.
Dissecting-room, containing about nine subjects	..	975 "
Room in Brattle-street in which thirteen persons had slept, and before the windows had been opened	..	350 "

These quantities of air produced the same effect upon equal measures of the solution; or in other words, the air of the human dwelling was nearly three times as impure as that of the dissecting-room, and nine times as much so as that of Stephen's-green. A rough estimate of the impurity of the air in any close place may be made by noting the time which is required to decolorize a few drops of Condy's fluid added to a little water in a white saucer.

The poisonous effects of air impregnated with arsenical dust, detached from wall-papers and dresses coloured green with such compounds, attracted much notice a few years ago.

Some kinds of fuel are very noxious by the evolution of sulphurous acid—an effect which might be prevented by mixing a little lime with it in the furnace.

I will now direct your attention to some diseases which we have reason to believe are producible by a want of constantly renewed fresh air; and I regret to say that it is in the records of hospitals some years back we shall find the most plentiful evidence. Some diseases have had even the term "hospital" prefixed to them to indicate their dependence on the atmosphere in which they arise, and which has itself been distinguished as "nosocomial air." I shall afterwards allude to the difficulties which surround the proper ventilation of hospitals, which mainly arise from many of them having been originally constructed for private dwellings, and hence become overcrowded when adapted to a purpose for which they were quite unsuited, and from the conflicting wishes of patients, differing as much in their feelings regarding foul or fresh air as in the nature of their diseases.

One of the first medical writers who drew attention

to the influence of a want of ventilation in producing scrofulous diseases, including consumption, was our own great Carmichael, who, in 1809, clearly proved that 7 out of 24 of the children of St. Thomas's School, and 6 out of 30 of those of the Bethesda, were affected in consequence of want of exercise and of freely-admitted air. The children's wards of the House of Industry were that time so much overcrowded and so ill-ventilated that "there was no enduring the air when the doors were first thrown open in the morning," the cubic space to each inmate being under 120 feet. Although very much has been since then written upon the causation of consumption by impure air, there is ample room for searching investigations upon the subject, entered upon with no preconceived impression. For instance, a full inquiry into the hygienic conditions of the people of the Island of Lewis, west of Scotland, who enjoy so great an immunity that deaths by consumption occur but at the rate of 16 per 100,000, and of the denizens of crowded parts of London, where they are thirty times more numerous, should lead to conclusive and most salutary results.

The deaths by consumption in the army have been alarmingly numerous, but I feel no doubt they will diminish with improved air space insisted on in barracks by the late Commissioners. Dr. Guy, after a most masterly investigation of the circumstances influencing the health of printers, clearly demonstrated that their proclivity to consumption was due to want of ventilation, and among compositors to want of exercise in addition, for they were one-fourth more subject to it than the press-workers. The most enthusiastic support to the argument that foul air is productive and pure air preventive of consumption, will be found in the well-known writings of Dr. MacCormac. Sea air is that which is certainly the most powerfully preventive, but with unsanitary habits, the disease is often as frequent at sea side places, as we were informed very long ago by Smollett, that authority, even on matters medical, for in travelling through Boulogne, he found scrofula, including rickets, very prevalent, and attributed the fact to the putrid vapours in the lower part of the town, which to my nose, while walking through its streets last summer, smelt even worse than Cologne.

Consumption is, I am sure, induced, and contagious diseases spread, by the overcrowded and ill-ventilated state of the rooms in which large numbers of tradesmen, tailors especially, work together. Alcoholic stimulants are made necessary by the depressing effects of the foul air, and much of the intemperance of the artisan class has its origin in this way. If these rooms are lit by gas as they generally are, the ventilation should be most perfect, for it has been found that an ordinary burner consumes about five times as much oxygen as one man.

In introducing the subject of aëriform poisons to your notice, it is important that I should explain some terms by which they are often designated.

Malaria is an Italian word signifying "bad air," and miasm from the Greek, is often used as a synonymous term; but carbonic acid or chlorine diffused through the air would come within the definition founded on these terms. I shall therefore speak of each agent by the name of the disease which it produces, and if any epithet be needed to group together ague-poison, typhus-poison, small-pox poison, and the like, let it be the word "aëriform." Of the first, I will speak especially here, leaving for another lecture the poisons generated by the human body, for they reproduce themselves, and are therefore *communicable* from one individual to another. Ague poison does not present these features, but is endemic and locally atmospheric. The firmest fact concerning the ague-poison is that it is connected with the decay of vegetable matter, and that the aëriform bodies so evolved are brought down again to the earth's surface by the dew is one of the most favourite theories founded on this assumption. Another fact we may rely on is, that heat is one of the most powerful extrinsic agents, for it favours organic chemical change, and raises the moisture from the earth's surface which spreads the poison. It has been calculated that marsh poison may diffuse to between 1400 and 1600 feet vertically and about 800 feet along the surface. Trees are supposed to act as a barrier to its spread. Chemical examination of the air about marshes promises much towards discovering the ague-poison, but as yet it must be acknowledged that the analyses we possess do not determine the point. The gas most constantly and abundantly present is light carburetted hydrogen, and next in importance to this a slight excess of carbonic acid. Sulphuretted hydrogen may be found owing to the decomposition of sulphates by organic matter, especially if the marsh be so situated that the sea can be washed over it. The celebrated Prof. Daniell, finding much of this gas in water obtained off the West Coast of Africa, believed he had discovered the cause of yellow fever, which was some years ago so fatal there. Organic matter to the amount of 8 grains to the 1000 cubic feet has been obtained from the atmosphere of marshes, and it is a

suggestive fact that it has the same chemical character as the organic matter exhaled from our lungs, turning red with nitrate of silver, yielding ammonia when heated with lime, and blackening sulphuric acid when drawn through it. Chlorine, and not ozone, destroys this matter which some regards as the ague poison. The only plausible grounds that a disease may arise from the entrance of minute animals from the atmosphere into the animal body, is the statement of a recent French writer that splenic apoplexy in the sheep is due to species of bacteria which, floating in the air, enters the creatures' lungs. I have no doubt but that amongst all kinds of suppositions, the theory that the evil of malarious air is the negative one of a deficiency of oxygen, has been advanced, and the constant concurrence of organic matter which in decomposing so greedily abstracts that gas, the frequent concurrence of a ferruginous soil which might absorb it, and some of the peculiar symptoms of ague, certainly support the notion, if one so hypothetical be allowed for a moment. Nor can we explain our immunity from ague in this country where moisture and organic matter are found plentifully together in our bogs.

The striking salubrity of large level spaces, such as commons or flat extensive strands, like that of Traamore, will be perhaps more appropriately submitted to you when I come to speak of climate, and on Saturday, when I trust to have again the pleasure of addressing you, I will conclude the subject of air with a description of the means supplied by Nature, and which Art should imitate for keeping it pure within our dwellings.

#### HOW THE "LIMITED" LIABILITY COMPANIES ARE GOT UP.

THE Limited Liability Companies continue to appear in rapid succession. On the whole they are well taken up. This is partly owing to the seductive character of the prospectuses, which are so cleverly drawn up. The concoction of prospectuses has become quite a trade, or a profession, I suppose it must be called. Stockbrokers, who are the persons chiefly interested, are by no means equal to the task of picturing in glowing colours the prospects of any scheme. Their style is not equal to that of Macaulay or Washington Irving, and is even a long way below that of the celebrated George Robins. Hence the promoters of companies apply to the "gentlemen of the press." Now gentlemen of the press, with the great majority of the public signifies reporters. Reporters come more prominently before the public than any other class of the press, and hence this common notion. But this, by the way—suffice it to say that many of those flaming prospectuses, written in slipshod English of the true penny-a-line calibre, are emanations from the free pens of reporters. The connection of these gentry with limited liability companies is useful in other ways to their promoters. Frequently it can be arranged that some awkward revelations, or the remarks of some dissatisfied and demonstrative shareholder can thus be suppressed; the editors of the papers to which these reporters are attached knowing nothing of the silent compact, and the public being in equal ignorance. Reporters make a good deal of money by what appears in the newspapers, but they often make more by what does not appear. Especially is this the case with the law and police reporters. I am no friend to a censorship of the press, nor do I in the abstract approve of any Government interference with newspapers, but I have sometimes thought that official reports from the law, bankruptcy, and police courts, would be an improvement on the present irresponsible system. Reverting to the numerous limited liability companies, which are coming before the public, the way in which they are taken up proves one thing—that the public generally have no great fear of a war between England and Germany.—*Dundalk Examiner*.

#### NEW SCUTCHING MILL AT TOLLYMORE PARK.

A NEW scutching-mill has been erected at Tollymore Park, the seat of the Earl of Roden. It contains ten stocks for scutching, and is altogether a very strong and powerful mill. The metal works were cast by Messrs. R. Lucas and Son, Soho Foundry, Newry. The mill is to be driven by water-power, which is also used for his lordship's saw mill. If necessary, Lord Roden will put up another scutch mill, for which there is ample water-power immediately below the mill now erected. It is encouraging to see a lord in the van of manufacturing industry; for as was once philosophically remarked by a shrewd old inhabitant of Downpatrick—"Agriculture feeds the people of a country, but manufactures enrich it." His lordship is also building six comfortable houses for the scutchers, near Earlsdale. A spinning mill, even a power-loom weaving factory might yet be erected here; and once the flax is scutched, spun, and woven, there is nothing to prevent the bleaching also being done.

#### BATTLE FOR A FREE PRESS.

Mr. Abel Heywood, bookseller and ex-mayor of Manchester, has put forth a statement of the difficulties attending the progress of the book and periodical trade, which many readers will be glad to see, for the sake of its fine and hopeful moral. Mr. Heywood says:—"When, in 1831, I commenced the business of newsagent, the periodical press had barely an existence, and no newspaper published in England sold for a less price than sevenpence, the duty upon each paper being fourpence. The *Poor Man's Guardian*, published by Mr. Henry Hetherington, was commenced in 1830, and in 1831 he offered me the agency for Manchester and the district. The size of the *Poor Man's Guardian* was not equal to one-half of the *Family Herald*; it was, in fact, a demy sheet, and sold for one penny. The judges in the law courts decided that this small sheet, so unlike a newspaper, was one, and as such ought to pay the stamp-duty. It was during this year that an organized struggle of friends of the people commenced for the abolition of the stamp-duty, or the removal of 'taxes on knowledge.' In the five years during which this struggle was maintained, 750 persons were fined and imprisoned by the magistrates for vending the *Poor Man's Guardian* and the unstamped press, and I was committed by the presiding magistrate for the space of four months to the New Bailey Prison. My incarceration failed to convince me that I was not engaged in a glorious work, in doing my utmost to level the barriers of ignorance and enable the newspaper to become an inmate in the house of every man. After my discharge from prison three other attempts were made to send me again to jail, but out of regard to the feelings of those who were dearest to me I paid the fines. The contest between the Government and the publishers became very severe, the parcels for the country agents were seized and confiscated, servant girls carrying bonnet and other boxes were stopped and searched, the coach offices in London were besieged by the police to capture every suspicious looking parcel; but the ingenuity of the publishers was a match for them. My parcels were often put in hampers in which shoes are usually packed, and directed to a shopkeeper in Oldham-street, who dealt in those articles. Public opinion never lost its sympathy for the men engaged in this battle of the press, and in 1836 the Government introduced a Bill into the House of Commons to reduce the duty to one penny. The duty has been taken off the manufacture of paper, the advertisement duty has been remitted, and more than all—that for which we struggled—the duty upon the newspaper has passed into oblivion. The press is now free." These little bits of local history are precious to the careful watcher of events.—*Athenæum*.

#### Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—For your able paper on the "O'Connell Statue" in your last number, you are entitled to the thanks of all Irishmen, and more particularly of the class to which I belong—the *hard-worked mechanics*—who have subscribed of our earnings by the sweat of our brows, to perpetuate the memory of a truly "Illustrious Irishman." I heartily endorse your noble protest—"we do most emphatically protest against sending £10,000 out of the country for the execution of an undertaking which, above all others, should be THOROUGHLY NATIONAL;" and to this protest you append the remark, "as the monument originated from Irish hearts, so it should be sculptured by none but truly Irish hands." I have been informed, on good authority, that a meeting of our citizens, of all classes and creeds, will be called in the course of a week or so, at which meeting the question of the necessity of fostering native talent will be fully discussed, and, as its result, an impression made on the gentlemen forming the Monument Committee. While putting these few lines together I have before me the *Irish Times* of Tuesday last, in which I find a letter signed "X.Y.Z." The *alphabetical* writer, after echoing your national sentiments as to the doings of the Committee in reference to the statue, concludes his epistle thus:—"Let public opinion now arise in Dublin, and declare that this statue SHALL BE DONE IN IRELAND, while native capacity and native material can supply all that is necessary to insure satisfaction to our own and an unborn generation." I am aware that several bodies are withholding collections made amongst their members until they learn the final decision of the gentlemen who have been entrusted with this important matter. I can tell you that the working men are prepared to subscribe still more, in order to do honour to their countryman. Knowing that your journal circulates amongst high and low, is my excuse for asking your insertion of this. ONE WHO HAS NO "CARD."

## Public and Private Works.

Extensive premises in Main-street, Loughrea, have been taken by the National Banking Company, and are to be converted into a building suitable to their business. It will be in the Italian style. Mr. W. F. Caldbeck is the architect; Mr. Joseph O'Brien, builder. The cost will be about £2,000.

The new Catholic Church at Eyrecourt is drawing towards completion. The style is Early English. Its dimensions will be:—Nave, 85 × 24; sanctuary, 22 × 20; transepts, 30 × 20; with a chapel on either side of sanctuary 15 ft. square; also a sacristy. Tracery windows in transepts, and a large five-light in sanctuary. The roof open timbered, stained and varnished. There will also be a bell-tower, a porch in cut stone, and a baptistery. The cost will be about £1,700. Mr. Joseph O'Brien, builder.

On Monday, the 4th inst., the foundation stone of a new Baptist Chapel at Carrickfergus was laid by M. R. Dalway, Esq., J.P.

A Baptist Chapel is to be erected at Belfast. Plans, &c., at office of Mr. Hastings, Victoria Hall.

The additions to the Hardwicke Fever Hospital have been completed. They consist of wards and nurses' rooms. Mr. William G. Murray, architect. Mr. Freeman, contractor.

The works of St. Andrew's Church, Dublin (which were delayed for some time, pending alterations in the original designs, and the prospect of the supply of funds to carry them out in their entirety), are now progressing satisfactorily. The view we gave in our number for September 1st, 1860, will be found correct when the building is complete.

For the building of the Downpatrick Lunatic Asylum, from designs by Mr. Smith, there were twenty-six estimates sent in. They ranged from £52,000 to over £70,000. We understand that the Board of Control require such a modification of the plans as will bring down the expenditure to about one-half of the lowest estimate; when such has been done, the Board, we presume, will advertise for new tenders.

## General Items.

On the Manchester, Sheffield, and Lincolnshire Railway, a luggage train of 30 or 40 wagons became detached in consequence of the breaking of a coupling chain while ascending an incline, and ran back a distance of 20 miles, until brought to a stand on coming to a second incline. No damage was sustained.

The attendance of visitors at the National Gallery of Ireland during the week ending 9th July, was 2,523. Total since the opening on the 1st February last, 128,569.

The steeple of St. Patrick's Cathedral, now in course of repair, is 120 ft. high; the spire by which it is surmounted is 101 ft.—total, 221 ft.

A beautiful and picturesque grotto has been erected and tastefully laid out in the vicinity of Newcastle, county Down. Into this will be conducted the waters of the Chalybeate springs found on the demesne of the Doonard Lodge, the seat of the Annesley family. Newcastle has long been famed as a watering-place.

An earthquake pendulum is rather a startling instrument, but it is in use by Mr. E. J. Lowe, the astronomer of Highfield House, near Nottingham, who by its means lately witnessed "a sensible movement of the earth from W.N.W. to E.S.E.," succeeded by "an almost constant movement," though less "sensible," for the space of two hours during the following midnight.

The eminent "seven-monster-housed" firm of Fortune & Co. announce that on tomorrow, the 16th, they will be prepared to supply the "Second" Class Refreshment Rooms of the International Hotel at Bray, they having made arrangements with the Directors of the "Royal Marine Hotel Company of Kingstown (Limited)" for that purpose. The Messrs. Fortune say in their advertisement, that "we shall be prepared to prove that although called the Second Class, it shall not be inferior to the First." Truly, "opposition is the life of trade." The gentlemen above-named have spared no expense on the decoration of their "monsters," and we believe have invariably encouraged Irish talent thereon.

The French Vice-Consul for Rhode Island has applied for a patent for a railway to be worked by atmospheric force upon inclined planes of wire suspended in the air. He proposes to apply it to street railways, for crowded thoroughfares in populous cities. [What next?]

A nugget weighing 46oz. was found recently at Mount Moliagul, Melbourne, by a man who was crossing a small gully on his way to his place of work. The finder was in very indigent circumstances at the time.

On the 3rd instant, the new church erected for the Protestant inmates of the South Dublin Union Work-house was opened for Divine service. The church, which is capable of accommodating 500 persons, is very tastefully finished. It is a Gothic edifice, and is the only church of the kind in Dublin, the walls of which inside are unplastered brick. The front of the edifice is faced with limestone, relieved by pillars of Caen stone. At the end where the Communion Table is placed the Ten Commandments are displayed in golden letters on plate-glass. The reading-desk and pulpit are at either side of the Communion Table, and a little in front. At the other end of the church, above the principal entrance, is a gallery for the children, the light to which is admitted through stained-glass windows. Beneath the gallery is a pew for the master and the matron.

The Mining Company of Ireland, at their last half-yearly meeting, declared a dividend at the rate of 22½ per cent. free of income tax.

We understand that the Newry Iron Foundry will shortly be re-opened by a company, under the Limited Liability Act, with a capital of £20,000.

## Miscellaneous.

A MEMORIAL GIFT.—In memory of General Nicholson and others of her children who served their country and died in India, Mrs. Nicholson has caused to be erected in Lisburn a spacious school-house, chiefly for the purposes of a Sunday-school. The area of the room contains 2,200 square feet, and all the furniture and decorations were provided at the charge of this munificent lady. On Tuesday evening, the 6th inst., the schoolroom was crowded to hear the Rev. Dr. Drew's inaugural address, in the course of which he entered into details connected with the origin of the building, and quoted from the Parliamentary report, testifying to the great services of General Nicholson, in which is said that, had it not been for his wisdom, decision, and bravery, Delhi had never fallen.—*Belfast News-Letter*.

The *Morning Star*, March 7, 1861, speaking of Benson's Argentine, says:—"It must commend itself for its cheapness, as well as for its similarity to the more precious metal." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz.—spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H.R.H. the Prince of Wales.

HOW TO MAKE A FACSIMILE OF A LEAF IN COPPER.—To perform this interesting experiment it is necessary to be provided with a common galvanic battery. The process is thus stated:—Soften a piece of gutta-percha over a candle, or before a fire; knead it with the moist fingers upon a table until the surface is perfectly smooth, and large enough to cover the leaf to be copied; lay the leaf flat upon the surface, and press every part well into the gutta-percha. In about five minutes the leaf may be removed, when, if the operation has been carefully performed, a perfect impression of the leaf will be made on the gutta-percha. This must now be attached to the wire in connection with the zinc end of the battery (which can easily be done by heating the end of the wire, and pressing it into the gutta-percha), dusted well over with the best black lead, with a camel's-hair brush—the object of which is to render it a conductor of electricity—and then completely immersed in a saturated solution of sulphate of copper. A piece of copper attached to the wire in connection with the copper end of the battery, must also be inserted into the copper solution, facing the gutta-percha, but not touching it; this not only acts as a conductor to the electricity, but also maintains the solution of copper

of a permanent strength. In a short time the copper will be found to creep over the whole surface of the gutta-percha, and in about twenty-four hours a thick deposit of copper will be obtained, which may then be detached from the mould.—*Boy's Monthly Magazine*.

ANCIENT IRISH ORATORIES.—When Christianity was promulgated in Ireland, in the fifth century, its immediate professors erected, here and there over the country, a very remarkable class of buildings called Oratories; and of these many yet remain in the remote western parts of the county of Kerry, and in some of the islands off the west coast. These structures are small, and almost invariably rectangular in plan, though one of them on Church Island, in Lough Currane, at Waterville, in the county of Kerry, is rectangular within, but of a broad oval shape without. They are built of dry masonry, the stones being carefully fitted together, and sometimes bearing indications of having been dressed. The walls, which are usually without foundations, are very thick, and those forming the sides of the building converge rapidly from the ground, each stone overlapping the one beneath it till the edifice was closed at the apex by a row of single blocks. In one instance the gable walls converge almost as much as the sides, thus giving to the structure a singularly quaint appearance. The door-ways, which are invariably flat-headed, with converging sides, are placed in the gable facing westward, the lintels and sills being formed of very large blocks. The gables facing eastwards are pierced by a small window or narrow loop, which, in one instance, is semi-circular-headed.

THE SHEFFIELD WATERWORKS COMPANY.—A bill introduced by this company into parliament for the purpose of enabling them to raise additional capital to complete their works and reimburse the sufferers by the late flood, has now passed the House of Commons. The case made out in support of their bill was sufficiently conclusive to procure the unanimous sanction of the committee. The total injury to property was 111 separate pieces, as it were, destroyed; 293 seriously damaged; 4267 slightly damaged or flooded; and the persons who had sustained loss numbered—separate owners of property, 990; occupiers 5,500. Land—seriously damaged, 120 acres; slightly damaged or flooded, 1,197 acres. 70 acres of garden ground were damaged, half a mile of road was washed away, 4 roads were seriously, and 15 slightly injured, and no less than 18 miles of fence wall were washed away. The damage to property was estimated at £145,000, and the "contingencies" were put at £35,000, making £180,000. 480 claims have been sent in for damage to stocks in trade and furniture amounting to £62,000, and there are 200 more to come, which will amount to at least £45,000. The damage accruing from suspension of business is estimated at about £40,000. The total damage was estimated at £327,000, and besides this there were the loss of 238 lives—138 males and 100 females—for which the company were liable under Lord Campbell's Act. In order to meet the claims upon them, the company sought for power to raise £400,000 additional capital. Under their previous Acts they have power to borrow £450,000, but they have only actually raised £366,000. The engineers estimate the cost of the restoration of the Dale Dyke reservoir at £40,000.

ARCHITECTS NOT REQUIRED.—The promoters of the "Foxrock Hotel Company (Limited)" announce their intention of adding to the hotel at present on the Foxrock estate, a considerable number of bedrooms, sitting and other rooms, &c., &c.; and as the comfort of their visitors is to be their chief aim, they say that "no architectural or other outlay is contemplated." With the large capital sought for by the company, surely there should be expected something in the nature of a respectable building, in which to house the gentry patronizing the company, and seeking for health in this rising locality.

## TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.


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# The Dublin Builder.

VOL. VI.—No. 111.

## NATIVE RESOURCES v. EMIGRATION.

 VESSEL has just taken its departure from our port with a goodly freight of emigrants, bound for New York. A vast crowd was assembled on the landing-place as she swung round from her berth; and many a cheer was given, many an eye was wet, in waiving a last adieu to the bone and sinew of our land thus taking their departure. And yet this scene was but one out of many, almost of daily occurrence; for the decks of our steamers are crowded with groups of stalwart labourers and mechanics, bound for Liverpool, the great capital of the maritime world, where vast liners are waiting to bear them away thousands of miles from parents and friends—from the home and from all the associations of their youth.

The fields are as fair at home, and the sun shines almost as bright, as in the distant land where they are going. The genial warmth of summer, and the rain in due season, are bestowed upon our island with as bountiful a hand as ever they have been elsewhere. Let those who are inclined to turn a discontented eye upon the land that gave them birth take an excursion trip down the line of the Dublin, Wicklow and Wexford Railway, just skirting the headlands that terminate a bay unrivalled in beauty; then amongst the luxuriant waivings of mountain and valley scenery, now clad in all the richness of summer foliage; through the far-famed valley of Ovoca, where the fairy-like romance in which Ireland's greatest, sweetest bard has clothed it is now strangely disturbed by the incursions of the plain, business-like mineral railroad, the shriek of locomotive, and the smoke of the engine-chimney, as it heaves up the ore from the pit some hundreds of fathoms down, and sends forth poisonous streams that intermingle themselves with the "bright waters;" and then into the less romantic, but equally fertile fields of the Co. Wexford; and we question if there is anywhere to be witnessed a fairer scene, or one more rich with abundant promise. We hear many a boast of the gold fields of Ballarat or Nelson, but our own fields are rich with the golden hue of harvest. If, then, we may safely contend that our own country is second to none in the munificent gifts of Nature, what infatuation is it, we are led to ask, that induces so many of our hardy workmen to forsake their native soil, and, overlooking the natural advantages with which their country is endowed, to inflict upon it irremediable injury by the withdrawal of their own power and strength? There can be no doubt that in some new settlements there is a great demand for labour, where abundant provision has to be made for the necessities of life before comfort or luxury can be even dreamt of, and where the wages of the work-

man are high in proportion to the great demand that exists for the work which he can execute; but what inducement, or rather, what insane delusion, can there be to draw the sons of our soil to America, where even the very lowest grades have been paralyzed by the mighty convulsion that has shaken that great Continent from north to south, where the devastating demon of war has shed a universal blight over the hard-earned fruits of peaceful industry, and where the savings of the settler, amassed from the toil of many years, and the important capital of the newly-arrived immigrant are engulfed in one common ruin? We would be sorry to be harbingers of evil to those who have left our shores with such glowing hopes, or to cast an additional shade of sorrow over the hearts of the affectionate relatives whom they have left behind, and who will, no doubt, be looking forward with anxious anticipation to the receipt of good tidings on their arrival at their destination, or perhaps to the moment when they also will be enabled to cross the great ocean, and rejoin those who are most dear to them; but we have grave fears that our emigrants to Yankee-land may, sorely against their will, be made more closely acquainted with the musket and bayonet and the cartouch box, than with the sickle and ploughshare. Why will they not look at home and see that there is just as much scope for industry, skill, and energy, as upon any foreign soil? while for the sensible and steady workman there is far more to encourage him in his labour, and to soothe the dull monotony of a life of toil. There he is far away from his friends and the home of his youth; here he has the memory of old scenes, associated with localities still present, and the association of old faces still crowding around him; there, if fortune smile upon him and success crown his efforts, he will still have a lingering yearning after his fatherland, and it will be his one constant desire to see his affairs finally settled, and return home; here, if he conduct his business prudently, and fortune smile upon his endeavours, as with prudent management and conduct she always will, his life will pass over calmly and tranquilly from youth to age, without a want and without a care.

And yet, if the Irishman will but look at home, there never was so much encouragement, never such a prospect of honest industry reaping its reward as there is at present. While other countries are distracted, and their resources consumed by intestine tumults, the olive branch of peace waves securely over our land, nor is there any likelihood of its being disturbed. Never was the progress of art, industry, and manufacture in Ireland, which it has been the peculiar province of the DUBLIN BUILDER to record, been so strongly worked as during the present year. The gradual extension of railway communication through the country has given additional stimulus to labour, and has greatly increased our exports. Even under a depression that existed during the last few years, owing to peculiar circumstances, our railway returns have presented a favourable account; and the reports of two companies, that of the Grand Canal Company,

published some months since, and of the Mining Company of Ireland, which appeared in our last number, have given a narrative of extraordinary prosperity. The Royal Dublin Society's Exhibition of Irish Manufacture has done much to show the great resources which our country possesses; and we confidently anticipate that in the more general exhibition of next year we may be enabled to prove that we are in that respect fully as abundantly supplied as other countries.

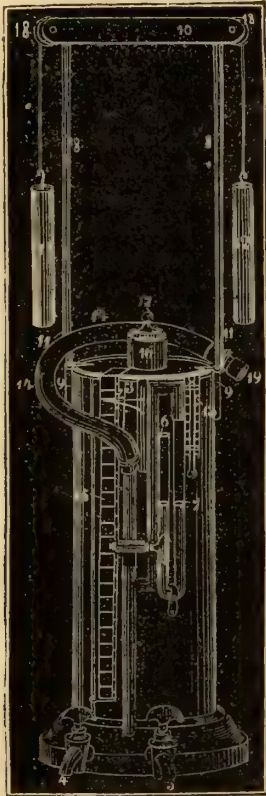
But we want our countrymen to be steady—we want them to be peaceful and industrious, and not disposed to expend their earnings on pernicious pleasures or on reckless extravagance. Our country is not sensibly different from England either in soil or in climate; yet what is the reason that the English mechanic is often enabled to live in comfort, and hold a respectable position, while his Irish fellow-workmen too often wear the garb of downright indigence? We can attribute it no other cause than that the Englishman is endowed with a steadiness of character which our Irish countrymen are, unfortunately, not possessed of. We are too fond of pleasure—too apt to spend the hard earnings of many months upon some transitory gratification. The Irishman thus finds himself penniless when the first period of transitory depression arrives, when he might have weathered the storm in safety by "laying by for a rainy day." He then finds fault with his native land, lays the blame on everything but his own imprudence, and finally sets sail for America or the colonies. By doing so he will gain but little, for he will find that if labour is at a higher premium, it will be so much the harder, and there will be no room for imprudence there. We therefore most earnestly exhort our countrymen, before taking such a momentous step, to look well before them, to consider the accounts which are being daily sent home from the colonies, and especially from America, and above all, not for their own sakes alone, but for the sake of that country to which they bear the same relation that the soul does to the body—its energizing and animating power—and which, if they forsake it, must become peopled by strangers, to consider if it is not within themselves to do quite as well, or even far better, at home.

## LECTURES ON PUBLIC HEALTH.

THE third of this interesting course of lectures was delivered on Saturday, the 16th ult., at the College of Surgeons, by the Professor of Hygiene, E. Mapother, Esq., M.D. As certain portions of these lectures only treat of subjects that fall within the province of the DUBLIN BUILDER, we should call the attention of our readers to the fact that the account of the first two in our last number consisted of detached extracts merely, and was not designed for a detailed report. A complete report of the whole course, containing, as it does, many subjects of deep interest both to the medical profession and to the public at large, is at present being published in the *Dublin Medical Press*, and will well repay perusal. The following lecture, however, is all through filled with matters so closely connected in their importance that we place it before our readers in full.

## LECTURES ON PUBLIC HEALTH.\*

THE quantity of air we inhale at each ordinary breath we take is most variable, and even an average quantity cannot be positively stated. One peculiar source of fallacy arises from the fact of our breathing more vigorously when attention is fixed on the act. The round number of 20 cubic inches is pretty near the truth, and it is worthy of note what a small proportion it bears to the utmost quantity we can inhale. An ordinary man of five feet eight inches in height and ten stone in weight can expire 240 cubic inches from his lungs, as can be shown by this instrument—Hutchinson's spirometer.



The light dry gas-meter I will now use, which, by the way, was manufactured in Ireland, and displayed in our national Exhibition, makes a much more handy and truthful instrument. The greatest amount ever expelled—464 cubic inches—was by an individual whom I might call a giant, as his height was seven feet and his weight was twenty-two stone, and the least—46 cubic inches—from Don Francisco the dwarf, who was but twenty-nine inches high and forty pounds in weight. The instrument is very reliable in examining lives for insurance, as any wide departure from the normal standard is indicative of some obstructive disease of the lungs, preventing their full expansion. The amount of air breathed in varies remarkably with the dress of the body; thus a man was found to breathe nearly one-third more air when his ordinary clothing was removed from him. When such are the effects of our loose habiliments it cannot be necessary to descant upon the evils of tight-lacing.

The amount of air required depends, then, on physiological data, which are not by any means positively settled. An ordinary man, I have stated, breathes in about 20 cubic inches of air about eighteen times per minute, but as every fifth inspiration is more vigorous, the round number 400 cubic inches seems to me a fair amount to assign as the quantity each man breathes out per minute, equal to 24,000 cubic inches per hour. Fresh air contains, as we have before seen, but 0.4 per 1000 of carbonic acid; that which has been breathed contains 40 volumes per 1000, or 100 times as much, besides many more noxious ingredients, which we will for the present exclude from consideration, as the carbonic acid is so much more readily measured. Now, to dilute the air expired by one man in an hour, so that it shall contain but its just proportion of carbonic acid, there must be added about 1660 feet of fresh air. The Commissioners who investigated the state of the barracks some years since recommend but 1200 cubic feet per hour for the rooms. The permanent regulations in the military service merely regard space per man, and allowed the following:—In barracks, 600, in huts, 400, in home hospitals, 1200, or in those on foreign stations, 1500 cubic feet. The French commission on the subject recommended 5000 cubic feet per man in hospital during any epidemic. Allowance should be

made for the abstraction of oxygen and addition of carbonic acid, which lighting agents produce, and calculations may be made on the datum, that one cubic foot of coal gas produces two cubic feet of carbonic acid, and will require thus about 1800 cubic feet of air to dilute it down to a standard not injurious. An ordinary candle, six to the pound, will produce about an equal quantity of carbonic acid and much watery vapour. I may here mention that the unconsumed smoke of a smouldering candle is as hurtful as it is unpleasant; and a death has resulted from its poisonous effects. Some half-intoxicated fellows, for the purpose of teasing a boy who lay asleep in the corner of a room in which they were drinking, held a smoking candle under his nose for intervals during half an hour, when he became insensible, and he died with convulsions on the third day. Such effects of aerial poisons will not surprise us when we remember the immense surface which our lungs present, nearly 200,000 square inches, which rapidly absorb them, and the sickening and disgusting odour of the concentrated emanations from the lungs of several people will never be forgotten by any one who has had occasion to perceive it while arranging the outlet on the roof of a crowded building.

In approaching the subject of ventilation, I feel by no means confident that I shall not disappoint many of my hearers, for I shall be very brief, thinking that upon no subject has more been uselessly written and more ingenuitously wasted. In saying this I do not for a moment undervalue the advantages of fresh air, as will indeed be apparent from my preceding remarks; for the contrary, I look on all rooms, hospital wards, &c., as positively injurious to health unless the air in them be as inodorous as that of the free atmosphere about them. I do not, however, anticipate that the contrast between town air and country air, to which Milton alludes, will ever disappear:

"As one who long in populous city pent,  
Where houses thick, and sewers annoy the air;  
Forth issuing on a Summer's morn' to breathe  
Among the pleasant villages and farms  
Adjoined, from each thing met conceives delight."

We have seen that Nature's provisions for the removal of foul air were among the most perfect and plainly beneficent of her wondrous works, so that in constructing means for the exit of air which has been breathed we have but to endeavour to copy her. And the devices which animals instinctively adopt for the like purpose are equally interesting and instructive. Let us study, for instance, the operations of the bees, to whom the work of ventilating the hive has been entrusted. The air can only enter at the door, as all the rest of the hive is plastered with propolis, a waxy matter with which the bees make their hives air-tight. There are gangs of from ten to twenty working bees each, according to the heat of the weather, stationed at the entrance, who ventilate the hive by vibrating their wings with great rapidity, and each gang is relieved when on duty about half an hour. If a greater need for air be excited, as when they are roused by shaking the hive or letting in to it some disagreeable vapour, the number of ventilators and the efforts of each are greatly augmented.

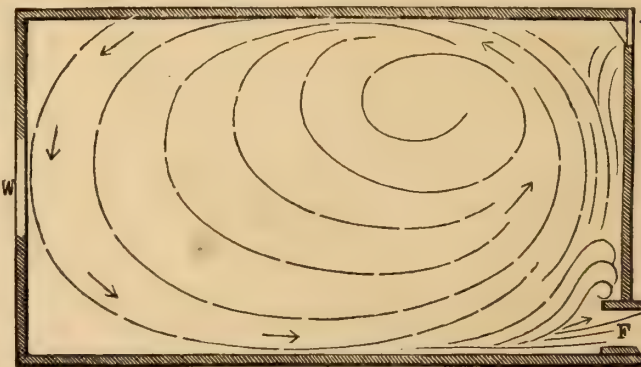
That most appalling of all calamities due to ignorance of the want of fresh air, the suffocation of nearly one hundred passengers on board the steamship "Londonderry," which must be fresh in the recollection of many of my hearers, is the only instance of the fatal effects of total want of ventilation I shall

allude to. This vessel left Sligo for Liverpool on the 2nd December, 1848, and stormy weather coming on, the captain forced the two hundred steerage passengers into their cabin, which was eighteen feet by eleven, and seven feet high, thus allowing but seven feet of cubic space for the breathing of each person. The captain now battened down the hatches, and lest a breath of air should enter, covered over the entrance with a tarpaulin nailed down. An indescribable scene of horror followed, and when the mate came to the cabin seventy-two were already dead, and several others were expiring with fearful convulsions, and with blood starting from their nostrils, ears, and eyes. They were thus condemned to a death more horrible than if the ship had been submerged, through the captain's ignorance of the value of fresh air, which was separated from them by an inch or two. With a calamity so recent before the minds of ship captains, we would suppose no death from similar cause would ever again occur; but in a schooner lying along our quays last February, a sailor was smothered for want of ventilation in the fore-castle. In contrast with such cases remember the beneficial effects of ventilation in the saving of human life, as in the following instance:—During the twenty-five years following 1758, when the Rotundo Lying-in-Hospital was founded, 17,650 infants were born alive; 2,944 died, or about 1 in 6. The hospital, which up to this time was unventilated, was altered so as to allow a free supply of air; and for the following twenty-five years but 550 out of 57,072 died, or 1 in 104.

The objects which we are to accomplish by ventilation are as follows:—To remove all noxious gases produced by combustion, overcrowded respiration, imperfect sewerage, or by decomposing animal or vegetable matter, from our apartments, and to equalize their temperature and humidity. By ventilation there must be removed entirely, or at least diluted below an injurious degree, the 960 cubic inches of carbonic acid and the two and a-half ounces of watery vapour and animal matter exhaled by each inmate every hour. This latter quantity is given off by the skin and lungs, and becomes increased considerably by the higher temperature which want of ventilation produces. The amount I have stated was estimated by Lavoisier's well-known experiment. He enclosed his body in an air-tight bag and breathed into another, and he found that eleven grains were given off every minute from the skin and seven from his lungs at 60°.

If one reflected that in a close crowded assembly we are breathing over and over again the air which has passed through the lungs of many other persons, carrying from each noxious decomposing matter, that fastidiousness which makes us refuse the drinking vessel which the lips of another has touched, would suggest to us the advantages of clean air.

The different density of cold and heated air produces a constant circulation in the atmosphere of any room, and unless the generation of carbonic acid be very rapid and abundant, as when the space is greatly overcrowded, it will be in this way pretty equally distributed. These currents in a room warmed by an open fire can be demonstrated by weighting a small gas-balloon until it is exactly of the same specific gravity as the air, and when let loose it will move in the circles sketched in this diagram of a room with a ventilator, window, and open fire-place.



It will be remarked that there was a current towards the chimney and the ventilator, and that an eddy was produced above the chimney-piece. These latter rapid movements can be best shown by the fumes produced by holding a sponge dipped in hydrochloric acid and held over a saucer filled with ammonia.

Having explained a few of the principles on which exchange of air depends, I will bring under your notice a few methods of ventilation, natural and artificial. Among the first rank, windows, doors, fireplaces, and the permeable structures of which our walls, ceilings, and floors are constituted.

In mild weather there is no ventilator so efficient as the window left open a few inches at top and bottom, especially the former, to allow the heated air to escape. In very cold and boisterous weather it is impossible to follow this advice unless some adjustment be made to prevent the external cold from acting too freely on the interior, and this can be accomplished by double sashes or panes, with about six inches of air intervening, which acts as a non-conductor of the low temperature. Strong draughts may be prevented from entering by having a louvered pane with each slip acting on hinges, so that the

amount of open spaces may be regulated. A piece of fine copper gauze, about nine or twelve inches deep, fixed at the top of the window frame, makes a good inlet, and that which is known as Cooke's ventilator, and for the sale of which the "Ventilation and Sanitary Improvements Company" was established, consists of copper gauze fitted to the top of the case and bent at an angle of forty-five degrees. It may be so arranged by hinges along the angle that it will fold up when the window is shut, but it is less likely to go out of order if stationary. The gauze finely divides the current of air, thereby preventing draught, and

\* By E. D. Mapother, M.D., Professor of Hygiene, and Medical Officer of Health for the City.

excludes the coarser mechanical impurities, as dust or insects. The object of the angular shape of the ventilator is that the upper half shall let out the heated air and the lower admit the fresh; and I have found that there is a difference of about twenty degrees in the air which passes through each when a room is heated. Mr. Thom's Greer of this city has obtained a patent for a ventilator on a similar plan, save that it is stationary, semicircular in shape, and draught is prevented between the sashes by india-rubber pads. I may show you that gauze prevents draught by blowing through a tube against the flame of a candle when it is scarcely affected if this piece of wire gauze intervenes. This is a model of Greer's ventilator fitted to a window.

I am an advocate for leaving a small portion of the window of bedrooms open during the night, except in extremely cold or rough weather, and perhaps even then with the arrangements above alluded to, and with a due regulation of the clothing. I know that during night less air is required, as carbonic acid is generated much less freely, and that the body is particularly apt to chill; but I am averse to remaining in such air as the nose perceives, when, in the morning, you enter an ill-ventilated bedroom. Moreover, in large manufacturing towns, the air is less polluted by smoke during night. There are some who object to regarding windows as ventilators on the score of their being constructed for another purpose; but so far from depreciating their usefulness in admitting light I would urge that, we do not enjoy the benefits of light as much as our French neighbours; for although in Dublin we do not suffer like London from a murky atmosphere, the high ill-constructed houses overshadow the humbler ones, the windows of which are so dirty as to act as efficient sunblinds. Light, besides its delightful cheerfulness, is useful in promoting the destruction, by oxidation of organic matter in the air; and I believe that the cellar-grown man is blanched by the same unnatural want of light as is the underground plant. The limited window space of English houses is one of the ill consequences of the tax which reflects no lustre on the name of William Pitt.

A fire-place is a good ventilator, especially when the fire is burning, when it draws off several thousand cubic feet of air per hour. They are, however, made now so low that they merely ventilate the lower stratum of the air. Their superiority over the hypocaust or hot flue system was tested some years ago in St. Patrick's Hospital in this city, for the mortality was greatly reduced when ordinary fire-places were adopted with proper guards. It was the celebrated Benjamin Franklin who suggested the insertion of an aperture in the flue, near the ceiling, when describing his famous Pennsylvania fire-place in 1744.

"In rooms where there is much smoking of tobacco it is also convenient to have a small hole, about five or six inches square, cut near the ceiling through into the funnel; this hole must have a shutter, by which it may be closed or opened at pleasure. When open there will be a strong draught of air through it into the chimney, which will presently carry off a cloud of smoke, and keep the room clear; if the room be too hot likewise, it will carry off as much of the warm air as you please, and then you may stop it entirely or in part as you think fit. By this means it is that the tobacco smoke does not descend among the heads of the company near the fire, as it must do before it can get into common chimneys."

Doors are ventilators, as you can prove by taking a candle in a close-heated room; if you place it at the chink above, the flame will be blown outwards, at the bottom inwards. The air, however, so admitted may not be the freshest, having been used below stairs and sent upwards by its being heated. You will be surprised to hear that even through bricks much interchange of gases takes place; and the unwholesomeness of closely-jointed iron houses has been assigned to the difference. Ceilings of old houses often show that a passage of air carrying dust with it occurs through them, for under the large wooden rafters, where no passage occurs, the colour is lighter, no dust being fixed into the plaster. Of artificial systems of ventilation I shall mention but few. That which Miss Nightingale most strongly recommends for hospitals, consists in shafts built in the wall opening near the ceiling of the room, where it is louvred to prevent down-draughts, and a turret projects from the roof so as to carry off the foul air. In an opening in the opposite wall should be fixed one of these Sherringham's inlets, which, having one side hinged,



Sherringham's Ventilating Inlet.

can be arranged to let in any quantity of fresh air. This simple plan is here depicted. The sectional

area of the shaft should be in proportion to the size of the room, and one inch for each 50 cubic feet on the

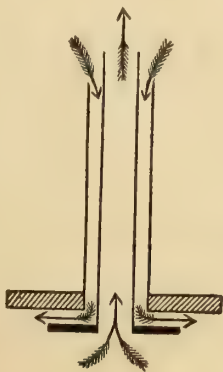


Section of Ventilated Ward.

top floors, and 60 on the lower would suffice. Fresh air might be introduced from a space below the floor of hospital wards, and admitted into them by fine wire gauze set near the beds.

The late Dr. Reid advised that air for buildings should be taken from a height, as it would be purer, and this was done at Guy's Hospital, where a shaft ninety-five feet high is erected, and at the bottom the air is warmed by means of hot water. Such air would be free from sewage gases. Of ventilating roofs or ceilings, one of the most beautiful is that of the Alhambra, at Granada, into which there are set several exit tubes of graceful shape. In public edifices the roof, if somewhat conical, should have attached at the highest part the ventilating outlet. A principle on which many ventilators depend was first illustrated by Prof. Daniell with the experiment I shall now show you. I place this lighted taper upon a flat dish, and I place over it this glass receiver, from the top of which extends a glass lamp chimney. You see that air enters under the receiver as the surface of the dish is not perfectly fitted to it, and the candle burns away, the arrangement resembling a room with air admitted below and an outlet above, now I turn the vessel to one side, and the flame deposits much soot on the side, and the unburned products causes the flame to get dim, and it will finally go out. The experiment now resembles a room in which the outlet does not occupy the highest place. If I pour a little water into the dish, so as to prevent the entrance of any air below, the candle you will find will become extinguished as the efforts of the hot air to ascend and the fresh to descend through the chimney will mutually counteract each other. Now I will divide the chimney into two by a slip of tin, the hot and cold air will each select a passage, and the taper will burn brightly on. This bit of smouldering paper will show by its smoke being forced upwards that the hot air is ascending through this half, and now by its being drawn inwards that the fresh air is rushing down in this. Watson's, Mackinnell's, and Muir's ventilators are applications of this principle; but as our experiment shows, they cease to act when by an open door or window the air is admitted below.

As an instance of the efficacy of such tubes as Mackinnell's, which is represented in this woodcut, I may mention that by them the Chapel Royal, St. James', during the marriage of the Princess Royal, though filled with 1500 people, was thoroughly ventilated and kept at a temperature of 58° for five hours.



Small tubes carried from the ceiling of each room in a building, and opening into a larger pipe conducted to kitchen flue, or any larger flue which may be near, are most effectual in ventilating. A building called the "Barracks" in Glasgow, containing about 500 of the poorest lodgers, was so infested with typhus that

57 cases occurred in two months before it was ventilated. Such a system of tubes as I have alluded to was adopted, and but four cases of fever occurred in the eight succeeding years.

All artificial ventilating apparatus will fail if worked by hand, for workmen, not realizing the danger of aerial poisons, will neglect them. In factories, however, where steam power can be applied, some means of producing free currents, like Fairbairn and Lillies' four guinea fan, does immeasurable good. Its effects were illustrated in a mill near Manchester, in an unexpected way—namely, by the men asking higher wages, their appetites having increased with the use of pure air. In soap-boiling houses, and such places where fetid animal vapours are emitted, the foul air should be made to pass through and feed the fires, as devised by Sutton.

The introduction of fresh air, the expulsion of foul, the heating in winter and cooling in summer of the Houses of Parliament are now achieved by the following means, devised partly by Dr. Reid and partly by Mr. Gurney. The fresh air, filtered by screens as it enters from the courts, is heated by passing over iron chambers filled with steam, under the floors in the mixing spaces, and then ascends through perforations in the floor, which are covered with horsehair cloth to prevent a perceptible stream. In summer the air is cooled by wet cloths being placed about the iron chambers, and by spray jets, which, by producing abundant evaporation, cool it, supply the proper degree of watery vapour, and free it from much of the putrefactive odour derived from the river during very hot weather. The foul air escapes through the roof, and is thence conducted to an enormous coke fire and chimney in the Victoria Tower. In 1858, however, the stench from the Thames became so great that canvas, wet with chlorides, had to be fixed to the windows, and this failing, the air had to be obtained from the level of the belfry, two hundred feet high, and then passed through a large room containing fresh-burnt charcoal, which has such a wonderful power of absorbing gas, and by its powerful oxidizing property the effect of checking putrefaction of organic matter.

Methods of ventilation by propulsion of the air into the building have had many advocates, and one of them has been adopted in that splendid building St. George's Hall, Liverpool, where, however, the most enthusiastic admirer of fresh air must admit ventilation is excessive occasionally. A gentleman who dined there some time ago on the occasion of some public festival, informed me that the table-cloth was with much difficulty kept on the table, and few escaped without colds or toothaches.

The ventilation of coal mines is now managed by a large aspiring shaft, and has become so perfect that the health of the miners is most perceptibly improved. In copper and lead mines most injurious effects are still produced; for as there is no danger to life or property by such explosive gases as are generated in coal mines, the proprietors are more negligent in adopting means of ventilation.

All the modes of renewing the air we have alluded to depend on making a partial vacuum; but a plan which may in contradistinction be called the "plenum method," and which first occurred to the wonderful mind of Robert Boyle, may be mentioned. It proposes to condense by pressure the air in the room, and it was said to increase the facility of breathing and to exhilarate all the functions. Like many other queer ideas, it has attracted the greedy charlatan, and an establishment in Yorkshire, Ben Khyding I think it is called, has been got up for the cure of many diseases. I must in candour state that the late Dr. Hunt, formerly one of my most intelligent pupils, was a firm believer in this compressed air for pulmonary symptoms, which he laboured under. The last plan I shall allude to is that described and figured by the Commissioners on the Warming and Ventilating of Buildings, and also in Tomlinson's most excellent manual on the same subjects. The fireplaces are directed to be arranged back to back in a partition wall. The chimney should be made of vitrified clay-pipes, about ten inches in diameter, and outside this there should be another space into which opens apertures from near the ceiling of each room to let out the foul air. Air to feed the fires is to be admitted from without through air bricks and carried along the floor to below each fire. This plan may appear complicated and expensive, but it will not be really so, if arranged during the building of the house.

All means for ventilating public buildings will, however, be abortive if overcrowding be not prevented, especially of those who are inattentive to habits of personal cleanliness. There are few situations more insufferable from closeness than a dense crowd, even if in the open air, and as an engineer once remarked to me when discussing the ventilation of a building which was referred to us, "It wouldn't be fully ventilated, even if the roof were taken off, if it be crammed with the great 'unwashed.'"

Until legal enactments were passed to compel the smoke of factories to be consumed, the atmosphere

of London and many manufacturing towns could not be said to be transparent, owing to the soot with which it was charged. There is now, however, the greatest improvement in this respect. It was calculated some years ago that the London people had to spend annually two and a-half millions more for washing than an equal number of country families. Such improvements will also lead to freer ventilation, for it used to be objected to windows opened that they deluged the rooms with smuts. The cheap and simple ventilators which I have often urged should be inserted into the outer wall of every room occupied by the poor—namely, plates of finely perforated zinc near the ceiling would have the additional advantage of shutting out much smut or dust.

Although I estimate at the highest Nature's disinfectant, pure air, I think it foolish to decry all others. The distinction between deodorants and disinfectants should be clearly understood, for I feel sure the former are always hurtful. The burning of spices and perfumes to remove the effects of foul air, as practised by the Greeks of old, and by many to this day, seems to me as senseless an act as for the ostrich to think all danger avoided when he puts his head out of sight by burying it in the sand. The enemy is only made more insidious and thereby more hurtful. I must warn you, then, against the error of regarding perfumes or deodorants which disguise smells, as in any way antidotal to noxious vapours. Let me read for you Prof. Johnston's opinion of scents: "They are the only resource of rude and dirty times against offensive emanations from decaying animal and vegetable substances, from undrained and untidy dwellings, from unclean clothes, from ill-washed skins, and from ill-used stomachs. The scented handkerchief, in these circumstances, takes the place of the sponge and the shower-bath, the pastile hides the want of ventilation, the otto of roses seems to render the scavenger unnecessary, and a sprinkling of musk sets all other smells and stinks at defiance." I have spoken perhaps at sufficient length on the disinfecting power of the air, by oxidizing organic matter, especially when aided by sun-light, and heat and cold are two other natural agencies which act in the same direction. Fœtid gases are given off much more freely from decomposing animal and vegetable substances in summer than in winter, for cold, as is well known, has powerful preserving properties. In Siberia, elephants of extinct species and dead for many centuries are found in masses of ice, so well preserved as to afford very acceptable food for their dogs; and on the other hand heat is said to be also disinfectant, but it may be merely so by increasing aerial circulation. The contagion of plague is destroyed by a temperature of 120° and this fearful disease does not infest Egypt during the very hottest months. I will now refer, but very briefly, to some of the most reliable chemical substances for artificial disinfection.

Finely powdered charcoal obtained from animal substances, peat or wood, has great disinfecting influence upon organic effluvia, and it should be hung in bags through the place which it is desirable to purify. Peat charcoal, so readily procurable in this country, is the most inexpensive and efficient, and by Dr. Stenhouse has been applied in situations ranging from sewer-traps to respirators. Dried earth is said to have similar but much more feeble powers. Lime is useful in removing carbonic acid and the watery vapour which contains the organic matter. Whitewashing is so desirable in point of cleanliness and cheerfulness that I am sorry to have a word to say in disparagement of it; but as many sanitary amateurs place their whole faith upon it, and seem to think that it supersedes all necessity for any other measure, I should impress on you that its sole action is to absorb carbonic acid, which, however, is not so pressingly necessary, as it so readily diffuses, and in small proportion is not very hurtful. I think a little chloride of lime might be added to the lime with advantage. Condy's fluid is a solution of the permanganate of potash of a beautiful purple colour. It rapidly oxidises organic matter, and many hurtful gases becoming thereby decomposed, the black oxide of manganese being thrown down. Exposed in saucers through a room, or thrown through the air as by a jet, it would very effectually purify the atmosphere, and if sprinkled upon the floor will act in the same way. Sir Wm. Burnett's solution of chloride of zinc is very active for a short time, but it loses its power of absorbing sulphuretted hydrogen, when it becomes acid in reaction. Chlorine gas is a most effectual destroyer of sulphuretted hydrogen, as it rapidly unites with the hydrogen, and precipitates the sulphur in fine powder. The easiest way to evolve it is to mix two tablespoonfuls of common salt, two teaspoonfuls of red lead, and half a wineglassful of strong oil of vitriol in a quart of water. The bottle must be kept cool, tightly stoppered, and in a dark place. A little of this fluid, exposed in a saucer, sprinkled on the floor, or soaked in sheets of old linen and hung about the room, rapidly deodorises and destroys effluvia. Both for disinfecting solids, and air when it evaporates, iodine has been much made use of latterly; with methylated spirit it

can be prepared for about six or seven shillings a gallon. Nitrous acid gas has a powerful oxidizing action on organic matter and on sulphuretted hydrogen, but is objectionable on account of its fumes, which often excite coughing. It is disengaged by heating nitric acid, to which a few copper slips are added in a retort. It is not used as much as it deserves, and in typhus, for the purpose of destroying the animal emanations which constitute the poison of that disease in rooms, or on clothes, no agent is more reliable. Either this gas or chlorine should be plentifully evolved in foul privies, especially during warm weather, and when dysentery or diarrhoea are prevailing. The frequency of these diseases has thus been often diminished.

#### THE EXHIBITION PALACE AND WINTER GARDEN.

IN our number for March 1st we gave illustration of the exterior of the Palace, and in that for June 1st a view of the Winter Garden. The directors of the company purpose holding an International Exhibition of Arts and Manufactures in May, 1865. The buildings (which are now approaching completion, under the able superintendence of Mr. A. G. Jones) comprise rooms suitable for concerts and public meetings, the largest being capable of containing upwards of 3,000 persons; picture galleries, lecture rooms, polytechnic museum, &c.; while surrounding these is erected a structure of iron and glass, 640 feet long, varying from 84 to 126 feet wide, and 65 feet high. The number of superficial feet at present available for exhibitors in the permanent building, exclusive of annexes, is 147,153 feet ground space, and 105,469 feet wall space. In a building thus extensive and diversified in construction, opportunity will be afforded for displaying to advantage, and without risk of injury by exposure, the various products of the world, in a manner not hitherto realised. Many circumstances seem to favour the proposed project. The possession of an appropriate building, before it is devoted to the more exclusive objects of its design, removes one of the great difficulties attendant on periodical exhibitions on so vast a scale. The exhibition will be opened in May, 1865, and will remain open for a period of six months; at its close arrangements will be entered into for keeping the building open as a permanent exhibition, on the plan of the Crystal Palace, Sydenham. Exhibitors who may desire to retain space will be allowed to do so on liberal terms. A special committee has been appointed to carry out the various details; and as every means will be taken within the power of the directors to render the undertaking attractive and successful, it is trusted that all those interested in the various departments of arts and manufactures will aid the efforts of the committee by timely and cordial co-operation.

#### EXHIBITION PALACE AND WINTER GARDEN COMPANY.

THE following is the report submitted to the proprietors at the half-yearly meeting held this day:—

The directors beg leave to report that considerable progress has been made by the contractors, the Messrs. Beardwood, during the past six months. The iron portion of the building is in rapid course of erection, and already presents an imposing appearance. The greater part of the various pipes and machinery, in connection with the ornamental waterworks in the pleasure grounds, is now in position, which will allow the final operations in the gardens to be brought, before long, to a close. Arrangements have been made for the erection of a suitable entrance to the gardens from Harcourt-street, and preparations are in an advanced state for the construction of the railings round the front court of the Palace at Earlsfort-terrace. The directors have further to report that, for a considerable time, their earnest attention has been devoted to the best means of opening the buildings and gardens to the public. The subject having received the board's most mature consideration, it has been resolved to inaugurate the buildings by holding an International Exhibition of Arts and Manufactures in 1865. The success hitherto attendant on this measure has been most encouraging, having already received support from her Majesty's Government, and a promise of assistance from the French Government. A great number of the exhibitors at the London Exhibition of 1862 have also signified their intention to contribute. The directors are of opinion that the financial results of the Exhibition will prove favourable, inasmuch as the cost of the building has not to be deducted from its receipts. A special committee has been appointed to carry out the details, and every means will be taken within the power of the directors to render the undertaking attractive and successful. The 1,230 shares which appeared as unallotted in the last statement of accounts have been taken at par by different members of the board, to be paid for in

full on the 17th September, 1864, a proof of the confidence they have in the ultimate success of the company. The directors trust that at the next meeting of the proprietors they will be in a position to congratulate them on the possession of a noble building, and the near approach of its public inauguration. The following directors retire, but offer themselves for re-election—Henry Andrews, Esq.; Francis W. Brady, Esq.; Maurice Brooks, Esq.; Alderman Campbell, William Dargan, Esq.; David Drummond, Esq.; A. J. Ferrier, Esq. The two auditors also retire, and offer themselves for re-election. LEINSTER, Chairman.

HENRY PARKINSON, Secretary.

#### THE HEALTH OF DUBLIN.

(From the Registrar General's Weekly Return.)

THERE were registered in the city of Dublin, during the week ending July 23rd, 163 births—84 boys and 79 girls. During the same period the number of deaths amounted to 84, or 52 males and 32 females.

There were only 8 deaths resulting from "zymotic" diseases (the weekly average for the first six months of the year being 18)—viz., 1, an adult, from confluent small pox (no information received as to whether this person had been vaccinated), 3 from fever, 2 from rheumatism, and 1 each from metria diarrhoea.

Under the head of diseases classed as "constitutional," there were tabulated 21 deaths, including 12 from phthisis, or pulmonary consumption, 3 from cancer, 2 each from scrofula and hydrocephalus, or water on the brain; and 1 from tabes mesenterica, or infantile decay.

Thirty-nine deaths were attributed to diseases termed "local," including 17 from diseases of the nervous system—viz., 11 from convulsions, 2 from apoplexy, 1 from paralysis, and 3 from brain disease (unspecified); 4 from heart disease, 15 from diseases of the respiratory organs, embracing 11 deaths from bronchitis, 1 each from pleurisy and pneumonia, and 2 from lung diseases (unspecified); and 3 deaths from diseases of the digestive organs.

Four deaths were referred to old age. Two infants, a child 2 years old, and an adult, were returned as having died from "debility." In two instances the cause of death was ill defined.

The ages of the persons whose deaths were registered during the week were as follow:—39 were under 20 years of age, 9 were between 20 and 40, 20 were between 40 and 60, 13 were between 60 and 80, and 3 were over 80 years of age and upwards.

Four accidental deaths occurred during the week—viz., a child, 2 years old, died from the effects of a burn; and three boys, aged respectively 11, 13, and 14, were drowned in the chamber of the fourth lock of the Royal Canal, having fallen off a boat laden with timber, on which they had been playing (inquests.) An inquest was held on the body of a labourer, aged 45 years, who died from "the rupture of a blood-vessel in the lungs."

The registrar of No. 1 district, north city, remarks that "the neighbourhood of Pardon-street, Ring's-court, and Cromwell's-court is frequently in an unhealthy condition, fever and scrofula being the prominent ailments, and lately small-pox—the air in these localities being frequently contaminated by fœtid effluvia coming from manure-heaps. Fever has shown itself in Blessington-court, the houses there have no back-yards, 14 persons in about two months had fever, and several were sent to hospital; indeed, the back residences of the poor in Lower Mecklenburgh-street, and in the places above-mentioned, require much sanitary supervision."

At the Observatory of the Ordnance Survey Office, Phoenix Park, the mean height of the barometer during the week was 29.840 inches. The highest daily mean reading during the week (30.070) occurred on Sunday, and the lowest (29.541) on Thursday. The temperature was highest on Monday, when the thermometer rose to 80.9 deg., and was lowest on Friday, the mercury having fallen to 48.7 deg. The mean temperature during the week was 64.2 deg. The lowest daily mean (60.5 deg.) occurred on Friday, and the highest (67.9 deg.) on Monday and Tuesday. The mean humidity of the air during the week was .723.

#### MEMORIALS.

THE MAYNE.—A memorial is to be erected by the medical profession to the late Dr. Mayne. Subscriptions (limited to one guinea) are being received for the purpose.

THE WHATELY.—The friends and admirers of the late Archbishop are contributing liberally to the funds for endowment, and for the purpose of erecting a monument to his memory.

THE O'CONNELL.—The foundation-stone of the national monument, which is to be erected in Sackville-street, convenient to Carlisle-bridge, will be laid on Monday next, the 8th instant, by the Right Hon. the Lord Mayor.



J LEWIS LITH

29, DAME ST DUBLIN

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## GRANGEGORMAN NEW FEMALE PRISON.

THE interesting ceremony of laying the foundation-stone of the new Female Penitentiary in connection with the Grangegorman Prison by the Right Hon. the Lord Mayor took place on Wednesday, the 20th ult., at half-past twelve o'clock, in the presence of several members of the Corporation and others interested. The necessity, we believe, for this additional building does not arise from a demand for increased accommodation for inmates, and must not be regarded as a criterion of the state of crime in the city. It is simply for the purpose of more satisfactorily carrying out the discipline of the prison and the classification of the prisoners upon the separate system. This system, as its name implies, consists not in any peculiar mode of treatment of the prisoners different from that at present pursued, but simply in placing the prisoners in separate cells, having no communication of any kind with each other. The cells are constructed in three tiers on each side of the central hall, which is lighted from the top. They are gained by a staircase which communicates with a gallery on a level with the floor of the cells, and running the entire circuit of the hall. Lavatories and other essentials are attached to each row of cells. By this arrangement a person standing at the corridor entering the hall can at a glance perceive all that is occurring before the separate cells and throughout the entire hall. The cells will be much smaller than those to be found in old prisons. They will be well ventilated and heated with hot water pipes running through the walls of the building, and lighted during the day by a well-barred window facing outwards, and at night by a jet of gas. A small bed, a table, and a stool constitute the entire furniture of the apartment. When the inmate requires assistance or liberty to leave the cell he pulls a handle communicating with a gong and a square piece of sheet iron bearing the number of the cell, which when acted upon by the wire springs out at right angles with the wall, so that the goal official sees at once upon entering the gallery where his presence or aid is required. The means by which the prisoners' food is conveyed to them is very ingenious. The kitchen is underneath and an opening in the ceiling communicates with the hall. By means of a pulley, the square wooden trays on which regulated meals are placed, are drawn up to a level with each tier of cells. Here the trays are placed upon a machine moving on grooved wheels resting on the railing of the galleries fronting the cells, so that it can run along from one side of the hall to the other, a turnkey stands on each side of it and pushes it opposite the several cells in succession, laying the food on a small ledge under the aperture of the cell door, the barred slide being drawn back for the purpose of allowing the inmate to take it in. Moral degradation without physical inconvenience, as well as actual punishment cannot be supposed to create a deep impression upon the mind of an uneducated or abandoned individual, whether male or female. The separate system is, therefore, admirably adapted for the purpose of working a reformation. Solitary confinement has always, and no doubt very justly, been considered a heavy punishment in itself. Even suppose there were no qualms of conscience to be contended with, the fact of having ample leisure to reflect uninterruptedly, often, perhaps, with nothing, and generally with very melancholy materials to reflect upon, the effect upon the mind must be dreadfully depressing, and exercise an influence decidedly for good. The new building will be 234 feet long and 45 feet wide, with 120 cells. It will be placed at right angles with the central corridor, and will be three storeys high. A large cistern, capable of containing 10,000 gallons of water, will be constructed on the roof. Baths will be fitted on the ground floor, also a fumigating store and storeroom. The laundries will accommodate 50 prisoners, with the necessary washing apparatus, constructed also on the separate system. The chapel is to be enlarged so as to accommodate 200 persons. The schoolroom will be placed on the second floor, and made so as to accommodate about 50 persons. The estimated total cost will be £7,500, and the work will be completed, it is thought, in twelve months.

Shortly after twelve o'clock the Lord Mayor, attended by his secretary, arrived at the prison, and having repaired to the site of the intended building, the architect, Mr. Edward H. Carson, F.R.I.A., explained the various points and improvements contemplated in the new building.

The Lord Mayor then proceeded with the ceremony of laying the foundation-stone, which, as usual on such occasions, hung suspended by a chain and pulley.

Alderman Bonsall advanced, holding in his hand the silver trowel, on the blade of which was the following inscription: "Presented to the Right Honourable the Lord Mayor of the City of Dublin, Peter Paul M'Swiney, on the occasion of his laying

the foundation stone of the new Female Prison at Grangegorman, July 20th, 1864. Commissioners appointed by the Town Council to carry out the works:—Aldermen Bonsall, Hutton, and Campbell. Town Councillors, A. Sullivan, M. Murphy, J. Jameson, John Draper, Joseph Cassin, William Graham, J. Dunne, A. Sinnott, R. J. Devitt. Architect, Edward Henry Carson, F.R.I.A. Builder, Mr. Henry Quinn.

The Lord Mayor, taking the trowel from Alderman Bonsall, said he received it with sincere thanks, and he would proceed to discharge the duties which devolved upon him with pleasure. From all he could understand of the projected buildings, they would form a very important addition to the Penitentiary. It was designed to be conducted on the separate system. Whilst it would afford, by the intended arrangement, an opportunity of greater care and surveillance on the part of those commissioned to carry out the prison discipline, it would afford greater advantage in point of room, ventilation, cleanliness, and order. Everything connected with the building appeared to be on the most approved plan, as sanctioned by the Commissioners. The schoolroom would be placed on the second floor, and admit of the accommodation of a large number of inmates.

His lordship then completed the ceremony of laying the first stone, after which he declared it duly laid.

## THE CORPORATION AND THE GAS COMPANIES.

THE contract made in 1845 with the Hibernian Gas Company for lighting the city will expire in January next. The rate per lamp yearly averaged £3 4s. 3d., but the company demanded an increase of 8s. 3d. per lamp, and refused to renew the contract at a lower rate. At the final meeting of the select committee of the House of Lords on the Dublin Improvement Bill, Mr. Calvert, counsel for the corporation, said that his clients did not propose to injure existing companies, but sought to put the leaseholders in the position of being able to make long contracts, under which other companies could be induced to start. A short contract was not sufficient to encourage promoters to start a company, or to give an undue advantage to the municipal body. Under the present arrangements the Corporation could only make a contract for three years; though under the old Municipal Act their predecessors in lighting and paving—namely, the Paving Board of Dublin—could enter into contracts for twenty years. It was desirable that the Corporation should have power to enter into contracts with other companies for ten years; the bill was not one for the establishment of a new gas company, or for the exercise of any powers to restrain the existing gas companies.

Mr. Phinn, counsel for the Alliance Gas Company, contended that under one of the clauses in the bill there was an attempt, by a side wind, to give powers for the establishment of a new gas company, under a joint stock company, although his clients had to come to parliament for the establishment of their company. He therefore maintained that the gas companies had a *locus standi*.

The committee closed the room, and on the re-admission of the public the Duke of Buckingham and Chandos said their lordships were of opinion that the companies had no *locus standi*.

Mr. Parke Neville stated that the old Paving Board had entered into a contract with the Hibernian Gas Company for twenty years in 1845. This contract would expire in January, and the new Corporation had not power to make a contract for more than three years. The average price per lamp for gas under the old contract was £3 1s. 3d. a year; but the company refused to make a contract under £3 12s. 6d. The present rating powers of the Corporation for improvement rate was 2s. in the pound, and were not sufficient to pay for an increased charge for gas. The valuation of Dublin was low, being £510,000, according to the valuation made by the Government, and before that time it had been £600,000. The Corporation found that for paving and lighting purposes contracts for three years were too short. The grand jury for the county of Dublin had the power of making five years' contracts. There were only two gas companies in existence in Dublin; but all the public lamps were lit by the Hibernian. If a new company started it would lay from 90 to 100 miles of mains. Not less than £50,000 would start a new company, and no capitalists would undertake such an expenditure for a three years' contract. The Hibernian Company had already received a return for their outlay, and had no claim to a renewal. The Alliance Gas Company could not be prepared to light the city in January, nor any other company than the Hibernian Company. The Corporation must renew their contract for a short time with the Hibernian, pending another company putting itself in a position to compete. He had heard of the

Commercial as a proposed gas company; but not that it was to light Dublin for 10 years. The Corporation had for two years been trying to get such a clause as this now proposed. He did not think that the starting of a third company would increase the rates; on the contrary, their competition would reduce the price of gas. He thought if the screw was put on, the existing company would be more likely to come to terms. He did not think that arbitration would be the most satisfactory mode of settlement. It was not pleasant to the ratepayers to have a street broken up by three companies.

Chairman: How long has the Hibernian Gas Company supplied Dublin with Gas? I cannot say; the contract of 1845 was only a renewal.

Mr. Devitt, T.C., said the Corporation would be willing to renew the contract with the Hibernian Company at the present price for three years. If the clause were passed, the Corporation would come to better terms. Believed there was a thorough understanding between the existing companies, that one was not to interfere in the district of the other. Did not want to establish a new company, nor did the Corporation of Dublin; would be glad to see a new company, or that the Alliance Company competed for the lights. Mr. Stevenson, of the Alliance, had told him that the directors would not think it worth while to do so, if there was not 20 years' contract. A clause had been introduced into the bill to enable the Commercial Company to open the streets for private supply. He had opposed that clause in the Corporation; but it was introduced by the vote of the majority. Lord Redesdale struck it out when the bill came before him.

Earl of Harrowby: Have not the Corporation power to authorize the opening of the streets for main and other pipes, to be laid for public lights?

Mr. Torrens: Certainly.

Earl of Harrowby: Can they give power to parties to open the streets for mains intended for a private supply of gas?

Mr. Torrens: We think not.

Earl of Harrowby: Well, if they cannot, how does this bill give them the benefit of competition? Would any competing company think it worth while to lay so many miles of mains, if they were not to have the right of supplying private lights?

Mr. Torrens said his clients (the Corporation) thought the bill would give them the benefit of competition among companies.

Mr. Phinn addressed the Committee ostensibly for the ratepayers against the clause, which would enable the Corporation to contract for gas with a company which had obtained no Act of Parliament. The ratepayers could not consent to a clause which would give facilities for jobbing.

Mr. Torrens and Mr. Phinn having conferred together for some time, the following clause was proposed and ultimately agreed to—"And the Corporation may, from time to time, contract or agree for any period not exceeding ten years with any company authorized by special Act of Parliament to light the city or borough of Dublin for lighting the streets with gas."

The remaining clauses of the Dublin Improvement Bill having been agreed to, the preamble was declared to be proved.

The *Builder*, April 13, 1861, speaking of Benson's Argentine, says, "Under a short trial, it has certainly improved rather than fallen off in appearance." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c. A sample spoon will be sent post free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## TESTING RAILS AND AXLES.

SEVERAL years ago, some professional business took us into the iron districts of Yorkshire and South Wales. It was at a time when the large iron-works were particularly full of orders, and more especially of orders for rails. The buyers came from all parts of the world, or, rather, the rails were intended to form lines in almost every part of the world. Great George-street sent orders for rails to be put down in England, and in England's colonial possessions in Asia and America; large orders were being executed for French, German, and Italian lines; and, lastly, great quantities of rails were bought up for the railways of the then united States of America. The different ways in which what we may term these three classes of orders were being executed was something remarkable. Almost every rail intended for a French, a German, or an Italian line, was submitted to a strict examination by special inspectors and sub-inspectors, purposely engaged by the continental engineers for carrying out the strict contracts made with the iron-masters. The formation of the piles was strictly determined, and the execution as strictly watched; almost every rail was measured and calipered; and a fixed proportion was submitted to certain tests, fixed upon beforehand in the *cahiers des charges*. The ends of some of the rails were filed clean, and the quality of the welding was tested by the application of nitric acid—nearly ten years, by the way, before this was proposed as a new discovery by Mr. Kirkaldy. The English engineers were by no means so strict, and in many cases contented themselves with gauging and measuring a few of the rails. But a goodly number of American buyers was still more lax. As the continental engineers, in order to fulfil the conditions of their *cahiers des charges*, were often obliged to reject large numbers of rails, these were eagerly bought up for the American market. The strict supervision of the continental inspectors further resulted in the formation, in many large iron-works, of a peculiar department, of an institution which could be termed the doctoring shop, or hospital for rails. In this chosen spot, bleached, defective, and consequently rejected rails, were doctored up to meet the eye. Ugly gaps left in the head, or rents in the foot, of the rail, were hammered out, and, in order to obliterate the appearance of artifice, judicious applications of dilute nitric acid were dabbed on by means of a lump of cotton waste tied to a piece of wire. These ingenious little recipes were intended to delude the eyes of the less practised amongst the continental inspectors, or to give a better appearance to the English rails. As to the metals intended for the American market, no occasion was required for the exercise of these curative, or, rather, palliative measures—to call them by no uglier term.

The question now is, Which is the best of these three plans? What we may term the continental plan is certainly the most expensive in first cost. A strict contract in most cases requires a higher price, and the maintenance of skilled inspectors cannot be had for nothing. The cheapest plan as first is, undeniably, the American mode. But what are the results? Of course, rails are not everything in a line, but, as we have every occasion to know, the same modes characterise the purchase of all the plant of the lines of these different nationalities; nor again would we wish to maintain that the paying powers of a line entirely depend on the quality of its fixed plant and rolling stock. But we do say that a line badly constructed, either as to quality or form of material, will never pay. It is at any rate a coincidence that the most paying lines in the world are those of Germany and France. Then come those of England, for it is not often that in England lines pay a dividend of 20 per cent. But the very worst paying lines are, and always were, those of America, and on these lines takes place a greater average destruction of life than anywhere else in the world. England next ranks in this unenviable precedence. The fewest accidents take place in Germany, and last year the proportion of casualties was only one in six millions of passengers. The good heavy foot rail, spiked down to strong sleepers, generally adopted in Eastern Europe, makes, as we can personally testify, an excellent smooth and strong line. Of course, it will be said that this slight proportion of accidents is due to the slow speeds. Now, in the first place, we may answer that on some of the continental lines, such as, for instance, the *Chemins de fer du Nord et de Paris à la Méditerranée*, the express trains with the Eastern mails run at English express speeds, or very nearly so. In the next place, trains in America are not worked at high speeds, but there is a very large proportion of casualties. Railway officials eternally din into our ears that we never can have safety with high speeds. This is only true in one sense. It is just as if it were said that

we can only have safety with a low pressure boiler; that only slow speeds and low pressure boilers are safe; and that high speeds and high pressure steam are, *per se*, dangerous. And yet some of the most destructive accidents have happened on slow lines, and the most destructive explosions have been caused by low pressure boilers. If we take a good high pressure boiler and use it with low pressure steam, and in the full confidence in its strength, neglect the gradual deterioration through furrowing, corrosion, &c., that happens with any boiler, we shall find some morning that low pressure steam can explode a high pressure boiler. If, in the same way, we put light slow trains on a line capable of working heavy, quick trains, and then neglect the permanent way or the rolling stock, we shall have to meet many accidents through defective plant. It is a question of good choice of construction and material, and of every day care and attention; and we may safely assume that the penalties inflicted by the continental governments have indirectly increased railway dividends and diminished railway accidents.

Many questions connected with permanent way are more or less, or are not at all settled. Such are, for instance, the effect of a moving load; the effect of frost on iron or steel rails; the reciprocal action of the rail and the tyre (such as whether the use of steel tyres does not, *per se*, necessitate the use of steel rails); the deterioration undergone by railway axles, and whether a limit of time should not be fixed for their renewal; whether elasticity of permanent way, or the rigidity advocated by French engineers, be the best; the best form of rail, the best formation of the pile, and whether it should consist entirely of fibrous iron—head and all—or whether the top should be made of crystalline iron. There can, however, be but one opinion that a rail, or an axle, or a tyre, whether of steel or of iron, should consist of metal with a high-breaking strength and limit of elasticity, while, as to wrought iron, it should be free from defective welds, and in the case of Bessemer steel, it should be free from blow holes. Whatever form the finished construction may have, the material and the workmanship of the material should come up to the requirements of safety and economy. Wrought iron rails generally perish by lamination—an action furthered by the imperfect welding of the bars composing the pile. To obviate this action, several first-class German railway engineers make up the bloom of only one kind of fibrous iron, instead of using hard iron for the top. Bessemer steel rails have afforded extraordinary results as to durability, but they are not always absolutely free from uncertainties due to the peculiar process of manufacture. Railway axles generally give way in fissures at the necks of the bearings. These fissures appear to be caused by the vibrations of the axle, in a somewhat similar way as a wire is broken, by being repeatedly bent to and fro, in excess of its limit of elasticity. Many ridiculous theories of crystallization, magnetism, heat, electricity, and similar occult influences, have been raised to account for what is a very simple matter. An exactly similar action, attended with similar results, can be noticed on the axles of carriages on common roads.

The uncertainties attending the manufacture of wrought iron are so great, and so many temptations are in the way of the maker, leading him to overlook quality for quantity, that, after giving a fair price and making a strict contract, the only chance of getting sound work is to appoint a resident inspector at the works, for the purpose of watching the manufacture, and of superintending the testing of a fixed percentage of the rails or axles. The question, then, is, What is the best means of testing a rail or an axle? Some engineers specify that any rail, chosen out of the lot, must carry a certain load, when placed between supports a certain distance apart, without any permanent set or injury. Thus the foot or Vignoles rail for the German line of Sarrebruck to Bingen, when placed on two supports 3 ft. apart, and loaded with 120 centner or 6,000 kilogrammes, must not take any permanent set; when placed with the head below, it must take a permanent set of  $1\frac{1}{2}$  in. without the rail being injured. The rails for the East Prussian Railway must undergo a load of 210 centner with a permanent deflection of 4 in. when placed on supports 3 ft. apart, and a deflection of  $1\frac{1}{2}$  in. when placed with the head downwards. The rails made some time ago for the *Chemin de fer du Midi*, at Dowlais and Blaidd, were specified to, 1, resist without breaking the shock of a monkey weighing 300 kilogrammes, and falling from  $1\frac{1}{2}$  metres; and, 2, a load of 30,000 kilogrammes. In each case the rail was placed on supports  $1\frac{1}{2}$  metres apart. According to the French Government regulations, all the axles intended for the Imperial artillery must be tested by means of the shock of a falling weight. The *Cours sur le service des officiers d'artillerie dans les forges* contains the most precise directions on this

point. The blows thus produced have some analogy with those encountered by a carriage on a common road, and, indeed, on railroads. It can be mathematically shown that a hard, harsh iron, with, perhaps, a high breaking strength, but with a slight extension, is very liable to be broken by shocks, and these tests thus eliminate iron of this quality. The same is the case with some descriptions of steel. We may remark that the general but wrong notion of the necessary brittleness of all steel is still so prevalent, that it is an obstacle to its more general introduction. It may be noticed that, if a proof of this kind be carried too far, even without injuring the iron, but still causing a permanent set, it is less easy to arrive at the real amount of the useful elasticity in the material.

The general specification for the furnishing of axles to the company of the *Chemin de fer du Nord* determines that the following tests shall be carried out per each lot of 25 axles; 0m. 11. diameter of body, and intended for the carriage:—One of the axles out of the lot of 25 is chosen, and placed on two supports distant  $1\frac{1}{2}$  metres apart, and a monkey weighing 500 kilog. is made to fall on the centre, from a height of 3m. 60., until a deflection of 0m. 25. is obtained. This deflection must be produced by more than three blows. The axle must be able to be again straightened without showing any crack or sign of rupture. If the axle chosen does not fulfil these conditions the entire lot of 25 will be returned to the contractors. The particular axles tested will be returned to the contractors, and will not be charged in the accounts." It is thus seen what value our highly scientific *confreres*, the French engineers, set upon the application of a known amount of *vis viva* as a test.

There can be no doubt about the immense value of a blow for detecting a bad weld. A bad weld means that a small sound section of iron unites two thicker pieces. As has been shown by a number of experiments, if a bar shaped like a dicebox, or grooved down—that is to say, a bar thinner at one portion—be submitted to gradual tension, the thicker portions on each side resist elongation, and give the thinner part a greater apparent ultimate strength. This action has not time to develop itself under a sudden blow. The often unaccountable difficulty of detecting a bad weld by means of a gradually applied strain is thus accounted for by this application, which has been lately put forth by an engineer in a paper on a similar subject to the present one. Of course, the safe application of a sudden load as a test, if the proof be not intended to be carried to destruction, is a very delicate matter, requiring sound practical and theoretical knowledge, an absence of either of which might lead to doing more harm than good. At the same time, an ignorant cuckoo cry is often heard from various sources, that testing anchors, chain cables, boilers, and axles injures these details. This may be the case if the tests be ignorantly applied: the greater the severity, the greater the efficiency; but then the severer the test, the greater is the caution that is required.

It requires but a slight acquaintance with engineering, or, indeed, with a few of the peculiarities of work, to fully perceive the great value of, and indeed absolute necessity for, an accurate and well-considered system of testing all iron details on which may depend the safety of human life. It is the only means of eliminating bad iron, and of obtaining uniformity and regularity of manufacture. The Government has long ago found it necessary to submit gun-barrels to a public test, and the supervision exercised by the railway inspectors of the Board of Trade has prevented the erection of many an unsafe railway bridge. Every separate girder should be tested before it leaves the workshop, and this is carried out by the higher class of makers. The Government have lately legalised a compulsory testing of chain cables and anchors, and many a sailor will have reason to bless Mr. Laird for his bill. The annual destruction of more than 100 lives in England, through boiler explosions, ought also to lead to some alteration of the law with regard to the responsibility for these disasters, and the annual destruction of more than 1,200 lives in the collieries of England might be at least somewhat lessened by a compulsory testing of pit chains and wire ropes. Of course, danger and difficulty do not end by the delivery of a good article in wrought iron or steel. There is, doubtless, no chance of safety with an originally bad boiler, or a chain cable made of rotten iron; but, these things, even when good, are subject to a gradual deterioration, often accelerated by fortuitous causes. Careful supervision will always be required, and, indeed, the question arises whether a limit of time should not be fixed for some at least of these cases. Engineering is a new thing, and society has not yet quite learnt to adapt itself to its widespread influences for good, and, we may add, for sometimes partial evil.—*Building News*.

# ALLIANCE NATIONAL LAND, BUILDING, AND INVESTMENT COMPANY.

A GENERAL meeting of this society was held on the 20th ult., in the Rotundo.

JAMES HAUGHTON, Esq., in the chair.

Mr. J. A. Mowatt (secretary) read the report, from which we extract the following:—"The shares of the company have been rapidly allotted among a respectable body of proprietors. The total number allotted has been 8,000, thus giving a subscribed capital of £80,000. When it is taken into account that the shares have been eagerly sought after during a period of severe financial stringency, the board feel that the circumstances furnishes the proprietors with ground for congratulation. In addition to the 8,000 £10 shares which have been advantageously placed, the board have to report that 3,600 subscription debentures, similar to the shares of ordinary building societies, have been taken up. This gives a total of 11,600 shares and debentures which have been issued. The board are gratified in being able to report that the company now consists of 1,000 shareholders and 1,300 debenture holders, so that more than 2,300 persons have a direct interest in promoting its progress. During the past half-year the directors have had under consideration 430 applications for advances amounting to £134,000. The total number of advances completed has been 100 for £127,000, the remainder having been either declined as insufficiently safe or being now in course of completion. The introduction of the company into Ireland will, in the judgment of many sound social economists, mark the commencement of a new era of prosperity in the history of the sister country. If these anticipations should prove correct the board believe that the proprietors will view the result with the most lively satisfaction."

Mr. Mowatt begged to mention a few additional facts in connection with the society. One hundred loans had been completed for sums amounting to £27,000. Seventy-five of those loans were to borrowers in Ireland, and for nearly £18,000. The entire receipts in their Dublin office, from the 16th of Nov. last until last Thursday evening, had amounted to £2,084 15s. 4d. The total number of applications for loans (of which 100 had been granted) had been 430. At a general meeting of the society in London a resolution had been passed that the capital be increased from £100,000 to half a million, to be issued in £10 shares. The prospectus distributed to them that evening contained a new feature. The 25 debentures of the society were payable at half-a-crown a month; but a desire having been generally expressed for weekly payments, the directors had resolved on issuing £100 debentures, payable at 2s a week. If a person were to subscribe for one of these debentures, suppose at the birth of a daughter, by the time she should be nineteen years of age, the £100 would be her property.

The Chairman expressed his belief that if the principles of that society and the results which it was calculated to work out were generally understood in the city, the Round Room would not be large enough to hold all who would have seen that it was their interest to attend. He felt chiefly interested in the movement in so far as it was calculated to benefit their toiling working classes. They wanted to provide for every working man a house of which he would be the owner after a certain time. The benefit in question had already been extensively secured to the working classes of England. The working classes both here and in England and Scotland lived too generally, he regretted to say, in places which were not fit to be human habitations. This occasioned not only ill health and discomfort to adults, but great mortality among children. There were no less than eight thousand houses held under building societies in Birmingham.

Mr. Hattersley said that building societies had already accomplished much good amongst the working classes, and they should all desire to see them extending. In connection with the company in London they had established a bank for small traders, and during the last year no less a sum than £85,000 passed through the bank. It was in contemplation to establish a similar bank in Dublin for the benefit of the working classes.

Mr. Henry Brown, a member of the board in Dublin, proposed the following resolution: Resolved—That this meeting expresses its full confidence in the constitution of the company; also in its directors both in England and Ireland, and pledges itself to promote its extension and increased efficiency in this country by every legitimate effort."

Mr. Brown referred at some length to the operations of the society in Dublin.

Dr. Ryan said he had practical experience of building societies for nearly fourteen years, and he could most confidently recommend them to the at-

tention of persons disposed to invest their savings, and desirous of purchasing house property in the cheapest and most convenient manner.

Dr. Ryan having been moved to the second chair, a vote of thanks to the previous chairman was passed.

## CULVERWELL'S PATENT PARAFFIN RAILWAY LAMP.

In our number for June 15, we gave description, accompanied with illustration, of Culverwell's Patent Lamp. The following remarks in favour of it are taken from the *Freeman's Journal* of 23rd ult. We would again direct the attention of railway companies to the utility of Mr. Culverwell's invention, and recommend its *immediate* adoption on their lines:—"This most ingenious and useful invention is rapidly growing in the estimation of the locomotive world, and we are happy to say that its utility has been proved after being subjected to the most trying tests. Messrs. R. W. Rowan, resident engineer of the Belfast Junction Railway, H. Harden, of the locomotive department on the same line; John Wakefield, of the locomotive department of the Great Southern and Western Railway; F. Pemberton, of the locomotive engineer's office of the Irish North Western Railway; and William Curry, of the locomotive department of the Dublin and Drogheda Railway, bear most favourable testimony to the advantages possessed by Mr. Culverwell's patent lamp over any that has yet been used in railways. It has everything to recommend it—purity and steadiness of light and economy. In the lamps used on the line from here to Kilkenny for a long time, not one of the chimneys were broken, and the light gave general satisfaction to the public. These lamps have been used as top, head, and buffer lights with the greatest advantage, and it is high time for those who are in the habit of travelling long journeys by railways to call on the different companies to put the paraffin patent lamp in general use. The luxury of a good roof light in a railway carriage is very great, and it is to be hoped that the public will take such measures as will secure them lamps by which they can read and see their neighbours, instead of those filthy vapoury glimmers called oil lamps, absolutely worse than useless. We travelled under one of Culverwell's patent carriage roof lamps a short time since, and we were able to read and write with perfect ease through its means—a feat which it is needless to say could not be effected if only an oil lamp was the illuminating medium."

## WATER SUPPLY OF NAPLES.

SIGNOR FELICE ABATE, an Italian civil engineer, has lately put forward a plan for supplying the city of Naples with water. Mr. John F. Bateman, F.R.S., engineer to the Manchester, Glasgow, and many other waterworks, having been invited to give his opinion upon the plan, has made a report, in which he says:—"The City of Naples contains a population of between 400,000 and 500,000 persons. The present supply of water is only 3,000,000 or 4,000,000 gallons per day, and is delivered at too low a level to supply the higher parts of the town. In so hot a climate as that of Italy a supply ought on no account to be less than 20 gallons per head. This estimate would give a gross quantity of 10,000,000 gallons per day."

The springs of Serino have been measured, and are estimated to yield, in the driest periods of the year, 11,000,000 gallons per day, and an average of about double that quantity, or 22,000,000 gallons. In years of extraordinary drought, they fall below these quantities. By the construction, however, of store reservoirs to impound the surplus water of wet seasons, the larger quantity named above could certainly be obtained; but as 11,000,000 gallons would, in addition to the present supply, appear to be sufficient for some time, and may, as I understand, be safely relied upon, I will confine my estimate to the cost of obtaining this quantity, with preparation for increased supply when it may be required.

The springs issue from limestone rocks, at an elevation of about 1,200 English feet above the level of the sea, and at a distance of about 47 miles from Naples. You estimate, after careful examination of the whole aqueduct, that, with the exception of about 13 miles, the whole is in sufficiently good repair, when properly cleaned out, to be again employed with perfect success for conveying the water to Naples, and you propose to overcome the defect of low elevation at the termination of the existing aqueduct by laying down, for the supply of the higher parts of the city, a line of pipes of sufficient diameter, which shall commence at a point near Petruo, high enough for the purpose. This point will be about 30 miles from Naples, at an elevation of about 660 feet above the sea, and the pipes will terminate at a point above the city near Antignano, about 490 feet above the sea.

The first eight miles of the aqueduct will require reconstructing, and this length may be shortened to four miles, by which additional pressure can be brought into the tunnel through the mountain of Forino, which is nearly four miles in length. By this means the aqueduct would be equal to the passage of about 25,000,000 gallons per day. From the lower end of this noble ancient tunnel there is a magnificent descent of 500 ft. down the face of the mountain, from the foot of which the piping to the city would commence. From this point the water would be divided, the ancient aqueduct conveying about two-thirds, and the pipes the remainder. At the end of each a service reservoir would be constructed, each capable of containing about one week's supply, to provide against casualties and interruptions, and from these reservoirs the water would be distributed to the city. The whole of the water would be supplied by gravitation, without any cost for pumping, and all the necessary works are very simple and easy of construction. I estimate the total cost, including the restoration of the ancient aqueduct, new aqueduct where required, the main pipe of 24 in. diameter from Petruo (equal to a delivery of 4,000,000 gallons per day), the two service reservoirs, and complete distribution, the whole on the scale of 15,000,000 gallons per day, with 15 per cent. for contingencies, at about £620,000. To this sum must be added the cost of engineering, administration, interest during the construction of the work, and other expenses. The whole work ought to be thoroughly well done, every expense included, for a sum not exceeding £750,000. This is a small cost for so large a population; it is 30s. per head for an abundant supply of water by gravitation, only one-half of the cost of the supply to Glasgow or Manchester.

Taking the dry weather volume of the springs, the hydraulic power which would exist in the rapid descents of the aqueduct, the greater part of which could be utilised, would be about 1,200 horse power constantly. Probably a large portion of this would be converted to useful manufacturing purposes, as a railway now passes nearly alongside the aqueduct to the foot of the great fall below the tunnel of Forino. Here would be a source of income which would do much to reduce the cost to the city.—*Building News.*

## CARLINGFORD HARBOUR.

THE Board of Trade having approved of the expenditure of £80,000 on the deepening of Carlingford Bar, a committee of the House of Lords met last week to hear evidence in the case. The objects of the bill (as stated by Mr. Hamill, for the promoters) were to remove the bar which obstructed vessels over a certain burden from entering Greenore unless at certain times of the tide. Parliament had last year passed acts for the construction of a railway from Greenore to Newry, and from Greenore to Dundalk; and as Dundalk and Newry were the termini of lines of railway which extended into all parts of Ireland, it was important to give the traffic facilities for getting to deep water. The distance from Greenore to Holyhead was only sixty-nine miles, and powerful steamers would be put on there which would develop the traffic of Ulster and Connaught. Mr. Barton was examined as to the right of the Harbour Commissioners to levy tolls before the harbour was constructed, and with respect to the financial position of the promoters. After the examination of several witnesses, the committee decided that they would ratify the order for the deepening of Carlingford Bar; but would modify the right of the commissioners to receive tolls until, at least, certain works authorised under the order were constructed.

The *Art Journal* for August, speaking of Benson's watches in the Exhibition, says:—"We have selected for engraving three of the watch-cases, of which a large variety is exhibited by Mr. Benson, of Ludgate-hill, in the large and prominent erection that contains his monster clock. To this department of art-manufacture Mr. Benson has paid especial attention." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (by post for two stamps) contains a short history of watch-making, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize metallist, Class 33, honourable mention, Class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker, by special warrant of appointment to H.R.H. the Prince of Wales.

### LAUNCH OF THE "CALDBECK."

THE new iron clipper ship "Caldbeck" (the keel and frames of which were laid in February last) was launched on Saturday, 16th ult., from the yard of Messrs. Walpole, Webb and Bewley, in the presence of an immense assemblage. Her register is 800 tons, and her carrying capacity 1,200 tons burden. In length she is 180 feet, breadth of beam 30 feet 3 inches, and depth of hold 19 feet 6 inches. She has been built for Messrs. Richard Nicholson and Son, of Liverpool, and will, when completed, proceed upon the East India trade. She is constructed entirely of iron—masts, bowsprit, and spars, the top masts alone being wood, and her plates three-eighths of an inch thick. Everything in her is of the most substantial kind, and there is no doubt she will be found a good seaworthy vessel. The cabin, which is ten feet high, is of oak, with walnut mouldings and upholstered in velvet. The berths are fitted with an ingenious and peculiar apparatus for ventilation, and are larger and more commodious than usual. The skylight is adorned with stained glass with the city arms of Dublin, and the crest of the Nicholson family. The lavatories are neatly constructed. In her working apparatus, the pumping gear—of which Mr. J. H. Wilson is the patentee—demands especial notice. It consists of two pumps, which are worked by double cranks attached to two wheels. The windlass and capstan are the patent of Emerson and Walker, of New York. They both work into a system of wheels, round which the cables move, each link fitting into a compartment of the wheel, by which means no "slip" can be made. Her hatches are so formed as to admit of her taking in railway engines and other articles of that description for the East Indies. The officers' house is on deck, and supplied with berths—the galley being situated at the forward part of it, the floor of which is bricked, and the fire-place surrounded with galvanized zinc plates, to provide against the contingency of fire. The stained glass was supplied by Messrs. Sillery, 107 Middle Abbey-street, in this city. In the top and sides of cabin light are 12 opes, filled in with richly foliated ornaments, and at either ends the arms of Dublin and Liverpool richly emblazoned. In the deck house are three lights, the centre one having two flags, one with the words "Caldbeck, Liverpool," the other, "R. N. and Son;" and at either sides landscapes of native scenery, one the view of Dublin Bay and Kingstown Harbour, the other the Torc Waterfall, Killarney. The style in which this firm has executed the order kindly given them by Messrs. Walpole, Webb and Bewley, presents another urgent call for the more general encouragement of "native talent" in this and other branches of manufacture.

### A MUNIFICENT GIFT TO BELFAST—THE SORELLA TRUST.

A MUNIFICENT gift has lately been conferred on the working classes of Belfast by one of its citizens, Mr. William Dunville, equally notorious for his wealth and his benevolence. This gentleman has announced his design of setting apart, with as little delay as possible, the sum of £10,000, "for the material, intellectual and moral benefit of the working classes." The following programme has been issued of the trust which he proposes to create:—

[Sorella Trust, founded by her brother, as a memorial to the late Miss Sarah Dunville, of Richmond Lodge, county Down.]

"The object of this Trust is, in the first place, to improve the dwellings of the working classes in Belfast, by erecting for their use houses of a better description than ordinary, and of approved sanitary construction, which shall be let at fair average rents for houses of similar dimensions. This property, under good management, will, it is believed, yield a reasonable rate of interest on the investment, and thereby promote the building of improved dwellings for the working classes. In the second place, the object is to apply the net income arising from the house property to the following purposes, viz.:—1—To assist in the support of two of the most deserving and longest established charities in Belfast. 2—To give a stimulus to the education of the working classes of Belfast and Holywood by founding exhibitions, to be awarded by competitive examination to the most distinguished pupils of their primary schools, without distinction, to enable these to obtain a higher education through an intermediate school, viz., the Royal Belfast Academical Institution; and again, to give a like stimulus to the intermediate schools of Belfast and Holywood by founding exhibitions in the Queen's College, Belfast, to be competed for by their students. 3—To aid art students in advancing their art education. 4—To promote in the working classes a knowledge of the structure and functions of the human frame, in relation to health. 5—To promote the healthful recreation and innocent amusement of the

people of Belfast. The founder's earnest wish is that this Trust shall be administered in a thoroughly non-sectarian spirit, and he has, with this view, taken the utmost care, in the document declaring the Trust, that, as its uses are secular, the administration of the Trust shall be always placed in the hands of laymen." The following is an outline of the founder's scheme for the management of the Trust:—

"The Trust Fund is £10,000, and is to be invested in the purchase of land within the extended boundary of the Borough of Belfast, and in erecting thereon, say 60 to 100 dwellings of improved construction for the working classes. The Trust Fund and premises are to be vested in a body of trustees, not fewer in number than five, not more than seven. The trustees are to let the houses at fair rents, which (after payment of head-rent, if any, taxes, cost of collection and management, repairs, &c.) are estimated to yield the yearly sum of say £500 or £600. This sum to be divided annually into fifteen equal shares, to be applied as follows:—One share to go to form and keep up a reserve fund of about £500, to meet extraordinary repairs and expenses. Any balance, after the reserve fund shall reach this sum, is to be divided among the other fourteen shares. One share to be paid to the Belfast Charitable Society. Two shares to be paid to the Belfast General Hospital. Seven shares are to be applied to the purposes of secular, non-sectarian education of permanent residents within the extended boundary of Belfast and the parish of Holywood, county Down, in the following manner:—Two shares to found four exhibitions, each to continue two years, for pupils under thirteen years of age, *bona fide* from primary schools for the working classes. By this it is meant to indicate schools educating a class of pupils below, or equal to, the class of pupils educated in the Models Schools under the National Board of Education in Ireland. The exhibitors to be placed in the Royal Belfast Academical Institution, so long as its non-sectarian character shall be maintained. Two shares to found four exhibitions, each to continue two years, for pupils from any intermediate schools for the education of the middle classes, to enable them to graduate in the arts course of the Queen's College, Belfast, so long as its character shall be non-sectarian. Two shares to found two exhibitions, each to continue for two years, for pupils of both sexes, under eighteen years of age, who shall distinguish themselves in painting, sculpture, architecture, or music, to enable them to advance their education in any of these branches. All these exhibitions to be determined by competitive examination, and the examiners to be appointed by the trustees. One share to afford instruction, in the town of Belfast, to the working classes, on the structure and functions of the human frame, in special relation to health. The remaining four shares to be applied, within the extended borough boundary of Belfast, to the promotion of the recreation of the working classes of Belfast; in encouraging sports and exercises, such as cricket, croquet, rowing, swimming, and the like, through the medium of public parks, or otherwise; and especially in cultivating a taste for music by such means as may be found most effectual.

"Richmond Lodge, Belfast, 24th June, 1864."

In speaking of this noble gift the *Northern Whig* observes:—"The title of the Trust and its memorial character show that feelings too private and sacred to be dwelt on here—a grief and a love with which no stranger may intermeddle—have joined with the humanity and public spirit of the donor in suggesting his benevolent plan. A nobler monument, and, if we may venture to think so, one more acceptable to her whose virtues it commemorates, could not be conceived. It will permanently link together, in the grateful memory of their fellow-townsmen, the two names which the Trust deeds will record, associating them, we hope, with the growing comfort and elevation of the classes on whose well-being that of the community directly depends."

### ACTION OF WATER ON LEADEN PIPES.

LEAD, says Professor Voelcker, in a lecture, on Wednesday week, at a meeting of the Royal Agricultural Society, in the shape of soluble salts, is a highly injurious substance; and as it is well-known that certain waters act upon and dissolve it, fear is frequently entertained that water may be contaminated with an amount of lead that will act injuriously upon the health of those who are constantly in the habit of using the water that acts upon leaden pipes for drinking purposes. It is, therefore, a question of some importance to ascertain what the qualities of water are that act upon lead. We have considerable experience in this particular. Water containing organic matter acts more rapidly upon lead than water that is free from organic matter. From all the experience that is on record, this follows incontestably. In the next place, I would mention that waters containing alkaline matters—and there are some hard waters which contain a good deal of carbonate of soda or carbonate of potash—act more rapidly on leaden pipes than do waters that are free from alkaline salts,

carbonate of soda, or carbonate of potash. Alkaline matters act upon lead. Lime even acts most strongly upon lead. Hence we have, in testing the alkalinity of water, at once the means of ascertaining how it is likely to act upon leaden pipes. There are some waters which contain what for a long time has been considered protecting salts; that is salt of lime, carbonate and sulphate of lime especially. It has been said that carbonate of lime and sulphate of lime protect lead against being acted upon by waters; but there are waters—and I have examined many myself—which are very rich in carbonate and sulphate of lime, and yet act very strongly upon lead. It is true that soft waters often act upon lead very rapidly; but it is not perhaps so much on account of their softness that they so act, as on account of the presence of organic matters and the absence of carbonic acid, which is a protection against the action of water on lead. In very soft waters we often find very little, sometimes almost a total absence, of carbonic acid; and whenever this is the case, the water acts upon lead. If you boil water and bring it in contact with clean lead the water is acted upon by it. Bright sparkling water, provided it is free from carbonate of soda, does not act upon lead. We have then, three conditions which will account for the great action that some waters exercise upon lead. The first is, the presence of organic matters; secondly, the presence of alkaline salts or alkalies; and, thirdly, the absence of carbonic acid. I would particularly impress upon you that there are soft waters which do not act upon lead, and that there are on the other hand, hard waters that rapidly act upon lead. Now, in order to exhibit correctly the action of alkaline matters, I have here a piece of leaden pipe which has been brought into contact simply with water, and you will notice how the quick-lime which is an alkali, acting in a small way, like the carbonate of soda that we have in some waters, acts upon the lead. It causes it to become converted into oxide of lead. The pipe itself has been converted almost entirely into litharge; for this reddish powder is an oxide of lead. Indeed, it is worn into a thin film or sheet. It appears that all alkaline earths like lime have this effect, causing the lead to change rapidly into oxide of lime, which you will observe is an incrustation. I have analysed the sample I have in my hand, and find it to be nearly pure litharge. In laying down water supply pipes, particular care should be taken not to put them in cement, but to surround them by gravel. Pipes are frequently eaten away in consequence of inattention to this point. They should never be put in cement then, for the lime acts upon the lead. Sometimes tanks and water cisterns are rapidly eaten away by the water acting upon the lead. A very good protection is to throw into the leaden tank a few pieces of zinc. Zinc is more readily attacked than lead; and as long as there is any zinc present, it is eaten away and changed into oxide of zinc before the lead is attacked. We have thus a most simple and effective means of protecting leaden tanks against the corrosive action of some waters. However, I would not recommend such waters for drinking purposes, for zinc is a metallic substance, which is injurious; but when the water is intended to be used for feeding steam-boilers, then the addition of a few strips of zinc as large as my hand, thrown into the tank without soldering, protects the lead very well against the action of the water. It is fortunate that when lead even finds its way into the water it is removed again on standing in the air. Air contains carbonic acid, and in contact with carbonic acid the lead which has passed into the water becomes again precipitated. Carbonate of lead is insoluble; and filtration through an ordinary water filter also completely deprives the water of its lead. The danger then of poisoning by lead, or by water containing lead, is very much less than is usually believed. Indeed we have no direct evidence of water having had injurious effects upon the health of those who use it, that can be referred to the presence of lead. I do not think there is a single instance on record in which the presence of lead in water has proved injurious; for, at the most, only small quantities of lead can find their way into the water, and it is again rapidly and certainly removed by standing and by filtration.—*Buiding News*.

### A CONVALESCENT HOSPITAL FOR DUBLIN.

FOR a long time past the question of the necessity for the establishment of a convalescent hospital, to which fever and other patients might be transferred after leaving the city hospitals, has been before the public. We are glad to find our contemporary, the *Irish Times*, in an able leader on the subject, advocating the appropriation of one of the forts on Killiney Strand (and to which a plot of ground is attached) to the purposes of a sanatorium. It is to be hoped that when the matter is represented to the War Department authorities, a favourable result will be obtained. In a recent lecture the Officer of Health for the city alluded briefly to the subject of a convalescent hospital.

**THE BOYD MONUMENT IN ST. PATRICK'S.**  
The following is the inscription for the Boyd Testimonial, which has been placed in our venerable Cathedral. It has been executed by Mr. Thomas Farrell, of Gloucester-street, and we cordially agree with the trustees, that it "reflects the highest character upon the artist." The inscription is from the pen of the Rev. William Alexander, of Camus-juxta-Mourne:—

"Erected by the Citizens of Dublin  
to the memory of JOHN McNEILL BOYD, R.N.,  
Captain H.M.S. Ajax,  
born at Londonderry, 1812,  
and lost off the rocks at Kingstown,  
February 9th, 1861,  
in attempting to save the lives of the crew of  
the brig Neptune."

"Safe from the rocks, whence swept thy manly form,  
The tide's white rush, the stepping of the storm;  
Borne with a public pomp by just decree,  
Heroic sailor! from that fatal sea,  
A city vows this marble unto thee.  
And here, in this calm place, where never din  
Of earth's great water floods shall enter in;  
Where to our human hearts two thoughts are given—  
One Christ's self-sacrifice, the other heaven:  
Here is it meet for grief and love to 'grave  
The Christ-taught bravery that died to save;  
The life not lost, but found beneath the wave.  
\* All thy billows and thy waves passed over me;  
Yet I will look again towards thy holy temple."

#### REGISTRATION OF BIRTHS AND DEATHS.

The weekly Registration of Births and Deaths in the city during the last six months has now been published complete in one volume, at the end of which are annexed some interesting statistics. It appears that the total number of births registered has been 3,538; of which 1,783 were boys, and 1,751 girls. Of these, 1,666 occurred on the north side of the Liffey, and 1,868 on the south side. The number of deaths registered was 3,414, or 1,667 males, and 1,747 females. Of these 1,460 were registered on the north side, and 1,954 on the south side. The greatest mortality arose from bronchitis, 708 cases; phthisis, 448; fever, 159; and heart disease, 141. There were 71 accidental deaths, rather a large number, and 6 suicides. Of the total number of deaths, 18·4 per cent. were between 20 and 40 years old; 19·4 between 40 and 60; 22·8 between 60 and 80; and 4·6 per cent. were upwards of 80. The average return per week for the first quarter was:—births, 116; deaths, 149·2. For the second quarter:—births, 155; deaths, 113·4.

#### THE ANNA LIFFEY.

A COURSE of lectures on public health could not have been delivered at a more opportune period than the present. Our Corporation speak warmly in praise of the beauties of our river, and both they and the Ballast Board (of whom better things might be expected) are most jealous of its being touched or interfered with. Various sensible schemes have been proposed from time to time by engineers—of covering over the whole river, and constructing a magnificent Boulevard; of running a railroad down the centre between solid walls, and dividing the stream into two portions, thereby increasing the scour. But the fiat of *noli me tangere* has been issued by both these public bodies. We never could see any beauty in the river as it is at present. All we could see in it was dead cats, and the confluent abominations of all the sewers of Dublin.

Since the hot weather set in this state of things has become too strong, and many letters on the subject have appeared in our morning contemporaries. Some of the remedies proposed appear strange to an engineering mind. It is recommended by one party to erect flood-gates at Carlisle-bridge, and flush them at low water. This would have the effect of bringing the sewage matter for a time to a stand still, the water would become speedily saturated with sulphuretted hydrogen, and the emanation would then be probably nearly as great as before. But this correspondent has not considered the effect of flushing such a mass of water upon the crowded shipping, light of ballast, that constantly lies below the bridge, where even steamers are only allowed to move at quarter speed. We could imagine the Kingstown steamer coming up to the Custom House, her decks crowded with a freight of fair passengers, and encountering the redolent avalanche of water. We read of the fragrant waters of Eblana; but of all waters that of Anna Liffey would in one sense carry away the palm. Another correspondent proposes to place cast iron pipes along the sides of the river, to convey the sewage out to sea. This project might seem feasible; but he is doubtless unaware of the magnitude of the pipes that would be required, the difficulty of joining them, &c., towards the mouth of the river, where they would be always under water, and

the great expense it would entail. We are informed, however, on good authority, that the matter is under the consideration of the Corporation, and that the City Engineer will remove the nuisance by the construction of an intercepting sewer, as soon as he has observed the effect of a similar work on a large scale that has been commenced in London.

### Correspondence.

[It is to be distinctly understood that, although we give place to letters of correspondents, we do not subscribe editorially to the opinions or statements set forth in same.]

#### THE O'CONNELL MONUMENT.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR—As the time fixed for the ceremony of laying the foundation-stone of the O'Connell Monument approaches, public feeling is becoming fairly indignant at the position taken by the committee as to native resident genius: its claims are by most of them discarded or ignored. The clergy, too, who constitute a large proportion of the committee, are silent, or seem to forget that a short time back Farrell's statue of Bishop Murray evoked their highest praise. Why the indifference now of the living genius that produced it?—the cold evasion of the rights of men who, like Hogan, seem doomed to heartless neglect because their misfortune is to live in Ireland? Every subterfuge calculated to throw distrust and discredit on all artistic merit within the city is had recourse to; men removed beyond or below connection or appreciation of art or sculpture will fain persuade that the haven-born gifts, which in all ages were lavishly bestowed upon the Irish, had fled, and left us to day without a Hogan, or Mulready, or a Moore. The latter name still ranks high among living orators. On a late occasion his powers went far to ratify the mistaken conclusion; but the most brilliant minds may be clouded by the conception that talent, to be great, must know European fame. History gives the lie direct to the idea, for almost every bright name on its roll fought the battle of life obscurely: spurned if they were of the lowly class—if of the higher, scarcely recognized in the realm of heaven's own chosen band of sculptors and of poets. The people's instinct is seldom at fault; in the present case they know that a superabundance of talent lies in and around them—workmen whose lot of labour brings closest contact with the strife of those who toil, and with the glorious combat with poverty in the study and pursuit of some grand project outside, and foreign to the process by which they earn their daily bread, if developed, might make a thousand names immortal. The chance of spoiling O'Connell is nervously pleaded by some gentlemen. They say, "Look at Goldsmith." We did look at him, and simply said, "It's like him, though we have never seen him." We have also managed to look at O'Connell in Mercer-street. "Very like him, the Tribune whom we have seen, developed as truly as chisel ever traced man's form." Look at Captain Boyd, in St. Patrick's. Say, ye who sneer at the living proofs of native skill, is he not there, another triumph? Go to Navan, and you can see a Celtic cross, with relief figures of Christ and the Virgin, sculptured by a man who took respite from the hammer and trowel, and worked on his task of love till he left his imperishable artistic work to his native town. It remains for the trades to lay the stone, reserving their final expression of unanimous will for another day.

JOHN MCCORRY.

### Local Intelligence.

#### COUNTY CORK ASSIZES.

**Holmes v. Preston.**—Action for recovery of penalties for non-completion of contract within stipulated time. Plaintiff employed defendant, a builder, to erect certain offices, which, according to contract, were to be completed within three months from the signing of contract, under a penalty of £20 per week for every week after the expiration of three months. As the contract was not completed for four weeks after time, plaintiff now brought his action to recover £80. The amount of contract was £560. Defendant's case was that he had used all diligence, and that from the day the contract was signed he had had several men at work upon the buildings. No claim had been made for the penalty from 1861 until last April, when he (defendant) processed the plaintiff for £40, for extra work done at his request. It was settled between the parties that there should be a verdict for plaintiff for £21 and costs, plaintiff giving an undertaking not to levy more than £10 out of the verdict. The jury expressed their opinion that the conduct of Mr. Holmes to the contractor had been most handsome throughout.

### General Items.

Mr. Valentine Blake, jun., Tower Hill, has been elected to the office of secretary to the Grand Jury of the County Mayo, in the room of Major Gardiner, deceased.

The Belfast Harbour Commissioners have granted permission to the contractor for the ferries to Queen's Island to have amusements thereon, as football, quoits, and such like games, provided that no injury be done to the plantations.

The exhibition of the Royal Hibernian Academy is open on Sundays.

The next meeting of the British Association for the Advancement of Science will be held at Bath, commencing on Wednesday, September 14th, and will be under the presidency of Sir Chas. Lyell, F.R.S.

Pierce Netterville Barron, Esq., has been elected to the office of Secretary to the Grand Jury of the Co. Waterford, in room of the late A. U. Roberts, Esq.

A special jury have awarded £18,000 to St. John's College, Cambridge, for some property at Cow-cross, required by the London Metropolitan Railway.

The Town Council of Liverpool advertise for a competent person to act as surveyor and architect to the borough. Salary £800 per annum, with suitable offices, staff, &c., &c.

A little girl, six years of age, was found dead in her bed, poisoned by the carbonic acid gas emitted from flowers (May lilies) which had been placed upon a table in a small chamber in which the victim slept.

The physicians in Paris have discovered a certain specific for whooping cough. The child is sent to a neighbouring gas manufactory, to inhale for a few minutes the vapours which arise from the lime used to purify gas. Two or three visits effect a radical cure.

One day lately a butcher in Oakfield-road, Salford, bought a bundle of waste paper from a man whom he did not know. On opening it he found six silver watches and one gold one.

The *Athenæum* asks:—"Can any of our readers inform the Committee of the Archaeological Institute of the present whereabouts of the M.S. of Scott's romance of Kenilworth?"

We understand that Miss Whately is preparing herself to write a Life of Archbishop Whately; a work which will be founded on his own letters and papers, all of which the prelate bequeathed to her. This lady is the writer of "English Synonyms," a work commonly ascribed to the Archbishop himself, as well as of other works. The proposed Life will be the only one sanctioned by the family. Nearly three years ago, on an unusually bad joke being attributed to His Grace in one of the Irish papers, he remarked, "I think I ought to walk about with my back chalked, 'Rubbish shot here.'"—*Athenæum*.

### Public and Private Works.

A grand entrance and gate lodge, in the Byzantine style, have been erected at Brannoxtown, Co. Kildare, for John La Touche, Esq. The materials used were the green stone of the locality, with granite dressings and red brick bands, having ornamental slate roofs, with turrets, &c., the whole forming a rich and pleasing contrast. Mr. John McCurdy, architect; Mr. Joseph F. Lynch, Carlow, builder.

At Carnalway, and for the same proprietor, a grand entrance and gate lodge, in the Italian style, have been lately finished. The entrance having sweep walls, with piers of solid granite, finely chiselled on both sides; elaborate centre piers clustered, with Portland stone and granite. The lodge has granite dressings, with cantilever corbelled eaves, &c., and is built on a sloping terrace. Architect and builder as above-named.

The extensive wine stores in Upper Sackville-street, formerly in possession of Sneyd, French, Barton, and Co., having passed, by purchase, together with the large and valuable stock of wines, into the hands of Messrs. A. and W. Gilbey, the well known wine merchants, those gentlemen having secured in addition, the adjoining house, have set about the erection of premises which will rival in extent and appearance their already existing monster establishments in London and the other principal towns of the kingdom. The existing vaults, which are under both houses, Nos. 46 and 47, and extend for some 200 feet to the rear, having proved insufficient and unsuited for certain branches of their trade, the Messrs. Gilbey have removed the whole of the outlying buildings at the rear of their premises, and are proceeding to erect a large wareroom of wood, iron, and glass, 137 feet long by 57 feet wide. The roof will be in three spans, the centre span being 28 feet wide, and the roof rising above the two side roofs, and the light and ventilation procured from a clear story running the whole length of the building. The roof is carried

on arched principals, supported by slender iron columns with ornamental caps, and will thus, when completed, with the addition of a little moderate and judicious decoration, present the appearance, on a miniature scale, of an "Industrial Exhibition" building, if we may be allowed the term. In this wareroom it is intended to carry on all the operations connected with the trade, such as washing, bottling, packing, &c.; and it will also contain, enclosed by screens, the clerks' offices, and a large sample-room, boiler-house, &c. The front presented to Sackville-st. will extend to the full width of the two existing houses, and will be four storeys in height, as at present, each story, with the exception of the lower one, being a continuous arcade of six windows, divided from each other by richly carved string courses. The dressings to the windows consist, for the most part, of angle shafts with carved caps and bases, and deeply moulded and carved arch mouldings. The general face of the building will be in white face brick. Two bays of the lower story are devoted to a large and imposing entrance porch, a semicircular archway springing from columns of polished Aberdeen granite, and with angle columns of blue limestone. This leads to a large vestibule, or hall, laid with encaustic tiles, from which are approached the wareroom and offices, and the staircase leading to the large suites of offices on the upper floors. The front is surmounted by a deep corbelled cornice, and a kind of Mansard roof, the lower portion of which is lead, and the whole is covered with a wrought iron ridge cresting. The angles of the building will be carried up above the neighbouring houses by lofty chimneys disposed in a somewhat novel manner, anglewise to the building, and crested with wrought iron also. The whole front promises to be of an imposing and dignified character, and will be at least a step towards the palatial buildings which we hope to live long enough to see flanking each side of our noble street, at the upper end. Mr. William G. Murray, R.H.A., is the architect; and Mr. John Nolan, of Meredyth-place, the contractor. We hope at some future time to be able to present an illustration of the front.

The new church at Kill-o-the-Grange, Co. Dublin, was consecrated on Tuesday, 26th ult., by the Lord Archbishop of Dublin. The first stone was laid in July, 1863, by J. Perry, Esq. The style is Gothic; built of hammered granite, with dressings of same material. Its length is 75 feet by 40, independently of porches and vestry, and is adapted to accommodate about 300 persons. Its exterior exhibits on the north-west angle a gable roof belfry of a style very usual in England, and its roof presents elevations preparatory to the formation of transepts when required. The church is situated within a small but sufficient enclosure, and commands a prospect of great picturesqueness. The interior is plain, but commodious; it consists of one broad nave, terminated at the east end by an octagonal apse, and at the west end by a screen of woodwork and glass, the latter being formed beneath a small gallery or organ-loft. The fittings are of polished and varnished deal, the roof being similarly lined. The ventilation of the church is peculiar, and very well provided for by traps in the roof-lining, the eaves of the exterior roof being open, thus securing a large body of air in the intermediate space—a requirement much needed, owing to the extent of the slated roof, with its consequent attraction of heat. The windows are double lancet-shaped, and are filled in with solid plates of roughed glass. The designs were by Messrs. Welland and Gillespie, architects to the Ecclesiastical Commissioners, and were carried out under the direction of Mr. J. McAllister. The contractor was Mr. James Douglas. The cost about £1,600.

Near Clonmel, and adjacent to the River Suir, has been erected for Thomas Malcomson, Esq., a large mansion, having fine and extensive views over the beautiful tract of country that surrounds it. There is a basement, with principal and bedroom storeys. The drawing and diningrooms terminate in handsome semicircular bows, which also form pleasing features, on the outside to the elevation, facing terraces. These terraces run right down to the river, which passes some sixty yards from the house. The entrance elevation is ornamental, and finished with cornice, and balustrade over. In the centre there projects a large rusticated cut stone piazza, with open semicircular-headed arches to front and sides, finished with smaller cornice and blocking course at top; it is flat roofed and leaded to allow of approach from bedroom windows over for the view. Over saloon, from which access can be obtained to all the principal rooms, there is a large dome light with semicircular ends. The stable offices and gate lodge are situated at a convenient distance from the house, and near the main road. The whole works were exceedingly well and creditably carried out. Mr. Matthew Lynch, builder, Dublin; John S. Mulvany, architect.

Mr. David Freeman, of 71, Queen-street, was the contractor for the additions to Hardwicke Fever Hospital.

The tower and spire of Christ Church, Bray, are to be erected immediately, the Ecclesiastical Commissioners having, we understand, entered into a contract therefor, according to the designs of Mr. Slater, at a cost of £2,100. An anonymous donor has pledged, through Rev. Thos. Moore, £500 towards the expenses.

### Miscellaneous.

ALLAN Pollok (says the *Southern Chronicle*) is acknowledged to be the first agriculturist and largest stockowner in Ireland; he has this year on his farms 1,000 acres of turnips, 500 acres of wheat, and 500 acres of oats and barley. The fields average fifty acres each. At the homestead, near Lismany, there are three acres of slate houses. The stables exceed anything in Ireland of the kind in point of extent, comfort, and design, and can be compared to, if they do not exceed, the Royal stables. The garden at his residence (the wall of which is built of fire brick) is something very considerable. The greenhouses and vineries are acknowledged to be faultless. The dairy is built after the most beautiful fashion, floored with polished marble, the shelving being of the same material. The utensils are of modern description, and kept scrupulously clean. The harness-room is fitted up in magnificent style, and the many sets of harness which cover its wall could scarcely be considered necessary for one establishment. The cattle and sheep on Mr. Pollok's estates are of the most superior breeds, and would, if sold at the high prices current, realise an enormous sum. Extensive purchasers find the Lismany steading a ready mart to make up a large lot. Mr. Pollok pays £1,000 per month to labourers alone. For the works recently completed, Mr. Kempster was the architect, and Mr. Patrick Cody, the builder.

A NEW POSTAGE STAMP.—A new style of postage stamp has been patented in New York, the inventor of which claims that it cannot be fraudulently used twice. The body of the stamp is made of gold-beater's skin, instead of paper, which is so nearly transparent that the printed impression upon it shows almost as well on one as on the other. The design, the legend, numerals, &c., are intended to be read through from beneath, and are, therefore, printed in reverse. The ink is also of a peculiar description. When this stamp is wet and glued on the letter, it remains permanent and unchanged, until some person attempts to peel it off. He then finds the printed matter remains attached to the letter, while the gold beater's skin comes off quite colourless, and having scarcely a trace of "postage" about it.

DINNER TO THE LORDS.—Lord Brougham has invited the House of Lords to dinner at the "Cooking Depot," in the New-cut, London. He has been there himself, and vouches for the quality of beef, peas, and potatoes, for *fourpence*, and "a basin of soup, better than which their lordships never had at their own tables," for a penny.

KINGSTOWN ROYAL MARINE HOTEL.—The following important (!) information as to the progress of this "LIMITED" concern, is taken from the "Kingstown Correspondence" of the *Irish Times*:—"The ground is almost ready to receive the foundation-stone. Judicious use is being made of the soil which arises from the necessary excavations. This is thrown into the large and unsightly hollow field lying between the Royal Hotel and the railway. When this ground is filled in, brought to the proper degree of level, formed and planted, it will constitute a valuable addition to the Gresham Gardens." [The holding of a Bazaar in the Gardens is expected to yield an income of one thousand a-year to the Company!]

NEW SILVER COINAGE.—The *Mechanics' Magazine* says:—"We have excellent authority for announcing the fact, that it is intended, ere many months shall have passed away, to recall the whole of the silver coins now circulating throughout the United Kingdom, and to replace them by an entirely new coinage of that metal. There can be very little doubt that the remarkable degree of success which has attended the recent reformation of the copper currency, and of which reformation this journal gave the earliest information to the public, has prompted the Government to take this important step."

A NEW BRICK FOR GARDEN WALLS.—Mr. Foxley, of Stony Stratford, says the *Northampton Mercury*, has invented a new brick, ingeniously contrived for avoiding the necessity of nailing for training trees to garden walls. The brick has a projecting bead in the centre of the face, which is drilled with holes so as to admit of the passage of a piece of string, with which the branch may be tied. One great advantage of the bead is, that it admits of a free circulation of air between the plant and the wall, preventing the formation of mildew and rot and the accumulation of insects. The cost is little more than the ordinary brick.

ROYAL NATIONAL LIFEBOAT INSTITUTION.—Rewards amounting to £21 were voted, at the last meeting, to the crews of the lifeboats stationed at Arklow and Wicklow, for going off in reply to signals of distress to the assistance of the crew and passengers, consisting of nearly 800 persons, on board the emigrant ship Constitution, from Liverpool to New York, which had stranded on the Arklow Bank on the night of the 20th ult. As the weather was not very boisterous, steam-tugs were enabled to approach the vessel, and to take the passengers on board, and afterwards to bring the ship to Wicklow. The Arklow lifeboat had remained by the ship at the entreaty of her captain. A reward was likewise granted to two men for rescuing, at some risk of life, in a small boat, one out of two men whose boat had capsized in a strong wind and a heavy sea off Inniskeragh, county Donegal, on the 17th instant. One poor fellow unfortunately perished before assistance could reach him.

The *Illustrated London News* of November 8th, when describing Benson's great clock, says: "The movement of this clock, next to that of Westminster, is the largest in the world, and in point of quality of material, and finish of workmanship, it is unequalled by any known." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate Hill, London. Branch establishment 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

IRON PAVEMENT.—The system of paving with plates of iron a foot square, and which has been condemned in London, is being tried in the streets of Paris, where also it is likely to prove a failure.

INCOME-TAX.—The gross amount of income-tax received in Ireland in the financial year 1862-63 was £703,322, and in 1863-64 (so far as has been ascertained up to the present time) £649,911. The annual values on which income tax was charged in these years were respectively £23,460,571, and £23,000,000; and the total amounts of tax charged £796,170 and £611,000 respectively.

BISHOP WHATELY'S CURE FOR HEADACHE.—"The first occasion on which I ever saw Dr. Whately (observes a correspondent) was under curious circumstances. I accompanied my late friend Dr. Field to visit professionally some members of the Archbishop's household at Redesdale, Stillorgan. The ground was covered by two feet of snow, and the thermometer was down almost to zero. Knowing the Archbishop's character for humanity, I expressed much surprise to see an old labouring man in his shirt sleeves felling a tree 'after hours' in the demesne, while a heavy shower of sleet drifted pitilessly on his wrinkled face. 'That labourer,' replied Dr. Field, 'whom you think the victim of prelatial despotism, is no other than the Archbishop curing himself of a headache. When his Grace has been reading and writing more than ordinarily, and finds any pain or confusion about the cerebral organization, he puts both to flight by rushing out with an axe, and slashing away at some ponderous trunk. As soon as he finds himself in a profuse perspiration he gets into bed, wraps himself in Limerick blankets, falls into a sound slumber, and gets up buoyant.—*Fitzpatrick's Memoirs*."

### TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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# The Dublin Builder.

VOL. VI.—No. 112.

## TEN YEARS IN RETROSPECT AND PROSPECT.

**T**EN years in retrospect! It requires no great exercise of memory, no unusual straining of our recollection to carry our thoughts back over a seventh of the period of life that has been allotted to us, nay, rather, the scenes that occurred around us when we were ten years younger, are pictured before us in crowded succession, as though it were only yesterday, and yet how many changes have been wrought in that brief interval by the busy hand of man. Ten years ago our "wooden walls" were triumphing in all their glory, after many then recent demonstrations of the supremacy of the island nation of which they were the ornament and the pride; now they are being enveloped in a four-inch casing of iron, cut down in their dimensions, and reduced in their armament, and very soon all that will remain of them will be a few inglorious old hulks, lying by in dockyards, to serve as floating hospitals or training-ships for volunteers. Ten years ago many a country district was buried in rural seclusion where the advances of the railroad have now stirred up a busy scene of traffic, and groups of cottages and houses have sprung up, to become, no doubt, the nuclei of future towns; and were we to take a wider and more comprehensive view, we might contemplate the workings of the hand of Time in the opening up of vast colonial districts, many times larger than our United Kingdom, now flourishing in an advanced stage of civilization, where ten years ago there were uncultivated wastes, the haunts of wild beasts and known to the savage aborigines alone.

But it is not our object to enter into an extensive diatribe upon the changes, moral and social, which the rapid increase of the race of man, aided by the march of intellect and the progress of science, is every where bringing about; but to take a plain, practical view of what ten years have done for our country, and more especially for our city; whether our progress has been commensurate with that of others, perhaps more favourably circumstanced; and lastly, what prospects we may reasonably expect that the lapse of another ten years may offer. And here we must remind our countrymen at the very outset, while abstaining from every question of a party or political nature as unsuited to our province and the impartial character that it is our chief desire to maintain, that if they desire to promote their own welfare and the prosperity of their country, the plain straightforward way to effect that object will be to uphold the cause of unity and concord, to lay aside dispute and discontent, and to work together with steadiness and with a will. Had we the pencil of an artist we might draw two pictures: one of

a country whose inhabitants, instead of seeking to develop the resources which Nature had bestowed upon them, spent their time in fruitless disputing, and then fled to a foreign soil from before the poverty which their own improvidence had engendered; on the reverse, a smiling landscape, where a people pursued steadily one definite object, to exercise and improve the talents that Providence had given them, and, by devoting them with united will to the execution of useful labour, to promote social happiness and an abundant return from their land. And so it has been proved during past years, since Irishmen have buried the hatchet of discord, the branch of peace has flourished, and so we trust it may ever continue to do.

The advance of time has been chiefly marked in country districts by the increase of railway communication, and the increase of traffic, which it has developed; but the progress which has been made by our chief provincial towns has been such as might well gratify the anticipations of the most sanguine, and the history of each might form the subject of an interesting treatise in itself. Over the capital of the west, indeed, one heavy cloud of disappointment has lowered, and if so it has arisen from that want of system and nationality which we have so strongly deprecated. There is yet a shadow of hope that the capital and enterprise which have been there expended may not be blighted with utter ruin; but while regretting the losses which have arisen through a false move of our chief western city, it is pleasing to contemplate with what rapid strides the great capital of the north has advanced. Ten years ago the city of Belfast exhibited the marks of established prosperity and greatness; a retrospect of ten years at that time would have shewn an advance almost unparalleled in its rapidity, and since then that city has each year shewn a proportionate increase in magnitude, until it bids fair at length to rival the Irish metropolis itself.

But in thus turning our eye to home quarters we have no reason to say that the hand of industry has here been stayed. A feature to be noticed is the enormous increase of our suburban districts, one of which has assumed sufficient importance to be created into a separate township. Let any one compare Rathmines, Rathgar, Kingstown, Dalkey, Bray, with what they were ten years ago. We have recently visited a new suburban district, along the inland line to Bray, which gives to the visitor all the ideal of a new colonial settlement. The houses are scattered at intervals along the brow of the hill, the mountain air is most bracing and invigorating, and patches of gardens, and young plantations are interspersed amongst the bare rock and the heather. Here is a locality where the business-man of the city may partake of the enjoyments of the country in all its wildness, and share them with the aquatic pleasures of the seaside, for it is within only twenty minutes' drive of either the metropolis or Kingstown. Ten years hence it will in all probability have become a regular town, and the citizen will be driven still farther to seek the recreation of country air. This

rapid increase of suburban districts, devoted more to pleasure than to the mere necessities of life, we should say afford a striking proof of pecuniary means in our country, even in the midst of many drawbacks.

And next with regard to our city itself:—ten years have shewn that in alterations and enlargements we have not been idle, but whether it be owing to that imbecility by which public functionaries are so often characterized, or to more private motives of parties in office into which we would not venture to pry, we fear they can hardly come under the title of improvements. Our macadamised-streets, once the admiration of visitors for their lightness and smoothness, are now ploughed up with paving stones, to the great annoyance of the citizens, and to the detriment of the light traffic for which they are as little suited as would be the rough streets of Liverpool or Manchester, which they are designed to imitate, to their ponderous waggons if covered with a smooth metalling of Macadam. We are more fortunate in our specimens of architectural talent, but these are works of private enterprise, and some of the churches that are now rising will redeem us from the censure under which we have fallen for the downright ugliness of such buildings hitherto existing. On the subject of statues we had rather observe a becoming silence, but we trust that an important question now pending may be decided in such a manner as both to redeem us from ridicule, and at the same time gratify the wishes of those who are most interested.

And lastly, if much has been done in our city, much more remains to be done. The valuable lectures of the Professor of Hygiene have aroused us to the importance of sanitary precautions, and as recent facts have exhibited a want of light, ventilation, and drainage in the poorer districts that is positively startling, so we trust that a remedy in that direction may be speedily applied. And then there is our much admired river, each year approaching more nearly to the putrescent condition of its English counterpart, at the horrors of which the Londoners fairly stand aghast. Oh! for the hand of a Bazalgette, to remove the foul line of separation that divides our city between north and south. There are a few obvious improvements in connection with our river that must strike the eye of every engineer. We could imagine an intercepting sewer carried along the line of quays, the sewage matter conveyed somewhere towards the end of the South Wall, where, in the neighbourhood of gas and creosote works it might be deodorized and converted into most valuable agricultural compost. We could imagine the North Wall carried forward to meet its cousin the North Bull, thus carrying the channel of the river to the point which has been defined as its mouth, deepening the bed by increasing the scour, and reclaiming perhaps a thousand acres of valuable land.

And now let us, in conclusion, indulge in a little imagination at the end of ten years in prospect. We can imagine our city enlarged to three times its present size, extending perhaps continuously to Kingstown, and the

Kingstown Railway a Metropolitan line. The Mails will arrive at Galway, carrying the intelligence from three great republics, they will run by railway direct from Galway to Kingstown, perhaps even a submarine line may be in contemplation. A new tract of country reclaimed from Halpin's Hole to the North Bull, another reaching from the Poolbeg Lighthouse to Booterstown; the steam dredges done away with; a spacious and ornamental substitute for the present Carlisle Bridge, and a party of anglers for salmon sitting upon its parapet. A People's Park at St. Stephen's-green, tastefully laid out in gardens, and ornamented with statues.

Let not our readers laugh at our picture, it may be accomplished if Irishmen will act unitedly, and if all grades and classes will devote their enterprise and talents to the interests of their country.

#### THE LONDON AND LANCASHIRE INSURANCE OFFICES.\*

THE above company having recently extended their Fire and Life branches to this city, chose for the purposes of their offices one of the finest sites, perhaps, that could be obtained. Situated at the south side of, and facing Carlisle bridge, at the corner of Westmoreland and D'Olier-streets, the building, presenting three fronts, is visible from nearly every part of Sackville-street, and Cavendish-row, and also from the quays on either side. The upper portion has been secured as a photographic gallery, while the lower is occupied by the Insurance Company. The necessary alterations have been completed by Mr. Morison, and the decorative part was entrusted to Mr. Samuel Eakins, of Sackville-street.

The entrance from Westmoreland-street is by a small polygonal-shaped porch, from which you pass through a pair of glass panelled swing doors to the front office facing this street. Two handsome circular-headed windows, having single panes of plate glass, and separated by a small carved column, give abundance of light. The fittings of this office are of oak grained and varnished, and an oak fluted cornice is carried round the room, while the gilt ribs of the groined arched ceiling terminate in a flowered ornament just over it; the ceiling is painted in a green ground relieved by gold stars. Three large circular carved ornaments in grained and varnished oak are centrally placed on different sides of the room.

From the front office there is approach by a glass panelled door to the manager's office, which faces D'Olier-street; this office is fitted up in admirable style. A third and smaller office is situated in the front immediately facing Carlisle bridge, and it also is neatly fitted up. The windows in these offices are same as above mentioned.

The cost of the alterations was over £300.

The *Engineer* of August 15th, in its description of Benson's great clock, says:—"It is the largest and unmistakably the best finished clock in the Exhibition." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting-house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch Establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

\* For illustration see our No. for 1st Inst.

## Correspondence.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—The enclosed letter which accompanies this note was sent for publication to the editor of the London *Weekly Register*, in answer to an article, which was transferred from that journal into the columns of the Dublin *Freeman's Journal*, but that gentleman, in "respectfully declining" to publish it, has, with great courtesy (for which I feel thankful) returned it by post to me. I trust that its object may be my apology for seeking its publication through your pages, and that, if convenient, you will allow it to appear in your next issue. Thanking you heartily for the impartiality which has characterized your able journal,

I am, Sir, yours truly,

C. D. W.

10th August, 1864.

#### THE O'CONNELL NATIONAL MONUMENT AND

#### ART, RESIDENT AND NON-RESIDENT.

To the Editor of the "*Weekly Register*."

SIR,—In the Dublin *Freeman's Journal* of the 18th ult. there appears an article taken from the columns of your paper, treating upon the above interesting and important subject. It is evidently founded upon great misconception, and, as a consequence, is not a little prejudiced against those who, in the free exercise of a conscientious opinion, have deemed it right to differ from such as assume that the artists in Ireland are not competent to execute the proposed national testimonial.

As one holding an opposite opinion to this latter, and actuated, let me assure you, sir, by neither "narrowmindedness, hyper-nationalism" (as you term it), nor "selfishness," and yet, as sincerely desirous that the monument to so great a man may be worthy of him, and of the grateful people who raise it, I trust you will afford me a hearing in your columns.

You are scarcely deserving of blame for having assumed that the question had been decided as to who should get the execution of the monument, or the chief feature in it. Inasmuch as the sub-committee appointed many months ago to consider and report upon that matter had, with premature haste, and without, it would appear, having given any consideration or attention to the claims and talents of the sculptors resident amongst us, adopted a resolution, which recommended to the general committee the employment of our *admittedly great and justly distinguished countryman*, Mr. Foley.

Meanwhile and subsequently, the trades and other influential and subscribing portions of public opinion expressed their dissent from this proposed plan, urging, that there are no grounds for assuming that the chief artists in Ireland are incompetent, or that they would fail to execute the memorial to the satisfaction and pride of all concerned; and giving it as their opinion that the proofs of the possession of genius and executive ability, given by the home sculptors, are both visible and convincing—so much so as to give them a title to first consideration from any committee of Irishmen, who really desire the advancement and prosperity of their own country.

And as proofs of the acknowledged success of the resident artists, the dissentients point to and invite impartial criticism of the following productions—viz., a statue of the late Captain Boyd, of the "Ajax," in St. Patrick's Cathedral, which may be compared with anything of its kind in Europe, for beauty, fidelity, and boldness of execution; to a memorial of Bishop Murray in the Cathedral, Marlborough-street; to the large and imposing bas-reliefs lately designed for and added to the Wellington Testimonial in the Phoenix park, and to many other works of unsurpassed merit, the particular mention of which would be superfluous.

They ask, are these testimonies to incapacity or inability? and they get for reply no answer of an authoritative nature. They invite, nay, demand inspection and inquiry into the arguments they have put forward, and court impartial and discriminating investigation; but the final consideration of the question involved is adjourned, in the vain hope that some adventitious circumstances will arise, and enable those who have made a mistake (as I believe) either to put an audacious front on their proceedings, or eventually succumb to public opinion, when all stratagems to avoid the final decision shall have failed.

Many ideas flit across the mind, when one considers the action of the English executive in Ireland in relation to our resident artists, and the bas-reliefs before alluded to, in the construction of which they were employed. The manner in which these were produced is a sufficient answer, I should think, to the doubters; they are also a testimony to the greater appreciation and more politic discrimination

of these authorities in that transaction, proving that even they (whom we have every reason for presuming were as anxious to commemorate the glories of Wellington, by employing competent persons, as are the "O'Connell Monument Committee" to honour in a becoming manner O'Connell) were not a-tray in their judgment, and that they could not think of perpetrating so great an outrage on the feelings of the public, as well as a reflection upon the genius and character for ability of our people.

May I ask, where were the voices of those at that period, who are now so loud in the mere sentimentalism, which complains in lachrymose tones "of the ostracism of Irish genius abroad?" The silence, which is the only response to this inquiry, suggests the unpleasant conclusion that the "cry" is a special plea for a special purpose, as destitute of real foundation as it is absurd and illogical.

Such, allow me to assure you, sir, and not the miserable and degrading motives attributed and insinuated by your article are the real causes of dissent. And I respectfully submit that the trades and such others as have given expression to kindred sentiments are not usually remarkable for the profession of intolerant, prejudiced, or selfish opinions. That they are, on the contrary (as is proved by a recent able manifesto from "The United Trades of Dublin," directed to the attention of the "Committee on Irish Taxation," in reference to the flagrant misstatements of Mr. Senior, a Poor Law Commissioner) the true representatives in Ireland of the public opinion of the masses, and the only existing embodiment of that intelligent, not "narrowminded" patriotism, which seeks, by the encouragement and development of our native resources, to raise and to elevate the character and prosperity of our people, will not, I think, be disputed.

If these, then, be not the duties owed by every good citizen to his country, no matter to what land he may belong, I confess that I have yet to learn what are.

To the other irritating but paltry insinuations, charging the people of Dublin with a desire to confine the giving of the work to a "ratepaying artist," I will not further advert, as it is merely an offshoot of the parent prejudices upon which the entire article is founded.

However, trusting that I have vindicated from ungenerous and unmerited expression, the conduct of those whose opinions in this matter I have the honour to share, and that the *Freeman*, and such other journals as have, by the publication of your able but ill-founded article, done us an involuntary injustice, will now give a place to an uninterested defence, and so aid the final adjustment of this vexed question, by the light of impartial—not of one-sided discussion—which, I sincerely hope, may be instrumental in working out a result equally gratifying to the feelings of all. Thanking you for your courtesy and patience, I am, sir, yours very respectfully,

C. D. W.

[The length of the article alluded to by our correspondent in his note precludes our inserting it; our readers will find it in the *Freeman's Journal* for July 18th.]

GOVERNMENT PRIZES.—The recently issued Report of the Examiners of Works sent from Schools of Art under the Department of Science and Art, in competition for National Medallions, refers to their increased number as consequent on the operation of the new minutes, the competition including works executed in many schools during a period of more than 12 months. Hence, also, the large increase in the number of medallions awarded; the number of competing works this year being 1,095, against 579 last year. On the whole the works are reported to give evidence of continued progress. Mechanically-minute shading in chalk and a tendency to substitute labour for excellence have not now to be lamented. The Examiners refer with regret to the frequent practice of students in the class of "Historic Ornament" of borrowing from Mr. O. Jones's excellent "Grammar of Ornament" the materials they should collect for themselves; it is recommended, therefore, that medallions should not be awarded in this stage unless the source of illustration is indicated upon each sheet. The excellence of execution of studies from flowers and foliage in colour is commended, and high praise given to rapidly-produced paintings of flowers from nature, and it is suggested that in other advanced stages of practice the students should be encouraged to compete with works executed in a limited time. The following are the names of Irish students who have been successful in the competition for National Medallions:—The Misses M. Alletson, Waterford; A. Baker, Cork; T. M. Bigley, Limerick; E. R. Byrne, Dublin; the Misses E. and L. Harris, Waterford; Miss E. S. Ryder, Dublin; E. Smith, Waterford; the Misses H. Strike, Waterford; F. Trout, Dublin; F. Walker, Dublin.—*Athenæum*.

## ON THE CULTIVATION AND PREPARATION OF FLAX.\*

IN responding to a call that I should lecture on the "Culture and Preparation of Flax," I must first thank the Exhibition Committee of the Royal Dublin Society and their officers for the kind readiness with which they have rendered every facility. I regard this as a proof of the continuance of the lively interest always taken by the Royal Dublin Society in everything tending to benefit Irish agriculture. The perseverance and wise proceedings of the Society have done for Ireland great things. For our speciality—i.e., flax-growing—they have done all that has been so far accomplished. I hope that long may the Society flourish, and continue to be of benefit to the country; and I have little doubt that this will be so as long as such men as Professor Davy, and others whose names I might mention, are connected with it in their important scientific capacities, and the present good spirit continues to animate the body. I will give a true statement of the results of experience and investigation, and add many facts learned in Silesia, my native country, to my knowledge of flax culture acquired in Ireland, the land of my adoption. Ireland has greater advantages than England possessed when her stupendous trade in cotton manufacture was commenced; she possesses the intrinsic power to produce any quantity of fibre, and is absolutely independent of any foreign aid in this respect; indeed, she might easily become even the purveyor to other markets. I will mention only another favourable condition. Whereas England has to make her profit out of the manufacture of the fibre after paying the rent, charges, and profit of the American cotton-grower, agents, shippers' charges, &c., Ireland does, as regards her staple, reap all benefits of this nature: she pays her own landlords the rent, her own farmers their profit, and her own people glean the harvest resulting from the circulation of wealth earned. Her own manufacturing population are benefited correspondingly; but as our business is with the farming and preparation only, I will not touch on the more advanced processes unnecessarily. I shall close this preamble which you have kindly passed, by venturing to remark that as one great man, who rose to so towering a position of influence that he was enabled to become a benefactor to the world, owed his individual power and the influence he used so wisely to the establishment and development by his ancestors of England's staple trade, so may this great man's son gracefully earn the praises and blessings of the country over the administration of whose economy he presides, by exerting his personal and political influence in encouraging and fostering the development of Ireland's staple trade—I mean Sir Robert Peel, whose influence, talents, and practical ability can effect this, without in any way interfering with his duties, or affecting his position otherwise than by endearing his name to Ireland. There is no country so eligibly adapted for flax-growing, owing to the heavy dews and moisture of its climate, as Ireland. With the exception of hard mountain land, there is little of the area that cannot, by proper treatment, be made available. In no case, excepting one which I will presently refer to, should flax be sown on land freshly manured. If this is done the plant is sure to grow strong and thick in wood, and will yield but little and poor fibre. Light, sandy, or boggy land should, in my opinion, be sown in the second rotation; heavy land in the third rotation. I perfectly agree with what Mr. Corrigan mentions in his excellent work on agriculture, p. 97, viz.:—"The best land is sound, dry, deep loam, with a clay subsoil;" also in his strong recommendation to drain and subsoil where it is necessary. I have seen very little land in Ireland prepared as it should be; too many growers seem to imagine that tillage and an amount of care that answer well enough for some crops are sufficient for flax. The result of this slovenly carelessness is disappointment and loss. Unless flax land is properly ploughed at the proper time, and properly attended to before and after seeding, no good can follow. Plough in autumn; cross-plough a week or so afterwards (every care being taken to keep the field as level as possible), so as to leave the soil exposed to the influence of the winter rains, wind, sun, and frost. Remove every stone, as opportunity enables, and otherwise do what is possible to reduce the condition of the surface soil to that of granulated garden mould. In spring, a few days before sowing, plough lengthwise (shallow, say about three inches), and harrow pretty heavily. Sow either by hand or by a clover-sowing machine, at the rate of a Riga barrel per acre of, on light land, Dutch seed, and, on heavy land Riga, or home saved seed. Care must be taken that the flax-seed is well cleaned, and that nothing but pure flax-seed goes into the

ground. This cleaning is effected on the Continent by means of a little machine carried from farm to farm, and worked by men who are prevented by the winter from following their usual business. They are usually mascons, &c., and charge 1s. per barrel. The machine consists of a piece of sheet iron, perforated with small holes of three sizes, which is attached to a wooden frame, slightly inclined. On this frame a series of six small wooden hammers, lifted or tilted up by pegs, on an axle which is turned slowly by the worker, keeps the frame in a state of vibration, the seeds dance gradually to the lower end of the frame, where they fall through the holes provided for them; weed seeds and other foreign matters of a smaller bulk than flax-seed having previously dropped through holes in the upper part. The seed now must be harrowed in by a light, narrow harrow, and, if necessary, rolled. By these means we have clean land, sown with clean seed, so that we may not expect to be overwhelmed with weeds; nevertheless, the farmer must attend carefully to this point, especially when the flax is from three to four inches long. I supply my weeder with a knife, with which they cut all such as thistle and other long roots under the surface, so as to prevent the disturbance of the neighbouring stalks of flax by pulling so large a root. The very interesting contents of the case contributed by the Earl of Arran to this Exhibition, being the flax productions of the families of his smaller tenantry of £5 to £14 rentals, comprising flax straw, hackled and scutched flax, the yarn spun, woven into various tissues, even coloured or dyed before and after weaving, all executed in a creditable manner, prove to me that the practice of flax gardening which I invented in Germany may be applied to Ireland with great benefit to the circumstances of the families of small tenants, as well as of farm servants. I now proceed to describe it. This is the only case (referred to previously) in which flax should ever be sown with manure. The plot, being carefully prepared, is dug with a mixture of animal manure and vegetable ash (burned peat). It is next sown with two and a-half or three times as much choice seed as field farming requires. This comparatively large amount of seed, sown as it is in strongly manured land, quickly produces a thick, rising crop of healthy flax, but which, owing to the far larger number of stalks per acre, runs up quickly, and, of course, remains slender. The stalks being slender, and the crop thick on the ground, it is much more liable to be injured by the effects of heavy showers or storms than field sown crops. To prevent this, I adopted the Belgian mode of supporting the flax during its growth: i.e., along the outer edge of the plot I place light (3 inch) poles at distance of 15 inches from each other, driven in about 9 inches, leaving about 4 feet above the surface. These posts are bored with holes about two inches higher one over the other. On the opposite side of the plot, poles similarly prepared are placed in the same manner. A network of zinc or galvanized iron wire will, if convenient, or of twine (in either of these cases the meshes may be 15 inches square) or, if handy, an old fishing net, may be spread over the flax, after weeding; the side of the net must be secured by pegs to the posts mentioned. The flax plants grow through the meshes, and as they grow the pegs must be raised in the posts, so as to keep the support about four inches below the top of the plant. The expense of these supports is but small; but if objected to, their places may be supplied by twigs, such as are used for supporting peas, and the flax will prosper equally well. Flax sown and supported as I have described during its growth yields an amount of fibre very, very large, say at least three times the quantity that would result from the same space sown and grown in the ordinary way, of quality so fine that it is used for the manufacture in Brabant and Bruxelles of the point and other laces, which, as we may see here, Ireland is striving to rival. The flax should not be left in the ground any longer after it shows indications of being really "ready," which indications are not an entire grey or yellow, indicating the absolute death of the plant, but a change in the colour of the bolls to a yellow hue, of the tips of the seed to a brownish tinge, a graduated yellowing of the stem or stalk from the top, one-third or more downwards. When these appearances present themselves, the sooner the flax is pulled the better. Removed from the ground at this proper period, it should be "stooked" in long rows in the field, so that the air may have free access to every stalk. In three or four days the flax plant and its seed will be found to be really ripe and matured, ready, in fact, for rippling. The seed of flax is of great value for not only cropping purposes, but for feeding cattle, &c. The acreage of flax in Ireland this year is about 300,000 acres. The estimated average value of seed saved for any purpose here is about £8 per acre; and thus may be seen the enormous sum of £2,400,000 dependent on the care exercised on the pulling and rippling. Some

say that flax should be rippled the day it is pulled; I must condemn any such advice. That part of the plant holding the bolls (which contain the seed), being the "top," is necessarily the most delicate, and being, when pulled, still soft and tender, is most liable to injury. When this portion of the flax, in this state, is presented to the violent action necessarily attending the operation of rippling, the result may be conceived—the fine fibres of the upper part are torn and injured. My practice is to ripple after "stooking." Convey the bolls into an airy room, turn them with a wooden shovel (as malt is treated) every few days for a month or so. In January or February, when the seed is thoroughly dry, it must be threshed. The seed, when freed from the husk, is put through a fanner, which in the same operation separates the lighter seeds, which are suitable for feeding or crushing, from the heavier, which it is desirable to preserve for sowing. The stalk of the flax plant consists essentially of a woody core, surrounded by a cylindrical sheath of filaments, the whole being cemented together by a strong gum or vegetable glue. To obtain the fibrous portion it is clear that we must destroy or weaken the binding power of the gum. Were it soluble in water there would be no difficulty; but it is not so, and the only way by which the object can be effected is by changing the condition of the gum, and this is done by exposing the plant to the joint influence of air and water, as by leaving it on the field or by letting it remain submersed in water; in neither case does the water act as a diluent, but it is a serviceable agent in assisting to produce a decay—rotting or retting of the gum, which we wish to get rid of. The process of putrefying by exposure to the atmosphere is commonly termed "dew retting;" that by immersion in water is called "water retting." The latter method, which was practised by the old Egyptians, has stood the test of time; fabrics of linen manufactured by them are extant to this day, and show by their texture and durability the great care that they must have given to the preparation of the fibre of which they are made. Dew retting, I need only remark, so greatly deteriorates the fibre as to render the system quite unfit for practice in this country. My district in Silesia produces no useful quantity of soft water, and when the responsibility fell upon me to prepare to the best advantage the crops of some hundred of acres annually, I was almost deterred by this obstacle; however, I devoted myself to the subject, and, after countless experiments and numerous failures, I at length succeeded in removing all difficulties. I constructed tanks, pits, or vats, lining them with tiles, or timber, if requisite, 35 feet long, 15 feet broad, about 4 feet deep. At 10 inches from the bottom I place a grating, or false bottom, made of laths. At the level of this grating I fit a pipe and tap, or plug, so that, when advisable, the vessel can be drained or run off to the level of the grating. On this grating the flax, neatly tied in bundles, is placed vertically, root downwards. The vat, or pool, is filled with as many of these bundles or beets of flax as can be placed therein by careful close packing—neatness, and care that the bundles are vertically placed and support each other, being necessary. On these terms the pools will hold about three tons of the flax straw. I then place laths or boards on the top of the flax; on these a sufficient weight of stones, and run up with water of any kind. I allow this water to remain 24 hours, after which I run it off to the level of the grating; remove the boards and weights, and, instead, cover the whole of the top of the flax lightly with straw. Very soon fermentation ensues (this is rotting or "retting"), caused and kept up by the evolution of gases from the water below the false bottom, which may be described as the "barm" or "yeast." This must be allowed to continue until, when tried by the well-known test, the flax is apparently ready. I now refill the vat with water, and so let it stand for a day or so. I have found that by taking this course I am enabled to dispense with two-thirds of the time usually occupied in "grassing," and also the objectionable hardening of the remaining gums is avoided. The flax is now taken out of the pool, placed so as to allow the gum-water to drip off, and then spread upon the ground for "grassing." It will be seen that in this method the quality of water is a secondary matter; the first filling being for the purpose merely of "soaking" the flax, and the second for washing. As the name specifies, "breaking" is the process of fracturing the woody straw of the flax, and precedes the operation of scutching. The more completely the straw is broken, the less difficulty is experienced in removing it from the fibre, to which it adheres with great tenacity. The process of freeing the fibre from this woody part is called "scutching." In this country the "mill," or "Irish scutch handle," has long been in use. This is a simple implement, consisting of a series of wooden knives or blades, attached radially, and at right angles to an axis. These blades, when in

\* By Joseph Friedlaender, Esq., of Belfast. Delivered at the Royal Dublin Society's Exhibition of Manufactures and Machinery, on the afternoon of Thursday, the 4th inst.

motion, work with a circular cutting sweep against the streak of flax held over the "stock." The knowledge of a mechanic is not requisite to enable any person seeing the "handles" at work to detect the fault that the circular sweeping cut of the knives first violently strikes the flax at the part nearest the block, and then drags the remainder of the streak, often forcibly tearing out and making tow of what, properly treated, would have been prime flax. I am the inventor of a machine, which I have patented, for scutching flax, which I exhibit, and which can be seen at work in the machinery department. In my machine the flax is brought into contact six times in every revolution (the machine working at the rate of 200 per minute) with a series of three factors—the first representing the Belgian wooden knife; the second, the intersecting and opening fingers of the workman; and the third, the steel scraper or comb. The blow is tangential, and strikes the flax in the direction of the fibre as it lies. This, with the alternate "finger" opening and scraping action, completes the resemblance between the operation of my patent machine and model Belgian hand-scutching. It is largely in use, and the demand for it is increasing, owing to its proved superiority. It is simple, not costly, takes little power to drive, can be worked by boys after eight or ten days' training, cannot destroy flax, no matter how careless the tender may be, and yields more fibre of better quality in less time than any machine yet brought out. I call it my "Challenge Machine." Dr. Baker, in his factory report, approved of this machine, and suggested the invention of locomotive scutching machines. I took the hint, and designed a very complete one, which will answer every requisite purpose. The lecturer concluded by reading a letter from the firm of Russel and Sons, of Limerick, approving of his scutching machine.

#### IRON BRIDGE AT LAUNCESTON, TASMANIA.

A FULL account of an iron bridge recently completed at Launceston appears in the *Examiner*. It has been erected from the designs and under the superintendence of Messrs. Doyne and La Touche.

The bridge is a light wrought-iron arch of 190 ft. span, with 20 ft. rise from the chord line to the under side, at the centre. The form of this arch is nearly that of a catenary curve, and springs off cast-iron bed-plates, which rest upon brick abutments, let into the solid rock which forms the almost perpendicular sides of this chasm in the basaltic hills of each bank of the river. It is composed of two bows, 15 ft. apart from centre to centre, each 4 ft. deep and 20 in. wide. The tops and bottoms of these bows are constructed of wrought-iron plates and angle irons, connected together by radiating pieces of T-iron and diagonal braces of angle iron. This system gives great strength and rigidity, with lightness of effect. The roadway is laid upon a line of nearly flat girders, resting on the top of the arch at the centre, and extending to the abutments at each end, but carried between these points upon vertical wrought-iron columns which stand on the tops of the bows, being diagonally braced together with angle irons, together producing open spandrels of great strength. The spandrel bracing plays an important part in the principle of the structure. An arch of only 4 ft. in depth and nearly 200 ft. in length, however well constructed, is only capable of supporting a load when uniformly distributed over its whole length; a very small load placed at one point would produce change of form, and transmit the strains from the longitudinal lines of the arch to directions in which the structure is not calculated to bear them. These spandrels are, therefore, so constructed that they transmit the strains produced by a load at any point to the whole length of the arch, and prevent it from undergoing any change of form. The bows, spandrels, and roadway girders are all diagonally braced together in every direction, and the whole structure is thus rendered as firm as the hull of a well-built iron ship; and, as it now stands in its place on the piers, it is as rigid as if it had been cast in one piece. The bridge is 220 feet in length on the roadway line, with 190 feet clear span of arch. The width of the platform between the handrails is 15 ft., divided into a footpath of 3 ft. 6 in. on each side, and a roadway in the centre, separated from the footpaths by wooden guide rails. The weight of wrought-iron in the bridge is 105 tons, or under half a ton to the foot run—the weight of the cast-iron railing and bed plates, 15 tons. The crushing or breaking strain per square inch of section, produced by the weight of the bridge at the centre of the arches, is two tons to the square inch; but if loaded with people as thickly as they could stand upon the platform, it would be about  $4\frac{1}{2}$  tons to the square inch; while the ultimate crushing weight of the iron is 18 tons to the square inch. The strain, where the cast-iron bed-plates rest upon the brickwork, is  $3\frac{3}{4}$  tons per square foot; while the strain required to crush the brickwork is about 200 tons to the square foot. The total strain on the end of each bow would be 75 tons only if the bridge were

completely loaded with people. In these days—so fruitful in engineering skill—it is difficult, we apprehend, to produce a novelty in bridge design; but the peculiar circumstances of this case have forced the engineers to adopt measures, which, in some respects, are, we believe, quite without precedent. There is nothing new in the principle of the South Esk bridge, but the mode of erection was quite novel. Many flat girder bridges have been constructed on pontoons, and floated to the piers prepared for them; but we are led to believe that there is no instance on record of an arch being so dealt with. The height of the roadway of the bridge is nearly 80 ft. above the bottom of the gorge; the depth of water is about 50 ft. at high water, spring tides; and the rush of water, when the river is suddenly flooded by storms, is almost irresistible in its force. All these considerations united to make the construction of a scaffolding across the gorge impracticable, except at an enormous cost; and the engineers, therefore, decided to put the work together on the "floating dock" belonging to Mr. Weedon, carry it to its place, and deposit it on the abutments with the fall of the tide. This difficult operation was most successfully completed on the 11th December. In the early part of last year, Mr. Doyne being about to visit England, preparatory to taking up his residence in the colonies, arranged with the bridge committee that he would, while in England, superintend the construction of the iron portion of the work, and that Mr. La Touche should take charge of the construction of the abutments, approaches, &c., all of which were done without the usual intervention of contractors. The contract for the iron work was let to Messrs. De Bergue and Co., of Manchester, in December, 1862; it was shipped from London, to which it was conveyed by railway, in March, 1863, and was delivered in Launceston in July last, where it was riveted together upon the floating centreing. The details of the engineer's design, and the manner in which the work had to be performed at Manchester, were necessarily subservient to the means of transport. The bows were riveted together in 12 ft. lengths, and all the other parts in equally convenient lengths for shipment, in all comprising upwards of 500 pieces, each piece comprised, on an average, of ten pieces; the whole fastened together by nearly 24,000 rivets. All these pieces were separately constructed, and set out by templates, and were never fitted together to test their accuracy until they were finally riveted together upon the floating centreing. There at first appeared to be some difficulty in obtaining measurements across the gorge, no platform being constructed upon which the ordinary modes of measurement could be carried out; yet it was necessary to obtain with absolute correctness the distance between the abutments, as the ironwork was being constructed in Manchester to the exact length determined on whilst the brickwork was being proceeded with, the ends of the bows of the arch, planned to a smooth surface, having to rest upon planed cast-iron bed-plates laid in the brickwork at an angle of 67 deg. In fact, the operation cannot be better described than as illustrated by an intelligent observer, who said that it might be considered as an immense key-stone, 190 ft. in length, dropped into the centre of a semi-circular arch of 494 ft. span. This illustration well conveys the idea of the accuracy with which it was necessary to carry out every part of the operation, more especially the measurement of the distance between the abutments, which was done by calculation from angles taken with theodolite from the north shore. The nautical operation of floating the dock with its mass of ironwork and centreing from the wharf where it had been put together, was entrusted by Messrs Doyne and La Touche to the harbour master, Captain Ling, who performed this part of the duty to their entire satisfaction. The cost of the ironwork in the yards at Manchester was a little over £2,000, to which has to be added the cost of transmission and erection, the expenditure on road approaches, abutments, &c., which will raise the entire expenditure for the bridge when complete to about £6,500, exclusive of engineering fees. The funds for the construction of the work were raised by debentures, guaranteed by the Government, under the provisions of a special Act of Parliament.

#### THE CONNECTOR STEAMSHIP.

This boat made a trip on Monday from Tilbury to Chatham, and proved her good qualities as a sea boat. Her special peculiarity is being built in compartments which are moveable and can be readily disjoined from one another. These compartments are so joined together as to allow of free motion up and down, while laterally the vessel is stiff, as if built in one piece. The object proposed is to have a number of similar vessels built for the coal trade, each vessel having 10 compartments, one of which shall contain the machinery, while all the others are available for cargo. The plan put forward is that the machinery compartment shall take three of the cargo compartments, say to Newcastle, leave them to be loaded with a thousand

tons of coal, return for three others which we will leave to be loaded while she brings the first three to London with their cargo, and while this cargo is being unloaded the engine again takes the last three cargo compartments to Newcastle. Thus there will be constantly three compartments being loaded, three discharging cargo, and three on passage, all worked by the one engine and crew. Each engine will thus be continually at work, and there will be no loss on the capital invested in motive power while loading and discharging cargo. The vessel, in fact, resembles a train of railway carriages which can remain at the station while the engine which brought them is employed at other work. The vessel in which the excursion was made is a mere model of what is intended to be made, and consists of three compartments, the last of which contains the engine. But the behaviour of this model, under trying circumstances, has been such as to warrant the highest expectations from larger vessels on the same plan. The enterprising inventor, Mr. M'Sweeney, has already navigated her some 6,000 miles, and has carried her safely through very rough weather. He has brought a cargo of coal in her from Newcastle and has taken her across to the French coast. It was very curious to stand upon the stern compartment and watch the way in which the centre and foremost compartment were moved up and down, while you felt perfectly steady; and the stiffness with which the vessel stood up under canvas was quite surprising to any one acquainted with the usual amount of heel-over, especially in a long, narrow vessel. This steadiness is best accounted for in the words of one of the sailors, who said with respect to it—"The fact is, sir, the whole of the vessel never wants to go over at once." Thus we are informed that she never rolls at sea, and her pitching resembles the motion of a snake on the water. Mr. M'Sweeney is sanguine of obtaining very high speed with great length and high power, and the work already accomplished by this little ship seems to warrant high expectations.

#### NATIONAL ASSOCIATION FOR PROMOTION OF SOCIAL SCIENCE—CONGRESS AT YORK.

The following are the questions for the several departments:—

##### Special questions for discussion in Jurisprudence:

1. Are the laws of real property in the three parts of the United Kingdom respectively, in their substance and tendency, suited to the present condition of society? and if not, how should they be improved?
2. On what principle should the law deal with questions of responsibility and mental competence in civil and criminal cases respectively?
3. Whether any, and what, ameliorations can be introduced into the institution and conduct of criminal prosecutions?

##### Special questions for discussion in Education:

1. What improvements can be introduced into the present system of public school education? The discussion will be opened by a paper on the Report of the Commissioners appointed to inquire into the revenues and management of certain colleges and schools.
2. In what way can the grammar and other endowed schools be made more available for the education of the middle class?
3. What are the peculiar difficulties in the way of elementary education in small towns and rural districts? and how can those difficulties be removed or lessened?

##### Special questions for discussion in Health:

1. What are the best means for disposing of the sewage of towns?
2. What are the causes, and what are the means for the prevention of excessive infant mortality?
3. What is the influence on health of the overcrowding of dwelling-houses and workshops? and by what means could such overcrowding be prevented?

##### Special questions for discussion in Economy and Trade:

1. What are the effects upon trade of the existing laws of maritime warfare?
2. Is the granting of patents for inventions conducive to the interests of trade?
3. In what respects and to what extent should government security and supervision be applied to the provident investments of the working classes?

**CHURCH ACCOMMODATION.**—A return made by the Ecclesiastical Commissioners for Ireland states, that since 1847, 248 churches in Ireland have been (or are being) enlarged, 67 of them entirely rebuilt on a larger scale; 47 new district parish churches have been erected; in 91 churches additional accommodation has been provided by alterations of pews and fittings—so that in the whole additional accommodation has been, or is being, supplied in 386 cases. The Ecclesiastical Commissioners have also erected or enlarged 42 licensed places of worship in places where they had not funds to build churches. The Commissioners have received, in the course of the 16 years, private subscriptions amounting to £78,120 towards the enlargement and improvement of the churches above referred to.

## LECTURES ON PUBLIC HEALTH.\*

## LECTURE IV.

*Water: its Impurities, and Diseases produced by them: Methods for their Removal: the Dublin Water Works.*

BEFORE discussing the hygienic questions connected with water, it may seem unnecessary that I should allude to the physical characters of that fluid; but they are so full of interest, and play so important a part in Nature's great and wondrous cycle, that I cannot avoid recalling to your recollection some such facts.

Water, when pure, is inodorous, tasteless, and colourless, save in large masses, when its normal tint seems a blue—for instance, in the Grotto Azzura, in the Bay of Naples, where it is, moreover, so transparent, that small objects can be seen several hundred feet from the surface. Other shades, as the brown of our bog rivers or the blackness of the Rio Nigro, are always due to organic impurity. Below 32° water is solid; liquid from this temperature to 212°, when it assumes the gaseous form freely; but at all temperatures some vapour is emitted. By avoiding agitation and very gradually lowering the temperature, water may be brought to 5° without freezing. Unlike other bodies which contract or become more dense when changing from the liquid to the solid state, water expands and decreases in specific gravity from 1,000, at which it forms the standard for all other bodies to .916 when converted into ice. The sheets of ice which form on our lakes and rivers remain on the surface owing to this fact; and if they did otherwise the layers would accumulate, and not only should aquatic animals cease to live, but, by the extraction of heat, terrestrial life would also perish. When we assign 212° as the boiling point, we mean that such is the degree at the sea level; but as we ascend, the barometric pressure, and, therefore, the boiling point, proportionally lowers; and the fact has been used in ascertaining the height of mountains. The power of absorbing heat, which water so pre-eminently possesses, gives rise to benefits of vast magnitude; for instance, the vapour is thus raised in countries of high temperature, and then distributed in cold and dry regions to moderate their rigorous and arid climates; and again, in our own bodies, water abstracts heat from the parched surface, and when afterwards evaporating produces further coolness. But there are many other functions which it performs in the human body—it renders fluid, and capable of circulation, all the nutriment of the tissues, acts as the great solvent for removing waste matter, and permits that exchange of materials through the membranes which constitutes the process of nutrition and secretion. Nearly four pounds of water as such, in aqueous drinks, or in solid food, so-called—and the more nutritious this is the more thirsty it makes us—are daily introduced into each human body, and leaving it again by the skin, the lungs, the kidneys, and bowels, exercise the cooling and cleansing powers of that fluid. It forms about three-fourths of the weight of the body; and, indeed, Blumenbach possessed a mummy which, when thoroughly dried, weighed but seven and a-half pounds. The amount of water which analysis reveals in each part is proportional to the quantity of blood it receives, and its consequent activity of function, and in all these respects the brain and the scarf skin, which respectively contain 789 and 37 parts per 1,000, are most strongly in contrast. Such essential qualities in human structures, as pliancy, toughness, and elasticity, would be absent if water did not abundantly exist in them.

All water is originally derived from the sea, and being raised from this never-failing source as vapour, returns to the earth as rain, and thus supplies our rivers, lakes, or springs. In percolating through the soil much of the organic and gaseous impurity of rain-water is oxidized, and spring water, issuing from depths, is most pure and wholesome. The oxygen which exists so abundantly in the soil serves also the purpose of destroying organic matter, for otherwise the neighbourhood of towns would become intolerable from the soakage of refuse into it. Rain-water abounds in gases, for example, if 32 parts of oxygen be obtained from it without decomposition, and in such substances as nitric acid, its salt with ammonia, carbon, and sulphuric acid, if it falls in cities, and is collected after having washed over dusty roofs and gutters, chlorides near the sea, and in some situations as Paris, iodine has been detected in it; its solids per gallon average three grains, of which half a grain is organic. From its mawkish taste, and the uncertainty of its supply, it is not generally used for drinking, but its comparative purity has been said to check the frequency of diarrhoea and cholera when used for this purpose: its softness or freedom from limesalts makes it a favourite with the laundress. River, spring, and well water vary much with the geological character of the district they come from, and in the case of wells with the depth to which they

are sunk; thus no two waters can be more different than that of a shallow well of some twenty feet and that from a Paris artesian well 1,800 feet deep. Such water is usually alkaline—for instance, that from a well in Southampton 1,360 feet deep contains eighteen grains of carbonate of soda per gallon. River water has usually a moderate amount of gases dissolved in it—for instance, about seven cubic inches of carbonic acid per gallon, and they are considerably reduced by exposure. Another mechanical means—filtration—removes abundant suspended impurities of such heterogeneity as clay and sand, infusoria, muscle fibres, biliary and sewage matters, algæ, confervæ, and fragments of wood, which average, for instance, in the water of the Rhine, to eight grains per gallon. The salts are usually those of carbonic, sulphuric, nitric, and phosphoric acids, and chlorine, with lime and soda; and these, together with the dissolved organic matter, escape the filter, notwithstanding the bright and sparkling character of such water. As an example of objects which the microscope discovers in filtered water, I may show those from the water of the cistern of the Grand Junction Company, London, as represented in a drawing after Dr. Hassall.



a. *Paramecia*, two species. b. *Vorticella convallaria*. c. *Coleps* *bitus*. d. *Pandora morum*. e. *Scenedesmus quadricauda*. f. *Navicula amphibia*. g. *Navicula sphaerophora*. h. *Asterionella formosa*. i. *Fragilaria capucina*. k. Brown active spores. l. Stationary green spores. m. Threads of slender fungus. n. Organic and earthy matter.

It must not be supposed, because of the circular shape of this figure, that all these plants and animals are contained in a single drop of water, for the portion they were obtained from was that allowed to settle in a large conical vessel, and the sediment was then placed in the field of the microscope. It is probably a fallacy to regard these little beings as the source of danger in impure water; on the contrary, they are scavengers for removing the organic decomposing matter which their presence indicates. As models of purity in drinking water may be instanced that of the Loka in Sweden, which, flowing over granite, contains but 1-20th of a grain of impurity per gallon, that of Loch Katrine, now supplied to Glasgow, which has but two and one-third, and that of the Vartny, which we will soon enjoy, and in which but four grains per gallon exist. On the other hand, pumps produce in large cities the most impure of natural waters; for instance, the water of one in Liverpool contains 417 grains per gallon of solids; and that of Park Crescent, London, which attains the height of filthiness, has, according to that accurate analyst, Dr. Dundas Thomson, forty-three grains per gallon of organic matter, chiefly derived from sewage.

The vegetable matter in river water is chiefly humic acid, and the animal products which are highly nitrogenous, and abound in butyric acid, are derived from dead animals and manure and sewage which soak into the river in highly cultivated districts or dense populations. Another source of impurity in shallow well water of cities is gas refuse from the works, or the gas itself, escaping from leaky pipes and impregnating the earth. Even the most impure well water may be sparkling and cool, and for these reasons have been often reckoned wholesome,—a grievous error, as we shall see hereafter.

The characters of a good drinking water may be enumerated as follow:—1. The temperature should be about 10° less than the surrounding air, and not less than 50° below that of the human body. 2. Freedom from taste, except its naturally saline one, and slight pungency from carbonic acid. It must be remembered that matters most deleterious may escape the watchfulness of this sense; seventy grains of common salt

per gallon give no perceptible taste. 3. Absence of smell. 4. Transparency and absence of colour, which latter character is not essential; for instance, many waters in this country are brownish from peat, but not necessarily unwholesome, and on the other hand, water charged with sewage products is often bright and colourless, though most deadly. 5. Alkalinity, usually from carbonate of lime. The Brussels Sanitary Congress fixed the maximum quantity of solid matter which potable water might contain at forty-nine grains and a-half per gallon, of which not more than a grain should be organic. This is a standard by which, however, we should not be guided, for few, if any, of the waters supplied to towns approach this total amount, and some of our best have nearly double the quantity of organic matter assigned. I may mention the amount of saline matter which sea water contains—namely, about 2,500 grains per gallon; but great variety occurs, even to such an extent that 40,000 grains per gallon have been found in the water of a small lake east of the Wolga, owing to enormous evaporation and rare addition of purer water.

In river water the lime salts are always the most abundant, being derived from limestone over which it

flows, giving up some of its substance to the carbonic acid in the water. When such water is boiled, the carbonic acid is driven off, and the lime salts mixed with organic matter is deposited on the insides of the kettles and boilers in crusts, which often become foetid, and should be removed. The presence of arsenic in some river waters and springs is a significant fact, 1-250th of a grain per gallon exists in that of the Mersey, and 1-166th in that of the Weisbaden mineral water. The advantages of a soft water are briefly:—that it is more economical by the saving of water and soap in ablution and washing of clothes, and it saves fuel by boiling at a lower temperature and by forming no crust, which must weaken the heating power of the stove. Much labour is required for removing this incrustation. Soft water is more suited for most culinary purposes—for instance, the making of tea.

In order to fix on your memories the usual impurities of water, I will add to each of these vessels of pipe-water a reagent which will detect the presence of some substance, certainly injurious if in excess:—1. Carbonic acid is shown by whiteness on adding baryta water. 2. Sulphuretted hydrogen (which I have introduced by adding a drop of this sewage water), brown or black colour, with acetate of lead. 3. Sulphuric acid, by chloride of barium producing a whiteness. 4. Chlorides, by nitrate of silver giving a white muddiness. 5. Lime, shown by whiteness on adding oxalate of ammonia. 6. Organic matter, by the decolorization of permanganate of potash, and several of the metals might be shown to be present occasionally by the tints they give with sulphuretted hydrogen.

The purification of water before it is offered for human consumption is a subject of the very highest importance, and yet one which in many communities meets very little attention practically. Some useful changes occur spontaneously in water, such as the settling down of a sediment of several suspended impurities, and the discharge of sulphuretted hydrogen, and for this purpose the water on the west coast of Africa is exposed in small quantities before being supplied to our troops. Organic matter is chiefly to

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be removed by filtration through charcoal, exposure, which promotes its oxidation, boiling, the addition of such oxidising agents as permanganate of potash, or of astringents, such as alum or tannin, the former of which is open to the objection of adding to the sulphate, by decomposing the carbonate of lime, but it has the advantage of throwing down all finely suspended particles of clay. Astringents of all kinds precipitate the coagulable albuminous matters, and in this way the nuts of the strychnos potatorum or "clearing nut" act when rubbed upon the vessels in which water is kept in many parts of India. For similar purposes chips of oak are thrown into the drinking water in the country round Bordeaux. Compare these facts with what we read in the Book of Exodus, when Moses used the bark of a tree to render the waters of Mara sweet.

a penny. Its patentee is of course a very enthusiastic advocate;—for instance, among many other uses, he advises it for ablation, asserting that soap leaves behind upon the skin some of the fatty acids. The oxidizing powers of the permanganate are much increased by a temperature of 150°.

Carbonate of lime in water, although useful in supplying the materials of our bones and in conferring a pleasant taste, may be in excess, and thus productive of disease, as we shall see presently. It may be removed, as discovered by Dr. Clarke, by means which seem paradoxical—namely, adding fresh lime. The action of the process depends on the fact that much of the carbonate is dissolved by carbonic acid, with which the additional lime forms a carbonate, and both this and the originally contained carbonate are precipitated. Some entangled organic matter

Sir Wm.) Wilde. That of the Portobello basin was particularly condemned, being found to deposit a large quantity of organic matter, which Prof. Apjohn described as follows:—"I may add that it was of two kinds, a thready or filiform product, which, when examined under the microscope, appeared to be confervæ or fresh water algæ, and a membranous substance of a highly cellular structure, having some resemblance to certain of the spongiæ. The latter exhibited two appearances occurring on the sides of the basin and interior of the mains, partly as an incrustation of slight thickness, and partly as projecting growths of the size and nearly the shape of the human fingers. The organized products just described were penetrated by numerous maggots, which had the faculty of spinning threads like those of the spider, executed rapid movements, and were capable of inflicting bites. When a mass of the mixed organic matter just described was placed in a basin of water, putrefaction rapidly set in, and in twenty-four hours an insupportably offensive odour was evolved." In the field of this microscope you will see several minute species from some of our Dublin pipe-water.

All kinds of filth, such as drowned animals, manure soaked from tilled fields, and the refuse from the boats plying on the canal, which to the boatmen must have been as a house-drain, were added to the water. I am informed that at present the whole of the sewage of the Mountjoy Convict Prisons is discharged into the Royal Canal. The disagreeable flavour of our water is constantly perceived by strangers coming to Dublin, but the sense of taste of the inhabitants is in many cases dulled by habit. More easily demonstrable evils resulted from the scanty supply, for water was not within easy reach of the poor, especially in the Liberties, in part of which the corporation pipes are not laid down. As an instance, I may mention that Dr. Ryan some years ago ascertained that of the fifty houses in Plunket-street, containing 800 poor, but one had pipes carried to it. Being dependent, then, on fountains, often at a considerable distance, the poor of this city, numbering over 100,000, have either to do without water, or to get drenched with rain on wet days, or in stormy weather by the blowing about of the water. They have often to wait a long time, amid scenes of contention, for their turn, and from the want of suitable vessels a sufficiency is rarely obtained. The consequence is, that one quantity is put through a round of washing operations, the foul-smelling suds polluting the air of the rooms for many hours, and under such circumstances personal cleanliness or salubrity cannot be hoped for among the poor or labouring class. But better things are in store for us; a magnificent system of water-works is being constructed to carry water from a mountainous, granitic, and pastoral district, twenty-two square miles in extent, to collect it in an artificial lake 420 acres in area, and in softness, absence of colour, and purity, even without filtration, the water will not be surpassed by that of any city in the empire. The composition of this Varry water is exhibited in this table of the analyses of four of our most eminent chemists:—

		Organic matter.	Total solids.
		Grs. per gal.	Grs. per gal.
Prof. Apjohn, T.C.D.	June,	1.70	4.40
Prof. Sullivan, M.I.L.	1855.	1.25	4.00
Prof. Barker, R.C.S.	August,	2.24	4.24
Mr. Plunkett, M.I.L.	1860.	1.24	3.99

As regards supply, it will be brought even into the house of the poorest, the cost being placed on the landlord, and the water will be on constant service and at high pressure—a condition of the utmost moment when a fire takes place. The force will be then increased by turning off the supply flowing to other neighbourhoods. Its constant motion will never allow the water to foul in the pipes. Two great mains will diverge at Lesson-street Bridge, and after encircling the city, will reunite at its western extremity, sending off in their course numerous intercommunicating branches. So far the arrangement resembles the arterial system of the human body, and when house-pipes are adjusted, and a full scheme of sewerage perfected, the analogy to the circulation in its arterial, capillary, and venous subdivisions will be indeed complete. For the inestimable blessings of a free and pure supply of this health-giving element, not only the present generation, but many future ones, will owe much to the zeal of the corporation and the unparalleled energy of Sir John Gray, M.D., the Chairman of its Water-Works Committee.

The material most suitable for cisterns or main pipes is cast-iron, or for small vessels, slate or earthenware may be used. All substances which allow permeation of fluids should be never used for storing water, as soakage from refuse would then readily occur, and the tank should be covered to exclude pollution from the air. Iron precipitates organic matter, as was conclusively shown by Medlock, who found the entire of the organic matter, 2.1 grains of the water of the Dune Canal, Amsterdam, was thrown down as a brown deposit by remaining in contact with it for forty-eight hours. The nauseous taste of the water was thereby removed completely. Even



a. Rotifer. b. Bursaria? c. Paramacium. d. Acinetus tuberosa? e. Vorticella. f. Acinophrys Sol. g. Filament of Conferva. h. Stems of Anthophrys? i. Earthy and Organic matter.

Filtration through sandstone, or various mixtures of sand and gravel, can only remove the coarse mechanical impurities, and therefore but little reliance is to be placed upon it. Such filters are expensive also, as they require frequent renewal; thus it has cost the 50,000 people of Toulouse £40,000 for such changes in the filtering apparatus through which the Garonne water is passed within a few years. For domestic purposes, water may be freed from mechanical impurity by this little piece of French sandstone, to which is attached a flexible tube, or by charcoal arranged in a similar way.

Finely powdered peat charcoal, tightly pressed down and frequently changed, is a far preferable medium for filtering water on the small scale, as it will purify six hundred times its weight of water; but it must be always borne in mind no kind or amount of filtration will ever render impure water quite pure or even safe for drinking. Boiling removes sulphuretted hydrogen from water; but it also removes carbonic acid and air, hence the flat taste of such water; and carbonate of lime, oxide of iron, and some organic matter is also cast down. Hence water should be so treated where an impure kind must needs be used; and its aëration and consequent palatable and wholesome properties can be readily restored by tossing from one vessel to another, as is well known. Even distilling water does not abstract all its impurities; for if rapidly brought over the organic matter, carbonic acid, sulphuretted hydrogen, and even some salts, will be found present, especially in the first and last portions. However, the late Dr. Normandy's plan for obtaining potable water for our sailors by distillation from the sea water was a real boon, and like many other really useful inventions, was simple and closely copied after Nature, for all our waters are originally had by evaporation from the sea. The addition of Condry's fluid most effectually removes all organic matter, and also lead, iron, and other metals, if present, as peroxides. The antiodotal powers of this permanganate in cases of metallic poisons have not been investigated, though they promise satisfactory results. The manganese which would enter the system if water was thus purified would not prove injurious, as it is similar in its actions to iron, and is found plentifully in the bodies of Scotchmen who use oats so freely in their dietaries. If the potash of Condry's fluid be thought objectionable, permanganate of lime might be used, as in presence of organic matter that earth would fall as the carbonate. About two ounces of Condry's fluid will render a hoghead of very impure water safely potable, and at a charge of less than

also falls. The plan is adopted in many limestone districts, and will be carried out on a grand scale at the Herbert Hospital, Woolwich. The water with which this city will be supplied from the Varry will be so much softer than that now used, that the daily quantity distributed to the inhabitants will contain ten tons less of lime salts. This will lead to a great economy of soap, for it is calculated that the interest of the cost of the Glasgow waterworks is repaid by the saving in this particular, and each Dublin citizen will save one penny per week in washing when the supply of soft Varry water is accomplished.

Notwithstanding the vast amount of intellectual labour which is lavished on the study of classics, but little of the sanitary knowledge which the Romans must have had has been made apparent. They seem to have been well aware of the superiority of water carried from a distant pastoral district, and hence the magnificence of their aqueducts, of which there were twenty altogether, and one has been traced to a distance of sixty miles. Some of the arches were one hundred feet high. The reservoirs, or *castella*, were of two kinds, *privata* for the houses, and *publica* for the baths, fountains, public buildings, and to supply the requirements of trades. A staff of several hundred men conducted the works, and were directed by a *curator aquarum*. The water was plentifully used in flushing the sewers, the arrangement of which was also on the grandest scale, for the *cloaca maxima* is 14 ft. wide, 32 ft. high, and constructed of Albano stone put together most perfectly. Modern engineers, by bringing the supply from more elevated sites, have rendered water-works less costly than they must have been in the cities of old. The present water supply of this city is derived from three sources—the Grand Canal, which is stored in Portobello and James's-st. basins; the Royal Canal, which fills the Blessington-street reservoir, and to a trifling amount from the Dodder, which is added to the James's-street basin. The position of these reservoirs within the city must make them subject to pollution from dust and smoke. The quality of the water had been long creating suspicion in the minds of medical and scientific men, while its scantiness at all times, and total insufficiency on the occurrence of fires, was apparent to every one. Some active members of the corporation determined that, if possible, a purer and more plentiful supply should be had for the citizens, and a royal commission was obtained to investigate the subject. Evidence as to its unfitness for drinking was given by such eminent authorities as Prof. Apjohn, the President of the College of Physicians, Prof. Macnamara, Dr. (now

water rendered impure by sewage, urine, or sulphuretted hydrogen, can be rendered fit for drinking by exposure to iron and subsequent filtration. The result is due to the production of the powerful oxidizing agent—nitrous acid—from the nitrogenous organic matter, and any of the metal which becomes dissolved can have no hurtful effect.

Some advise, however, the coating of iron pipes with zinc or varnish, and the mains of our new works will be varnished, both inside and outside, according to Dr. Angus Smith's patent method. The danger of using lead for pipes or cisterns is now well known, especially if the water contains much organic matter, for the nitrogen so supplied forms nitrous acid which dissolves the metal. But very pure water will also act on it: thus the extremely pure water supplied to Manchester will take up the one-fifth of a grain per gallon in twelve hours, and deaths by lead poisoning have thus occurred in that city. Notwithstanding the interest excited by this subject, some facts are as yet undetermined. Thus, we do not know why Thames water will at one time dissolve lead and not at another. One fact, however, is certain, this metal should never be used for the storage or conveyance of drinking water. The means for collecting water in countries where it is scarce and impure forms now a portion of military hygienic instruction; and one of the best means for this purpose is a barrel pierced with holes, and placed inside a larger one, also pierced, the interval being filled with charcoal. Many impurities are thus strained off; and until such plans were adopted the French soldiers in Algiers are said to have often swallowed leeches in drinking. The quantity of water which should be ingested, under the guidance of the sensation of thirst, varies much, and in these countries averages some three pints; but in the tropics, where evaporation is so enormous, eight pints are permitted by military regulation. For cleansing purposes and flushing of sewers, from fifteen to twenty-five gallons daily per head are said to be requisite, and fully this quantity is supplied to each individual in Liverpool by the new water works. As long as it is ensured that no waste occurs, pure water ought to be abundantly within the reach of all; and it is nearly as unfit that water should become a commodity as that air should. In 1817 Lord Cockburn wrote:—"Standing in a rainy country, Edinburgh has been always thirsty and unwashed, the condition of the city in reference to water positively frightful;" and that matters in that great city are not much bettered even now would appear from the forcible "Lectures on Public Health, in relation to Air and Water," recently published by Dr. Gairdner. In large cities drinking fountains are always most useful; and that they are largely partaken of may be learned from the fact that 90,000 drinkers daily have been counted at that in Bethnal Green, London. When we get our new pure and plentiful supply, no better means for exercising benevolence, or honouring the memories of our departed great ones, could be adopted than the erection of such fountains, if they can be made at all ornamental, or not allowed to become dry, as most of them in Dublin now are.

If I have succeeded in showing the necessity of a plentiful supply of pure water to the human body, you will not be surprised to hear that many diseases owe their origin or increase to a scanty amount or impure condition of that fluid. The metamorphosis of tissue, or the removal of old material and the deposit of new which is momentarily taking place in our bodies, is much influenced by the great solvent, water, and it is found to be unduly promoted by too much of this liquid food, and still more hurtfully checked by too little. The effects of excess of calcareous salts in water are difficult to recognize, as they are insidious and take a long period for their development; but a peculiar form of dyspepsia is now often assignable to this cause, as well as diarrhoea and subsequent dysentery. Horses supplied with water charged with sulphate of lime often lose health, as grooms notice by the roughness of their coats. Bony tumours in cattle, and some forms of stone in man, have been said to have been more frequent from impregnation of water with this and other calcareous salts. The diseases, however, which have been shown by recent scientific labours indubitably to depend on such causes are goitre and the lamentable state of semi-idiotcy, called cretinism, which sometimes accompanies it. In Durham gaol goitre was very prevalent some years ago, and it was found that there were seventy-seven grains of lime and magnesia salts in the water they drank. The disease decreased in those affected, and no new cases appeared when the amount of these salts was reduced to eight grains. It has been traced over limestone districts in several parts of England, Switzerland, and India; and in this country the same distribution of the disease has been shown by Dr. Martin of Portlaw, for it was prevalent on the Kilkenny side of the river Suir, where the stratum was limestone, and almost never seen on the Waterford side, where it was old red sandstone and Silurian slate.

In Gorruckpore the soil upon which many villages

are built is so calcareous, that some specimens contained 25 per cent. of carbonate of lime, and 10 per cent. of the adults are affected with goitre, and about an equal proportion of the children are afflicted with the pitiable state termed cretinism. The dogs and cats are said even to be affected by the lime salts. The bones of the skull are found so altered in shape, and their openings so contracted, that it is supposed that the lime and magnesia salts are deposited in them, and this condition is believed by some to be the cause of cretinism, by interfering with the circulation of blood in the brain.



Sever Water (taken from the Sever in Silver-street).  
a. Anguilla fluviatilis. b. Oxytricha. c. Paramecium. d. Vibrios. e. Filaments of Slender Fungus. f. Fragments of Muscular Fibre. g. Cells of Potato. h. Starch granules of Wheat. i. Hairs and integuments of Wheat. k. Spiral Vessels. l. Dead and Decaying Organic matter, as dotted ducts, hair of animal, gill, and debris.

Outbreaks of diarrhoea and dysentery are often attributable to organic matter in water, more especially if it be that variety which is derived from sewage. Dr. Greenhow records a notable instance. In the Southwark prison for one day only the water was drawn from a tank, the over-flow pipe of which communicated with a sewer, nearly all the inmates were attacked with severe diarrhoea, which in nearly all instances began within the twenty-four hours succeeding the introduction of the poisonous water. Typhoid fever is now believed to be due to the introduction of sewage matters in this way; or, according to others, it is necessary that the peculiar morbid matter excreted from the bowels of a patient already attacked should find entrance.

Bedford has been a favourite habitat of typhoid fever. Let me, therefore, read you a few facts from the report of Mr. Simon exhibiting the nature of its sewerage and water supply:—"The drainage of Bedford is most defective. Cess-pools are almost universal; there are said to be upwards of three thousand of them. They soak all their contents into the soil, for the Local Act forbids any drainage of them into the sewers. The refuse of thirteen hundred people thus percolates into the wells from which the water supply is derived."

These evils ensue from allowing shallow wells to be used into which sewage matters soak; and although their unfitness has been often demonstrated, it was not until lately generally understood, for we find three chemists, who were appointed to examine the waters of the metropolis reporting in 1851:—"That the shallow wells of London have never been pronounced unwholesome." I know of a well, some dozen feet deep, which supplies abundantly water which stinks abominably of sulphuretted hydrogen and decomposing animal matter, and this figure shows the crowd of plants and animals, and their organic food, contained in water from a surface-well at Sandgate, which Dr. Lankester tells us produced disease.

The dependence of cholera upon impure water has been clearly proven by the admirable researches of the medical officers of health in London. Dr. Dundas Thomson says:—

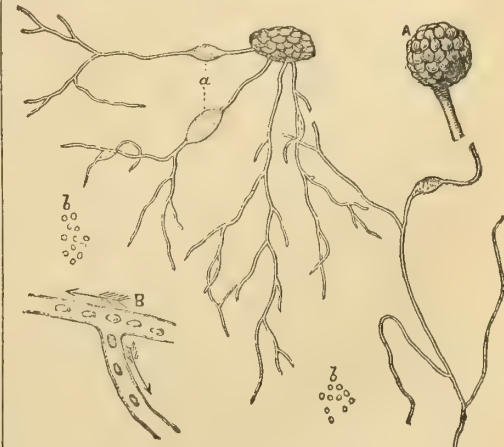
"But, perhaps, the most horrible example on record of the fatal effects of impure water occurred in 1854. I found that the Southwark Company's water was of a different composition from the water of the Lambeth Company. When I applied a piece of muslin over the supply pipe of the Southwark Company to the cistern in my laboratory at St. Thomas's Hospital, a large quantity of human excrement was detained, and the impurity in solution was much greater in the Southwark Company than in the Lambeth water, which contained little or no matter in mechanical suspension. The Lambeth water was obtained from

Hampton, while that of the Southwark Company was pumped up from the river near Vauxhall-bridge. These two companies possessed mains in the same streets, and supplied the houses indiscriminately. Analysis alone enabled me to detect the two waters, as the inhabitants, without consulting their water receipts, were unable to state the source of their supply. And although the population supplied by the two companies was precisely in the same condition, except as to water, the cholera deaths in the houses supplied by the Lambeth Company were 37 to every 10,000, and in those by the Southwark

Company 130 to every 10,000, or as one to three and a-half. I conclude from the data supplied that 2,500 persons were destroyed by the Southwark water, who would have been saved if they could have obtained the Lambeth water. It is a remarkable fact that the Lambeth water, in the epidemic of 1848-49, was more fatal in its effects than the Southwark, the Lambeth Company taking their water lower down the river at that time. The mortality in houses supplied by the Lambeth water was 125 in 10,000, while the deaths in houses supplied by the Southwark water were 118 in 10,000."

The same energetic physician records it as a matter of general belief in India, that cholera is producible mainly by water; and he relates the following instances of the way in which reservoirs of that inestimable fluid are treated:—

"One large tank, I recollect, which was used for the supply of water, had located on its banks several fakirs, who had resided there for years; one of these who had made a vow to allow his nails to grow for twelve years attracted my attention particularly by the remarkable appearance of his nails, which resembled ram's horns in being twisted and indurated to the extent of six inches. I was desirous of getting a specimen of his cast off nails for my museum, but he replied that it was part of his vow to throw them into the tank, where also all excretions were deposited, and where his ablutions were performed, according to his own statement. These waters contained much organic matter in solution, a considerable amount in suspension."



I cursorily alluded in my Introductory Lecture to the belief that cholera was due to the use of con-

taminated water, and I now will lay before you some of the facts which seem to corroborate that view; and first, of the famous Broad-street pump. The cholera broke out in this neighbourhood in 1854, and killed five hundred people in less than one week. Dr. Lankester examined the water of it, and found the remarkable fungus, his representation of which I show you.

According to an analysis of Dr. Dundas Thomson, it contains over six grains of organic matter derived from sewage. The clearest case where cholera was due to it was that of a lady, who, having resided in the vicinity, moved to Hampstead, some three miles distant. The pump-water in Broad-street was so sparkling and pleasant that she sent daily for it. She and her niece were the only persons attacked with cholera in Hampstead, and her servant suffered from severe diarrhœa.

Cholera is peculiarly a disease of low level, because of the difficulty which water charged with its peculiar poison encounters in escaping. This fact was most admirably demonstrated by the Registrar-General in his famous report on the epidemic in 1849, and can be seen at a glance from the diagram which I exhibited at my first lecture. Exceptions, however, depending on the local water supply were numerous.

From the researches of the late Dr. Snow who originated the idea that cholera was spread by the water used for drinking, I select two instances, the one to show the decrease of cholera following improved water supply, the other its increase when the quality of that necessary is deteriorated. The cases of cholera in Exeter in 1832 exceeded 1,000. The water supply was by carriers from the river, into which all the sewage flowed. Before the next visitation which devastated the country, the water was taken from two miles above the town, and in 1849 but forty-four cases occurred, and in 1854 hardly one. Hull, in 1832, was supplied with pure water, but so scanty, that the poor had to resort to other means to procure it; 300 people, mainly the poorest, died of cholera in that year. In 1844 a supply was abundantly procured for all classes, but from the river; and accordingly, in 1849, 1,834 persons from all ranks fell victims to this ignorance or negligence of the poisonous effects of contaminated water. It is remarkable that Sunderland was the first town attacked, both in the epidemics of 1831 and 1848.

What has been proven of cholera may be just as true of many other intestinal and other diseases, and must surely awaken communities to the vital importance of water pure and plenty. I cannot refrain from reading for you Shakspeare's description of blood poisoning, as it is most consonant with the modern view of the action of the cholera poison:—

"Whose effect  
Holds such an enmity with blood of man,  
That, swift as quicksilver, it courses through  
The natural gates and alleys of the body;  
And, with a sudden vigour, it doth posset  
And curd, like eager droppings into milk,  
The thin and wholesome blood."

That yellow and marsh fevers are due to the water the patients have drunk is credited by many mainly on such evidence as the following:—All on board a ship which had watered at Jamaica, except those who messed at the captain's table, were attacked by yellow fever. The water used by the captain and his friends was brought in the out voyage from Europe. The transport ship *Argo*, which, in returning to Marseilles, took in a water supply at a creek at Algiers, and many on board were seized with ague, while no case of that disease occurred on board a companion ship which made the same voyage but did not water off Algiers.

Many diseases—for example, yellow fever and boils—were at one time believed to be producible by sulphuretted hydrogen in water, but that gas abounds in the Harrowgate and other sulphur springs which give rise to no such effect.

It may be regarded as almost proven that the eggs or embryos of many parasitic worms, such as the guinea-worm and broad tape-worm, the rare one in this country, gain entrance into the human body by means of the water we drink; for as no one believes now in the doctrine that they are spontaneously generated, in either our food or drink they must lie concealed.

The influence of a scanty water supply in promoting skin diseases I will speak of in a future lecture.

**NATIONAL GALLERY OF IRELAND.**—The attendance of visitors at the gallery during the week ending 6th August, was 2,324. Total since the opening on the 1st February last, 138,237. At the fifth annual election of governors held on the 10th inst., the following noblemen and gentlemen, whose period of office had expired, were re-elected:—The Right Hon. the Lord Chancellor, Viscount Powerscourt, Lord Talbot de Malahide, Sir Geo. F. Hodson, Bart., Robert Caldwell, J. Calvert Stronge, J.P., and J. E. Pigott.

## LIGHTHOUSE ILLUMINATION BY MAGNETO-ELECTRICITY.\*

ANY one who, on a tolerably clear night, has crossed the Channel between Folkestone and Boulogne, and remained on deck, must have noticed on the French coast what appeared a brilliant star, now waxing, now waning. It was the light of the far-famed Pharos, on Cape Grisnez. But if he has made the passage within the last eighteen months, his gaze will have been attracted by a still brighter star on the British coast, of a bluish tint, steady and brilliant. This is the magneto-electric light at Dungeness, the brightest spark in the world, and one which unites a rare scientific with a practical interest, and may prove only the first lighted of a multitude of similar beacons. I propose to say a few words on the history, production, and merits of this light.

**History.**—If we ask the parentage of the magneto-electric light, Mr. Frederick Hales Holmes is certainly its father, but, like other beings, it has had two grandfathers—the philosopher who first showed the conducting power of charcoal, and the brilliancy of the light between charcoal terminals of an interrupted galvanic current; and Professor Faraday, who discovered that when a piece of soft iron, surrounded by a coil of metallic wire, was made to pass by the poles of a magnet, an electric current was produced in the wire, which revealed its existence by effecting chemical decompositions, or by giving a spark. This spark, it is true, was barely visible as at first obtained, but it had been exalted into the present magneto-electric light.

It appears that in 1853 some large magneto-electric machines were erected in Paris for producing gas by the decomposition of water, the object of the proprietor being to use this gas for the purposes of combustion; but the scheme failed, the company that was being formed came to nothing, and the machines were pronounced by leading scientific men to be only expensive toys. Mr. Holmes, however, who was one of the referees, proposed to turn them to account for electro-plating and gilding, and thought it possible that the electric light might be produced advantageously by their means. "My propositions," he says, in his evidence before the Royal Commission on Lights, Buoys, and Beacons, "were entirely ridiculed, and the consequence was, that instead of saying that I thought I could do it, I promised to do it by a certain day. On that day, with one of Duboscq's regulators or lamps, I produced the magneto-electric light for the first time; but as the machines were ill-constructed for the purpose, and as I had considerable difficulty to make an adjustment to produce a fitting current, the light could only be exhibited for a few minutes at a time—say ten or twenty minutes—when the adjustments were entirely displaced by the friction; the rubbing surfaces were worn away. From this time I directed my attention more particularly to the reconstruction of these machines entirely, from the very framework upwards, so as to produce the current that I saw necessary for the electric light." During this time it appears that Mr. Holmes, not liking the treatment he received from the French Company, left Paris, and left his imperfect machine there; and it was this very machine which was subsequently used by the French Government in their experiments, and these experiments were carried on by a man who had worked under Mr. Holmes. The inventor next appears in Belgium, continuing his improvements with a new machine, and visited by Admiral (then Captain) Fitzroy, who was commissioned by the Admiralty to go to Brussels, see the light, and report on it. In February, 1857, Professor Holmes applied to the Trinity Board, and in the following month the electric light was exhibited for several nights at the experimental lantern at Blackwall, before the Light Committee and Professor Faraday. In May an agreement was made for a trial at the South Foreland, but it was not till the 8th of December that this experiment at an actual lighthouse was commenced. The Elder Brethren made arrangements for getting observations by the crews of pilot-cutters, masters of light vessels, and the keepers of neighbouring lighthouses, both on the British and French coasts. Some unforeseen difficulties seem to have arisen, due partly, no doubt, to the novelty of the whole arrangement, but partly also to the complicated optical apparatus in the lighthouse being suited to a large flame instead of a brilliant point of light, and being ill-adjusted to throw that light to the horizon. All this caused some interruptions in the experiment. M. Reynaud, the Director-General of the French Lighthouses, inspected the light on April 26, 1859; it was visited by most of the members of the Royal Commission of Lights, Buoys, and Beacons, including myself, three days afterwards, and on the same day Professor Faraday wrote a report to the Trinity House. The opinions expressed were so far favour-

able, that the Elder Brethren desired a further trial of six months, during which time the light was to be entirely under their own control, Mr. Holmes not being allowed to interfere in any way. The light was again kindled on August 22, and the experiment happened soon to be exposed to a severe test, as one of the light-keepers who had been accustomed to the arrangement of lamps in the lantern was suddenly removed, and another took his place without any previous instruction. This man thought the light quite strong enough if he allowed the carbon points to touch, as the lamp then required no attendance whatever, and he could leave it in that way for hours together. On being remonstrated with, he said, "It is quite good enough." Notwithstanding such difficulties as these, the experiment was considered satisfactory, but it was discontinued at the South Foreland, for the cliffs there are marked by a double light, and the electric spark was so much brighter than the oil-flames in the other house that there was no small danger of its being seen alone in thick weather, and thus fatally misleading some unfortunate vessel.

Then occurred a period of two years, consumed partly in coming to the decision that the magneto-electric light was to be exhibited at Dungeness, and partly in fitting up the lighthouse there (which, by the way, had been cracked by lightning) for the reception of its new occupant.

It was not deemed desirable to trust the illumination of that headland entirely to the electric light, hence the old apparatus was retained, and the oil-lamp has always been kept ready for use in case of necessity. A supplementary lantern was therefore constructed on the top of the ordinary one, and in this the electric lamp was fixed, and surrounded by a small combination of lenses and prisms made expressly for it by Messrs. Chance, of Birmingham. In the meantime Mr. Holmes had considerably improved his lamp by borrowing an idea from an arrangement devised by a M. Serrin. At length, in February, 1862, this lamp was lit at Dungeness, but it was extinguished on account of the necessity of instructing fresh lighthouse keepers, who had to take charge of the apparatus, and it was not till the 6th of June that the brilliant star shone permanently on our southern coast.

In the meantime the French have not been indifferent or idle. When the Royal Commission visited Paris, the lighthouse authorities were found experimenting with a comparatively small machine, and had clearly not overcome the difficulty of maintaining the charcoal points at a proper distance. But they persevered, and last July there was published in the *Moniteur Universel* a report by M. Reynaud to the Minister of Commerce and Public Works, in which he expressed a most favourable opinion of the electric light, and the Minister gave an order for two electro-magnetic machines, to be placed in the double lighthouse of the Cap de la Hève, near Havre. Thus France is following England in the adoption of this improvement in coast lights, just as, years ago, Great Britain followed France in the use of the Dioptric system of illumination.

It is possible that some other nations may not be behind the French. The Dutch Government contemplate placing an electric light at Scheveningen, and a second one at Texel. The lighthouse system in the empire of Brazil is excellent, and they have long had an eye on the electric light. Sweden is on the alert; and inquiries have also been made respecting its management and cost by the Imperial Academy of Vienna.

**Apparatus.**—Many readers will be familiar with the apparatus both of Mr. Holmes and of M. Berloiz, from having examined them at the International Exhibition last year. It would be very difficult to describe them without drawings, but the following may give them a sufficiently good general idea:—In the apparatus at Dungeness, the power that produces the light is resident in 120 permanent magnets, of about fifty pounds each, ranged on the periphery of two large wheels. This power is called into action by a steam engine, with Cornish boilers, of about three-horse power, which causes a series of 160 soft iron cores surrounded by coils of wire to rotate past the magnets. The small streams of electricity thus generated are collected together into one stream, and by a special piece of apparatus called a commutator the alternate, positive, and negative currents are all brought into one direction. The whole power is then conveyed by a thick wire from the engine-house to the lighthouse tower, and up into the centre of the illuminating apparatus. There it passes between two charcoal points, producing thus a most brilliant and continuous spark. The "lamp," or "regulator," is so contrived that by means of a balance arrangement and a magnet, round which the wire coils, the charcoal points are kept always at a proper distance apart. At sunset the machine is started, making about 100 revolutions per minute; and the attendant has only to draw

\* By J. H. Gladstone, Esq., Ph.D., F.R.S.

two bolts in the lamp, when the power thus spun in the engine-room bursts into light of full intensity. It now requires little or no thought for three hours and a half, when, the charcoal points being consumed, the lamp must be changed, and this is done without extinguishing the light, for it is the kindling of the second lamp that puts out the first. There are always several lamps ready at Dungeness in case of accident, and everything is kept in duplicate.

The French machine is composed of fifty-six magnets, distributed in seven vertical equidistant planes, upon the angles of an octagonal prism. The maximum of intensity is obtained when the machine turns 350 or 400 times per minute, and the direction of the current is then reversed nearly 6,000 per minute. There is no commutator employed, and the alternate currents are not brought into one.

*Merits and demerits.*—In favour of the electric apparatus it may be stated, without any fear of contradiction, that the light is vastly more intense than that produced from the most powerful oil-lamp or any practicable number of argand burners. In truth, that now shining at Dungeness is the most brilliant light in existence. The following statement will illustrate this. Professor Faraday says of it, when at the South Foreland, "During the day-time I compared the intensity of the light with that of the sun—that is, it was placed before and by the side of the sun, and both looked at through dark glasses; its light was as bright as that of the sun, but the sun was not at its brightest." No other light in existence would have stood that test. Again, he describes an experiment at Dungeness:—"Arrangements were made on shore, by which observations could be made at sea about five miles off on the relative light of the electric lamp, and the metallic reflectors with their argand oil-lamps (the light formerly used), for either could be shown alone, or both together. . . . The combined effect was a glorious light up to the five miles; then, if the electric light was extinguished, there was a great falling off in the effect; though, after a few moments' rest to the eye, it was seen that the oil-lamps and reflectors were in their good and proper state. On the other hand, when the electric light was restored, the glory rose to its first high condition. Then, whilst both were in action, the reflectors were shaded, and the electric light left alone; but the naked eye could see no sensible diminution; nor when the reflectors were returned into effectual use could it see any sensible addition to the whole light power, though the telescope showed that the alteration in the lantern had taken place at the right time." M. Reynaud estimates the usual intensity of the light at from 180 to 190 standard Carcel burners.

This superiority of brightness is of practical service only in thick weather, for if the air be clear an ordinary first-class light under the old system answers every purpose of the mariner, and in fog no light is of any avail. But it scarcely requires demonstration that in certain intermediate states of the atmosphere, the brighter light will penetrate the haze, rain, or snow, to a distance at which the other is perfectly invisible. There is nothing in the nature of the rays emitted to prevent its doing so, for when submitted to spectral analysis, the electric light is found to contain every ray that the oil flame does, and others besides. The returns of neighbouring lighthouse keepers, and of the masters of two of the lightships at the Goodwin Sands, during the experiment at the South Foreland, show this to be actually the case, and similar testimony is borne by the masters of passing vessels, the commanders of the Channel steam packets, and the pilots who frequent the neighbouring seas.

The peculiar bluish colour of the light as seen from a distance is another advantage, by distinguishing it from ships' lights, or lamps on shore; and practically this is a great object. Of course it may be made red or green, or any other tint, by coloured glasses—indeed, it is peculiarly adapted for such a purpose. As the light can be interrupted and immediately rekindled with full intensity at pleasure, this light offers facilities for signalling which no other does. Each lighthouse might be made to repeat its own number all night long, if that were thought desirable. Another advantage is well stated in the words of Professor Faraday:—"In cases where the light is from lamp flames fed by oil, no increase of light at or near the focus or foci of the apparatus is possible beyond a certain degree, because of the size of the flames; but in the electric lamp any amount of the light may be accumulated at the focus, and sent abroad at, of course, an increased expense. In consequence of the evolution of the light in so limited a focal space, it may be directed seaward, diverging either more or less, or in a vertical or horizontal direction at pleasure, with the utmost facility. The enormous shadow under the light, produced by the oil flame burner, which absorbs and renders useless the descending

rays to a very large extent, does not occur in the magneto-electric lamp; all the light proceeding in that direction is turned to account. The optical part of the arrangement, whether dioptric or reflecting, might be very small in comparison with those in use; and, indeed, it is so at Dungeness. As there is always an extra steam-engine and machinery on the premises, and ready for work, the power, and the consequent light between the charcoal points, might at any time be doubled if the state of the atmosphere seemed to require it.

It has already been remarked that in fog no light, however powerful, is of much avail, and public attention is now being directed to the necessity of improving our fog signals. It has been well observed in M. Reynaud's report, "During foggy weather the supplementary steam-engine might be employed in playing sonorous instruments, which would carry sound to a much greater distance than the bells to which we have recourse at present."

Against the advantages attending the use of this electric light must be set the greater complexity of the instrument, and the consequent greater chance of derangement, or rather the necessity of providing lighthouse-keepers of a superior order, and an engineer to inspect the machinery and keep it in repair. This demand for superior workmen is a difficulty we generally have to encounter in perfecting our engines either of peace or war.

The relative expense of the magneto-electric light and the Fresnel lamp is a consideration that must not be overlooked, though it should not be allowed too much weight when we are dealing with the safety of valuable cargoes and priceless human lives. The original outlay in machinery for the electric light is very large, but there must be set against this a considerable diminution in the cost of the apparatus used for directing the rays where they are wanted. The working expense consists of the coals burnt, the charcoal points used up, and the wear of the machinery, all of which perhaps scarcely exceeds the cost of oil under the old system. The magnets are said rather to increase in strength than to diminish by use. The salary of an engineer is a more serious item, but the expense may be greatly reduced by appointing one engineer to several lighthouses, if the electric system become common. Mr. Holmes estimates the working expenses of the electric apparatus as compared with the oil-lamp, at about 400 against 290. The French estimate is, "Abstracting the expenses of the first establishment, it will be found that while the expenses of the annual maintenance of a lighthouse of the first order fed with colza-oil rise to 9,421 francs 75 centimes, those of the same lighthouse illuminated by electricity would be 12,240 francs." Again, "The annual expense will be increased twenty-nine per cent. in lighthouses of the first order, but it will have the effect of rendering the luminous intensity at least fivefold greater."

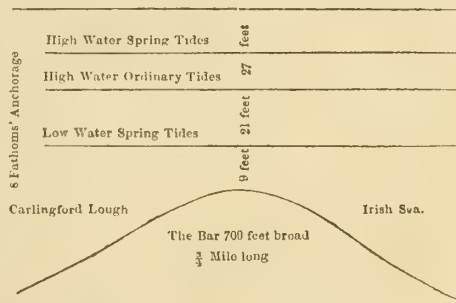
It has been objected that the light is too bright, dazzling the mariner and misleading him as to its distance, but experience will soon remove this source of error; and it is hard to understand how the light can produce any dazzling effect, unless exhibited at the head of a pier close alongside of which the mariner must steer his way. But for harbour lights it is not required. Its proper place is on the prominent points of the coast which are used as landfalls by vessels, and unless objections present themselves in the future which are as yet unknown, we may confidently anticipate that each of these headlands will in time be marked by its brilliant electric light.—*Quar. Jour. of Science and Phar. Journal.*

The *Morning Post*, Sept. 29, speaking of Benson's Watches in the Exhibition, says:—"The collection of watches shown by Mr. Benson is a large, and at the same time an interesting one, and considerable attention has been paid by the exhibitor to the decoration of the cases. Many of them are extremely elegant in the design, and were the result of prizes offered by Mr. Benson to the pupils of the South Kensington Schools of Design." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watch making, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, Honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and Clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## CARLINGFORD BAR.

In our last issue we announced the fact that the Board of Trade had sanctioned the expenditure of £80,000 on deepening of the Bar at the entrance to that fine sheet of water, Carlingford Lough. The following is extracted from an interesting book, published some years ago, under the title of "A Picturesque Handbook to Carlingford Bay and the Watering Places in its vicinity." The object of the work, as stated in the introduction, was "to show how readily accessible to tourists is a district remarkable beyond most others for scenic beauty, salubrity, and cheapness and excellence of accommodation." When the lines of railway from Newry and Dundalk, with their junction close to Greenore Point, and the docks and pier are all completed, we have not the slightest doubt but that "the time-hallowed and ever freshly-beautiful shores of the Bay of Carlingford" will not be unknown to the general run of health-seekers, who need not fly off to Madeira, or even into a "Crystal Sanitarium:—

"The navigation to Newry has the advantage of a lighthouse, situated at the bar on Haulbowline rock, at the mouth of Lough Carlingford. It was erected in 1823, and shows, at an elevation of 101 feet above high water, a fixed white light, which can be seen fifteen miles out at sea. There is another lighthouse in Carlingford Lough, two miles and a-half farther inland, on Greenore Point, erected in 1830. It is a white revolving light, twenty-nine feet above high water, and may be seen nine miles off at sea. There is another light still required at Warrenpoint to enable inward-bound vessels to reach the head of the Lough in dark nights. The steamers particularly feel the want of this light in winter, and when the atmosphere is foggy. The opinion of nautical men is that if this light were placed on the Black Rock or some other elevated place at the head of the Lough, and that the bar were removed, the Carlingford Lough would be a most complete, easily entered, and perfectly safe harbour of refuge, sheltered from every wind. This bar is a natural deposit of blue clay and boulders, upon a strata of limestone rock, at a considerable depth below the surface running right across the entrance to the Lough. It was originally a very narrow ridge, but from the accumulations of sand and clay carried down from the head of the Lough with every tide, it has increased its breadth to nearly seven hundred feet. This has increased very rapidly of late years since the southern channel has been created, or rather enlarged, by the removal of limestone between Blockhouse Island and Ballagan Point, thereby diverting the current from its natural channel, and lessening its force in carrying over the bar much of the sand and clay it formerly forced over and carried off into the Irish sea. Our readers will better understand the nature of this bar or obstruction from the following diagram of it:—



"On the bar at low water spring tides, the depth of water is nine feet, whilst immediately inside the bar at the same time the water rapidly deepens to eight fathoms and upwards. Outside, the descension of the bar is more remarkable, for it abruptly sinks into the Irish Sea, from which the deep water of the Carlingford Lough is only separated by this single obstruction. The rise of water on the bar at ordinary tides is twelve feet, and at spring tides eighteen feet. It has been ascertained by scientific and accurate calculation, that an outlay of about £60,000 would either entirely remove or sufficiently deepen this bar to admit the passage of vessels of the greatest burden at all states of the tide—an outlay insignificant compared with the national as well as local advantages it would confer; for as there is no harbour of refuge on the north-east coast of Ireland, vessels caught by stress of weather, particularly south-east gales, in the Irish Sea, invariably make for Carlingford Bay for shelter, and when the tide will not permit them to enter it by reason of the bar, it very frequently has happened that they have been wrecked upon the Irish coast, and human life and valuable property sacrificed. All these facts have been submitted to the Admiralty, and their importance fully recognized. The remedy may confidently be expected to be applied during the approaching spring, as the proper steps for insuring it will be studiously persevered in."

We hope that there will be no further delay to the much-needed work of deepening this bar. Its progress shall be carefully watched and noted in these pages

## MEETING OF EXHIBITION PALACE COMPANY.

The third half-yearly meeting of the above company was held on Monday, the 1st instant, at the offices, 112, Grafton-street,

BENJAMIN LEE GUINNESS, Esq., in the chair.

The Secretary read the report of the directors, which appeared in our last No.

The Chairman, in moving the adoption of the report and statement of accounts, observed that since the last meeting, now six months ago, considerable progress had been made towards the completion of their noble building. He thought all who had seen it would express their satisfaction with the work. He knew that all he had had the pleasure of meeting and conversing with on this subject had expressed the greatest admiration of the exterior of the building. It was really an honour and a credit, as well as a very great ornament to the city. The interior of the building, which the directors would be very happy that the proprietors should go and inspect, he was satisfied would afford them great gratification, as the work was progressing most favourably. He was authorized to state that the directors were fully satisfied with the admirable way in which their contractor was carrying out the building. It was a substantial and right honestly built edifice of a most permanent character, and one which would give satisfaction to those who had embarked their money in the undertaking. The requirements for the musical world in Dublin had been very fully considered by the directors. The large music hall which had just been erected, would be one of the finest, perhaps, of the kind in this kingdom. It was calculated to seat, with convenience, fully 3,000 people; and, as to its size, the directors had had it measured and compared with that of the Rotundo, with which they were all familiar. The Rotundo contained 6,272 square feet, while their new concert hall contained no less than 11,642 square feet, giving the public very nearly double the accommodation of the Rotundo. The small concert-room, as compared with the Antient Concert Room, was about 300 superficial feet larger. There was another subject upon which they were anxious—that was, to secure good egress from the building. Those who attended the Antient Concert Hall and other places had found great difficulty, at all times, in reaching their carriages and getting out of the building, and he thought that their architect had been most successful in making suitable arrangements for free egress. Their concert-rooms were approached by no less than eleven different doors, opening into a colonnade upwards of 600 feet in length, so that really forty carriages could be drawn up at once to receive the company as they were leaving. This was a matter—particularly during the winter nights—of very great importance. Their conservatory grew in grand proportions. It was built on ground no less than 640 feet long; its breadth varied from 84 to 120 feet, and it was 65 feet high. It was really a magnificent structure, and, when filled with plants and fountains, he had no doubt it would compare with any other. The directors wished that he should allude to the very kind contributions which some gentlemen had made of plants for the conservatory. The directors wished him to allude to Mr. Ussher, of Leopardstown, who presented the company with 22 splendid orange trees, 13 or 14 feet in height, and he refused to accept any remuneration for these most valuable trees, having made a free gift of them. Other contributors were Mr. Hare, Lismore Castle; Mr. Harton, Lismore; Mr. Gabbett, Mr. Duckett, the Lord Chancellor, Mr. Lindsay; and other gentlemen were most kind in presenting plants, which were very acceptable to the company, by whom they were thankfully received. The directors also alluded to the approaching exhibition, which they looked upon very hopefully. One of the principal features which led them to believe that it would be a remunerative undertaking was, that it would be held in a building which had been erected for other purposes, and therefore the great expenses which had heretofore been incurred in these exhibitions would in this instance be avoided. They had no new building to erect; and, besides, the project had been taken up with great success and zeal by the directors. They had communicated with the Colonial Office, and Mr. Cardwell had been very kind. In fact he had had letters written to the various governors of the colonies, requesting that they would do all they could to forward this undertaking. In the Foreign Office, Earl Russell had been equally kind, and had had letters written to the Foreign Ministers, requesting that they would bring the matter before their respective Courts, and do what they could to benefit the Exhibition. In addition, a number of gentlemen of high standing had joined the committee. He would just allude to some prominent members amongst the number:—Mr. Forster, Secretary, Society of Arts; Sir D. Brewster, the Earl of Meath, the Marquis of Drogheda, Lord Viscount Powerscourt, the Lord Chancellor, Sir George Hodson, the Marquis of Kildare, the French and Italian Consuls, Generals Wetherall and Keys,

and several others. They had met with very few refusals from the noblemen and gentlemen whose assistance they had requested. It was a gratifying fact that the French government took a deep interest in the matter, and the Minister of Commerce in France sent over a person to Dublin to make inquiries, inspect the building, and see how the government of France could benefit the undertaking. That gentleman, M. Franqueville, had expressed himself highly pleased with what he saw. The directors had secured the services of a gentleman who was very well known, Mr. Hercules MacDonnell, who had gratuitously undertaken to act as honorary representative of the company on the Continent, the principal courts of which he would visit, and bring the project before the proper authorities. He did not know that there was anything more in the way of explanation with which it was necessary to trouble them; but he would be very happy, indeed, if any proprietor wished for any information on any subject, to afford the amplest he possibly could. He hoped that the next meeting would be in their new building. The committee-room was in a very forward state, and there was no doubt whatever that long before the six months expired they would have it ready, and have the honour and pleasure of receiving the shareholders in it.

## GREAT SOUTHERN AND WESTERN RAILWAY.

THE following is the report of directors and statement of accounts, for six months ended 30th June, 1864, submitted to the proprietors at the forty-first half-yearly general meeting, held at King's-bridge terminus on Saturday last:—The usual abstract of accounts, which we now place before you, shows the net surplus revenue for the half-year to be £89,334 8s., out of which we recommend that a dividend, at the rate of 4½ per cent. per annum, be paid to the proprietors of the consolidated stock of the company, which will leave a balance of £4,014 17s. 1d. to be carried to the credit of next half-year's account. The returns exhibit an increase in every description of traffic, but do not denote any general improvement in the trade of the country, as a larger surplus than £6,273 might have been expected from the amalgamation of the Irish South Eastern Railway with this company and the opening of the branch line from Roscrea to Nenagh. In first and second class passengers we have not had any increase in numbers. In third class there has been an increase of 15,940; but this may be attributed almost entirely to emigration. In cattle there has been again a large falling off, but this has been much more than compensated for by the increase in sheep, pigs, and calves. The diminished consumption for foreign grain and coal still affects our goods traffic; but this speaks favourably for the harvest of last year, and increased supply of native fuel. The general results of the working of the line for the last half-year have, however, been highly favourable, and will, we have no doubt, prove satisfactory to you; and we have much pleasure in stating, that since the beginning of May there has been a marked improvement in the receipts up to the present time; and with the prospect of an early and abundant harvest, we have every reason to hope that the close of this year will still more clearly exhibit increased prosperity. The line from Nenagh to Birdhill was opened for traffic on the 1st of June last, and we are now enabled to state, that having nearly all the accounts before us, this branch will be completed, in the best and most efficient manner, much within the parliamentary estimate. A deputation from the Board carefully watched the proceedings before a Committee of the House of Commons during a protracted investigation relative to the Dublin Metropolitan Railway Bills, with the view of preventing any bill being passed which might militate against the interests of this company. The Dublin Trunk connecting Railway, which has received the sanction of Parliament, cannot in any way injuriously affect us, but, on the contrary, may be so carried out as to afford a valuable communication between the Great Southern and Western Railway Company and the different railway and steam-boat companies with which it proposes to connect itself. The following directors go out of office by rotation, viz.:—David H. Sherrard, Henry Hutton, Edward Kane, and Francis B. Beamish, M.P. They offer themselves for re-election. One of the auditors, Mr. James Haughton, retires from office. We recommend his re-election.

WILLIAM HAUGHTON, Chairman.

## THE HEALTH OF DUBLIN.

(From the Registrar General's Weekly Return.)

THERE were registered in the city of Dublin, during the week ending August 6th, 137 births—67 boys and 70 girls; the deaths registered during the same period amounted to 81—38 males and 43 females.

From diseases classed as "Zymotic," there resulted 15 deaths, including 5 from fever, 4 from diarrhoea, 2 each from erysipelas and metria, and 1 each from croup and dysentery.

"Constitutional" diseases caused the death of 22

individuals, including 13 deaths from phthisis, or pulmonary consumption, 3 from tabes mesenterica, or infantile decay, a like number from cancer, 2 from scrofula, and 1 from dropsy.

Diseases classed as "Local" proved fatal in 35 instances—viz., 13 deaths referred to diseases of the nervous system, including 9 from convulsions, and 1 each from apoplexy, paralysis, epilepsy, and brain disease (unspecified); 4 deaths referred to diseases of the organs of circulation; 12 deaths which resulted from diseases of the respiratory system—viz., 9 from bronchitis, 2 from pneumonia, or inflammation of the lungs, and one from lung disease (unspecified); 5 from diseases of the digestive organs, and 1 from nephria, or Bright's disease.

Three deaths were attributed to old age, and two to "debility." In two instances the cause of death was ill-defined.

Of the persons whose deaths were registered during the week, 28 were under 20 years of age, 16 were between 20 and 40, 20 were between 40 and 60, 13 were between 60 and 80, and 4 were 80 years old and upwards, of whom 2 (males) had attained their 89th year, and 2 (females) were aged respectively 50 and 88.

One accidental death occurred—a female, aged 50, whose dress caught fire.

An inquest was held on the body of a commercial traveller who was found dead on board the Lord Clyde steamer: verdict, "aneurism of the aorta."

The Registrar of No. 3 district, North City, states "that since the 1st of January last 61 deaths occurred among the residents of Church-street, five of whom had been sent to hospital, and some to the union workhouse. This would afford a death rate equal to one in 26 of the population, as recorded in the census of 1861" The registrar further remarks, that "the lodging-houses in Church-street are not licensed," and that "in the licensed lodging-houses, which are under municipal supervision, very few cases of preventable diseases occur."

At the Observatory of the Ordnance Survey Office, Phoenix Park, the mean height of the barometer during the week was 29.887 inches. The highest daily mean reading during the week (30.030) occurred on Tuesday, and the lowest (29.703) on Sunday. The Temperature was highest on Sunday, when the thermometer rose to 73.7 degrees, and was lowest on Tuesday, the mercury having fallen to 41.0 deg. The mean temperature during the week was 59.6 deg. The lowest daily mean (54.6 deg.) occurred on Tuesday, and the highest (65.3 deg.) on Thursday. The mean humidity of the air during the week was .732; —complete saturation being represented by 1.0.

## Law Intelligence.

## RECORD COURT.

*Carpenter v. Pilsworth.*—Action to recover compensation for damage done to a house by removal of the support of a neighbouring building. The plaintiff was proprietress of a grocery establishment at 131, James'-street, in this city. The defendant is proprietor of two adjoining houses, one of which (132) had been pulled down and was in process of being rebuilt. The summons and plaint contained four counts. The first count averred that plaintiff, by reason of her possession of the house 131, James'-street, Dublin, was entitled to the support of defendant's house adjoining; the second count averred that defendant, by carelessness and negligence in digging and excavating near the foundation of plaintiff's house, did not take due precaution to prevent plaintiff's house giving way; the third count averred a trespass; and the fourth, that by reason of negligence on the part of defendant, the wall of plaintiff's house was broken and otherwise seriously injured. Defendant filed eleven defences, which were substantially that he had employed a competent contractor, and that the injury sustained, if any, was the fault of the contractor. The defendant traversed the count averring trespass, and pleaded that there was no negligence. Damages were laid at £1,600.

The plaintiff on being examined said that on the morning of the 20th of July last on awakening she discovered in her bed, which was on the first floor, a quantity of plaster from the ceiling, and bricks and mortar from the wall of the house. On going into the street she discovered a crack in the side of the house. In consequence of this injury she was obliged to leave the house and suspend her business.

Mr. Neville, engineer to the Dublin Corporation, in his evidence said he considered the house in a dangerous state, and directed that it should be protected from the passers-by by chains stretched across the street.

After the examination of several witnesses on both sides, the case was, at the Hon. Justice Hayes's suggestion, settled on the terms of defendant putting plaintiff's premises into repair, paying her £14 for her loss of trade occasioned by the injury to her premises, and also paying the costs of the action.

## THE PERSIAN GULF TELEGRAPH.

A very interesting account of the safe submergence of the Persian Gulf Telegraph has recently been published. As it is anticipated that at no distant period our own island may be connected by telegraph with the great Transatlantic Continent, and that a similar arm of communication will be thrown out by Russia in an easterly direction, through Siberia, across Bheering's Straits and over the Rocky Mountain until it meets our own extension to the west, so that a message may be flashed round the world almost in an instant, and time and distance annihilated by the hand of science; the fresh experience which is to be gained by the submergence of each new telegraph is looked forward to with much interest, prior to renewing the grand attempt which formerly, through want of experience, failed. It is satisfactory to learn that although the design of the Persian Gulf Telegraph is much condemned by telegraphic engineers the submergence has been successfully accomplished. The narrative is as follows:—

In the spring of last year the commencement of a submarine telegraph cable for the Persian Gulf was announced in several of the morning papers. The cable was to be submerged between Fau, near Bussorah, at the head of the Persian Gulf, and Gwader, on the Meckran coast, about 250 miles west of Kurrachee. At the same time a land line was being rapidly completed between Kurrachee and Gwader, while at the head of the Gulf a party of Royal Engineers were sent out to erect a land line between Fau and Bagdad.

Between Bagdad and Constantinople the land line has been completed for the last two years by the Turkish Government, but has never yet been of much practical use, partly on account of its stopping short at Bagdad, and partly through the line not being as yet brought into a thorough state of organisation.

It was originally intended that the submarine line should be laid between Gwader and Fau, relying only on the Gwader and Kurrachee land line (commonly known as the Mackran telegraph) as the connecting link between Kurrachee and Gwader. It was, however, urged by Colonel Stewart, the director of the whole line, and chief adviser to the Government in this matter, that it would be more prudent to carry out sufficient cable to lay between Kurrachee and Gwader as well as between Gwader and Fau. Because, firstly, the Meckran line, running as it does through a wild, difficult, and rugged country, was liable to interruptions; and if these interruptions became frequent or of long duration, it would be difficult for our Government to bring pressure to bear on the Porte, with regard to the efficient maintenance of the land line between Fau and Constantinople, so long as this important portion of the British line was itself in an unsatisfactory condition. Secondly, because if any one of the ships carrying the cable were lost on its passage from England to the Persian Gulf, there would still remain sufficient cable to lay between Gwader and Fau; the Meckran land line being sufficient in such a case to form, for a time, at least the remaining link between Kurrachee and Gwader, until more cable could be brought out from England. The land line was constructed without much interference from the natives, under the able superintendence of H. K. Walton, Esq., now the general manager of the whole lines between Kurrachee and Fau; and, with the exception of occasional interruptions which have been quickly repaired, has remained in tolerable working order for the last year or so: indeed, were it not for the extremely curious and inefficient insulators which have been used and known as a patent of Sir W. O'S. Brooke, and which preclude the possibility of working the two wires as two separate circuits on account of the number of contacts which exist between the wires at the insulators on every section of the line, it may be considered as in effective working order.

To those acquainted with electric telegraphs the whole design of the posts and insulators will at once appear a mere monument of ignorance. The insulators consist of a cast iron cap, made square on plan. For what purpose this form is assumed it is difficult to say, unless it is merely because all others have hitherto been made, without exception, circular. Inside this cap a cap of vulcanite is fixed, by means of sulphur, and inside this again the supporting bolt is also fixed with sulphur. So far the insulator would pass muster, were it not that the sulphur has been carefully filled up to the very brim, so as to leave a flat surface between the bolt and the cast iron cap, thus burying the whole of the vulcanite cap, and rendering it utterly useless, except to prevent direct contact between the bolt and cap,—the whole insulating surface consisting of the flat surface of the sulphur between the bolt and the edge of the iron cap, this surface being unprotected from anything but mathematically perpendicular rain.

We thus have, evidently, a very bad insulator; but this is not all. It is well known that on lines of duplicate wires contact is more to be feared than a little want of insulation. To avoid the possibility of contact, therefore, on English lines, an earth wire is carried from earth up to the arm or arms, and twisted round them, so as to intercept any current between the wires, and carry it to earth. On the Meckran line, however, the arms, which are of iron, and bolted together, are carefully insulated from the iron pole by 3 feet of wooden pole. The whole arrangement is, therefore, admirably adapted for proceeding contact; the insulators are well adapted for allowing, on the smallest chance offered them of wet, a very fair conduction between the wires and themselves; and, to avoid the possibility of this being remained by an iron pole leading to earth, the piece of wooden pole is carefully inserted between the arm and the iron pole, this insulating the iron arm from the earth.

In fact, it may be said that every care has been taken to give a chance of leakage, and further precautions are taken to ensure that the leakage thus obtained shall only be into the other wire. In fact, we cannot help remarking that, with the many excellently designed insulators which are now in use in Europe, and indeed on the railways in India, where the telegraph is not constructed by Government, it is a disgrace that, on a line where physical and political difficulties have been overcome, a double line of wires should only be available as a single line, through the system of insulation so strangely advocated by the late adviser to the Indian Government on telegraphic engineering. And it may be observed that the Government of India are themselves directly responsible for the wretched system of telegraphs under which the country has groaned for the last six or seven years, inasmuch as they, when telegraphs were well advanced in Europe, appointed a military doctor to do the work of civil engineers.

The wretched results are only too well known in India. The telegraph has simply become a matter of joke. As a single instance, we will only take the telegraph between Kurrachee and Bombay. A message between Bussorah and Bombay takes about five minutes to be transmitted from Bussorah to Kurrachee, through the cable just laid—a distance of about 1,370 miles; but here all certainty ends. The line between Kurrachee and Bombay—a distance, as the crow flies, of about 500 miles—is scarcely ever in working order; and, when it is, the messages take, on an average, without exaggeration, two days to go from Bombay to Kurrachee, or *vice versa*. Further comment is useless.

Reverting to our subject, the cable, 1,250 nautical miles in length, weighing 3.75 tons to the mile, was constructed at Mr. Henley's works, North Woolwich, under the superintendence of Messrs. Bright and Clark, the engineers appointed to superintend the construction and submergence of the cable; the whole undertaking, including the selection and construction of the cable, the selection of engineers, and the construction of the various land lines, the arrangements of the stations and the permanent staff, being entrusted by the Indian Government to Lieutenant-Colonel P. Stewart, R.E.

With regard to the pattern of the cable selected, we may first mention that the failure of long submarine cables in shoal water, such as the Red Sea and Mediterranean cables, has been proved on the best evidence to be principally due to the small quantity of iron used in the protecting sheath, and which again was allowed to perish rapidly through the absence of any precautions to ensure it against rust.

In the Red Sea and Mediterranean extension lines, the protecting wires were scarcely so thick as bell wire, and not even galvanised; the whole cable weighing less than a ton to the mile.

These perished rapidly, as was expected by those who had experience in the maintenance of the cables around England, where the companies who possess cables have constantly laid them of larger and larger dimensions, the last laid weighing about 17 tons to the mile. The Malta and Alexandria cable weighs 2.13 tons to the mile, of which only 1.67 tons is iron, and the wire is ungalvanised and unprotected. It is curious that a cable of such a pattern, which cannot last for more than four or five years from the date of submergence without serious repairs, should have been decided on and laid, seeing that the Bonah and Cagliari cable, laid in almost the same locality and of precisely the same mechanical protection, was found broken up into short pieces by rust in about two years after submergence. This is the more to be regretted, as the core is of the most liberal proportions as regards copper and gutta-percha, and indeed, the best insulated cable submerged up to the time of the Persian Gulf cable. In the case of the Persian Gulf cable, it is to be hoped that the precautions taken against this decay from rust will prove sufficient to ensure its effective working for many years to come. Of course the expense of transport from England to the Persian Gulf would make the adoption of a cable of the same

weight and bulk as those used in the English and Irish Channels and North Sea, excessively expensive, and add so considerably to the total cost of the work as to preclude, for the present, at least, the adoption of a cable of such a weight; although undoubtedly the tendency will be to lay cables of a heavier description on each successive work, if in shoal water, even though undertaken abroad. It is to be remarked also that, with the exception of a few rough patches between Gwader and Kurrachee, the whole of the line lays in quite soft mud, into which all leads, anchors, and grapples sink several feet deep. The amount of anchorage, except from small native craft, is also insignificant, and, therefore, a very heavily proportioned cable would be unnecessary.

Still the proportions and weight of the Persian Gulf cable is 3.75 tons to the mile, of which 2.95 tons is iron. In addition to this advantage in the quantity of iron, the iron wire is all galvanised, a process which, it is well known, generally adds some years to the life of a cable. In corroboration of this it may be mentioned that, in the operations connected with the repairing and picking up of the Red Sea line in 1862, under the superintendence of Mr. L. Clark and Mr. Laws, the ungalvanised cable was found entirely perished, while, a few feet off, the galvanised wire was found in perfect condition. To secure the cable still more against the danger of rust, a process invented and patented by Messrs. Bright and Clark has been adopted, which, although already in use on several cables about England, has never yet been so perfectly carried out as in the present case.

Before proceeding to describe this we must give a brief description of the whole pattern of the cable. The conductor, unlike cables hitherto laid, consists neither of a single copper wire, as at first adopted in all the earlier cables, nor of a strand of three, five, or seven wires, laid up so as to form a small copper strand, as in the case of the Atlantic cable and Malta and Alexandria. The former mode presents the disadvantages that, when the wire was brittle from unsound casting in the ingot or bad annealing, it was liable to crack, and when being paid out from the ship the two parts separating would cause a want of continuity, thus rendering the cable useless until the faulty part was cut out.

The second mode had obviated this danger, as it is improbable that several wires should all have brittle places exactly at the same place in the rope, but other disadvantages presented themselves, as science advanced, of a more delicate nature.

It was proved mathematically, and found in practice, that the increased amount of surface exposed in proportion to the sectional area of the copper, in the case of the strand conductor, as compared to the solid wire, reduced the rate of signalling greatly. Besides which, it was found that the interstices in the strand wire permitted the water to percolate along the cable whenever an end was left open in any of the operations exposed in the sea.

To combine the advantages of both systems without their respective disadvantages, Mr. L. Clark suggested a conductor formed of four wires, whose section is each the quadrant of a circle; so that, when the four are placed together, they form a complete circle, and are kept in their places by a fifth part in the form of a tube encircling the four segmental wires. We thus have a circular conductor formed of five separate parts.

(To be continued.)

## NEW PARISH CHURCH OF CLONTARF.

THE ceremony of laying the foundation stone of the new parish church of Clontarf, Co. Dublin, took place on the 9th inst. in presence of a large assemblage. The situation of the new church is connected with a remarkable event of Irish history, being a portion of the site of the great battle fought in A.D. 1014, between the Irish, and Brian Boroihme, and the Danes. The old church is a very ancient edifice, having been erected in the second year of the reign of James I., on abbey lands confiscated by Henry VIII. The site for the new edifice was presented by John E. V. Vernon, Esq., of Clontarf Castle. £1,000 were subscribed by the parishioners and the Ecclesiastical Commissioners gave £4,000. The whole structure will cost about £6,000. The building will be cruciform, in nearly the same style as that generally adopted by the Commissioners. There will be sitting accommodation for 550 persons. The church will be entered by four doors, the main entrance facing the north, and at one angle will rise the belfry, surmounted by a spire about 150 feet high. The windows will be Gothic, the glass for the most part muffed. The church will be prettily situated, nearly opposite the entrance to Clontarf Castle demesne, and will form a pleasing addition to the picturesque landscape by which it is surrounded. The designs are by Messrs. Welland and Gillespie, architects to the Ecclesiastical Commissioners; the contractors, Messrs. Waldron, Brothers, of Abbeyleix and Killeullein.

## Public and Private Works.

Messrs. A. & N. Hammond have been declared contractors for the new cotton factory to be started in Drogheda by Mr. Whitworth, of Manchester, and formerly of Drogheda. We understand it will be one of the most extensive in this country, and we heartily wish the enterprising gentleman every success in his endeavour to benefit his native town.

The names of builders intending to compete for the building of St. Finn Barr's Cathedral, Cork, are to send in their names before the last day of this month.

A new National Bank-house is to be erected at Wexford. Mr. Caldebeck, architect.

The premises No. 35, Westmoreland-street, are being added to the establishment of Mr. William Bolton, Wine Merchant, adjoining. Mr. George Moyers, contractor.

The Ecclesiastical Commissioners for Ireland announce that their office will be closed from the 1st till the 15th prox., and partially from 15th till 30th.

Out of eighteen plans sent in for the erection of the Sligo Town Hall, that of Mr. William Hague, jun., has been selected, with the prize of £20. The second and third premiums of £10 each were awarded to Mr. W. J. Barre, of Belfast, and Messrs. Lanyon, Lynn and Lanyon, of Belfast and Dublin. The cost is to be £5,000.

We are gratified to learn that out of twenty-nine designs sent in for the Chester Town-hall, that of Mr. Lynn (motto, "Love's Labour") of the firm of Lanyon, Lynn, and Lanyon, of Belfast and Dublin, has been selected, with a prize of £100 thereto.

## Miscellaneous.

**NEW HOUSES IN BELFAST.**—According to a report of the Town Improvement Committee, it appears that permission was given for the erection of upwards of 100 new houses in Belfast during the past month. This is at the rate of 1,200 new houses in the year, and is only up to the average of any month during the past two years. The average population to each house in Belfast is five individuals, so that the increase of population within the borough is at the rate of 6,000 a year.

**A PHONOGRAPHIC PIANO-FORTE.**—A novel and curious instrument has been invented by M. Bryois. It is for the purpose of taking short-hand notes with more than the usual rapidity. It consists of a series of levers worked by keys like a piano, and acting on a set of types which impress themselves on a strip of paper that is gradually unrolled. Working only with one finger, an ordinary reporter can work as quickly as the best short-hand reporter, but by using the two hands the rapidity is increased immensely.—*London Review*.

**WHICH IS DRYDEN'S HOUSE?**—At one of the many breakfasts we had the good fortune to enjoy at No. 22, St. James's-place, we found the poet Rogers in his drawing-room in a more than usually pleasant vein. Taking our hand, holding it, and leading us to the window (half smiling, half laughing all the time), he exclaimed, "I have an anecdote for you, and in your way: Coming from the City yesterday, I took Fetter-lane, Fleet-street, in my road, that I might see—reverentially—the newly-discovered house in which Dryden is said to have lived. I asked for the house, and for a long time could obtain no better reply to my repeated question, 'Which is Dryden's house?' than 'Dryden—Dryden' (the policeman I spoke to thinking for a time, with his finger, Sterne-like, to his ear)—'Dryden—is he backward with his rent?' That policeman knew to the life the poetical character. I went laughing home, and, as you see, am laughing still."—*Builder*.

**THE THAMES EMBANKMENT.**—The ceremony of laying the foundation stone of the Thames Embankment was performed by Mr. J. Thwaites, chairman of the Metropolitan Board of Works, on Wednesday, the 20th ult., in the presence of a large company. The total length of the embankment to be constructed is about 7,000 feet. Behind the wall and underneath the roadway a sub-way and main sewer will be constructed, which will materially add to the stability of the front wall, which is divided by the bridges into three sections, each of which will be viewed by itself. The first section, from Westminster to Waterloo-bridge, has been contracted for by Mr. George Furness, for £520,000; the second section, from Waterloo-bridge to Temple Gardens, has been taken by Mr. Ritson, for £229,000; a third section, narrower in width of roadway, from that part, will conclude the embankment to Blackfriars. For the purpose of laying the foundation stone a space of 37 feet in length by 20 feet in width was enclosed by caissons and cofferdams, and the concrete and brickwork put in

ready for receiving the first stone, which is of granite, from the Ross of Mull, on the coast of Scotland. The section of which the first stone forms a part is from Westminster to Hungerford Bridges. At the former bridge the roadway, which rises at an inclination of 1 in 80 to the level of the bridge, is set back some 30 or 40 feet from the face of the embankment wall, and the intervening space is to be reserved as a steamboat pier, having access from the bridge by a wide and imposing flight of steps opposite the Houses of Parliament. This will terminate without abruptness the varying styles of architecture at this point. Between Westminster and the railway bridge at Hungerford are to be landing-stairs for the smaller craft, and here it is proposed to introduce the beautiful water-gate recently situated at the end of Buckingham-street, and erected after a design by Inigo Jones. On either side of the Charing-cross Railway Bridge and Waterloo-bridge provision will be made for steamboat landing-places, the dummies of which will be partly connected within the recesses formed by projecting into the river in front of the general line of embankment massive granite piers, with moulded pedestals, rising about 30 feet above the roadway, and hereafter to be enriched with bas-reliefs and surmounted by groups of statuary. The whole of the granite will be supplied from those quarries which are the property of the Duke of Argyll, and the same granite was used exclusively in the construction of Westminster-bridge and the Liverpool Docks. After the stone had been laid, speeches were delivered by Mr. J. Thwaites, the Right Hon. W. Cowper, Lord J. Manners, and other gentlemen.

**LAKE VILLAGES.**—Further accounts are given, in the *Bavarian Gazette*, of the discoveries of lake-houses in Starnberg. Prof. Wagner declares that the pile-buildings date from the Bronze age; not the Age of Bronze of Byron, but the one which preceded the Celto-Germanic Iron age. The hypothesis of Prof. Desor, that they belong to the Stone age, has not been confirmed by the discovery of any arms or implements of fire-stone or serpentine, though a bone knife-handle which has been found is stated to be identical with the bone-handles of fire-stone knives found in the Lake of Neuchâtel; and on the island itself, in laying the foundations of a building, a spear-head of firestone was discovered. It would therefore seem that two or three periods are represented by the lake-houses of Starnberg. Similar discoveries have been made in the Chiemeese, in the lake of Seon, which lies a little to the north of the Chiemeese, and has an especial interest for English readers, as the opening scenes of "The Initials" are laid there, and in the Ammersee, which is fed by the stream of the Ammergau of the passion-plays. But in none of these lakes has there been as yet any great haul of antiquities, though, perhaps, the later autumn months, when the water is lower and clearer, may be more favourable. The work of dredging goes on but slowly, and much time elapsed before many of the curiosities found in the Swiss lakes saw the light. Bones and potsherds, the "kitchen-stuff" of the old inhabitants of the lake-houses, have generally been the first to appear. In one lake, large piles, evidently worked with iron, and forming the remains of a bridge from the mainland to an island, seemed to belong to the time of the Romans.—*Athenæum*.

The *British Standard*, March 15, 1861, speaking of Benson's argentine spoons and forks, says, "Their appearance is certainly such that but for the absence of the customary credentials of silver, detection would be almost impossible." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skillful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz.—spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

**A MOUNTAIN RAILWAY.**—An event of considerable importance occurred on the 15th ult., the first locomotive from Spain having traversed the Pyrenees. The engine passed through sixteen miles of tunnels, some of them 1,300 feet above the level of the sea. The journey was not made without some delays, but there was no accident. The trip was merely a trial one, as the formal inauguration of the line is postponed until the Emperor shall be at Biarritz.

**ANCIENT BUDDHIST REMAINS.**—A very interesting collection of ancient Buddhist remains, discovered by Mr. E. Harris at Sultangunge, on the Ganges, while engaged in some engineering operations, has just arrived in England. Among the objects of interest discovered in the ruins excavated (supposed to be a Vihar, or Buddhist monastery) is a colossal image of copper, 7ft. 6in. in height, weighing upwards of a ton, and supposed to be upwards of 2,000 years old. There are also several smaller figures, both in stone and in copper, the letters on some of which show that they must have belonged to the second or third century; some coins, a copper vase, the metal of which has quite decayed; some baked clay slabs thickly covered with writing, &c. The collection is at present placed in the museum of the Royal Asiatic Society, where plans and sections of the excavations have also been deposited.

**NEW COMET.**—Mr. J. R. Hind thus writes to the *Times*:—A comet discovered almost simultaneously by M. Tempel, at Marseilles, and Professor Respighi, at Bologna, on the morning of the 6th inst., appears likely to become an object of considerable interest about the middle of August. From the Bologna observations of the 6th, one at Leipsic on the night of the 10th, and a third taken with Mr. Bishop's refractor on the 14th, an approximate orbit has been computed by Mr. C. G. Talmage, of this observatory. It would be unsafe in this case to venture upon any definite prediction of the future circumstances of the comet's appearance from present data, but they are sufficient to indicate that it must approach near the earth about the time of inferior conjunction with the sun in the middle of the ensuing month, probably with a latitude high enough to allow of it being observed morning and evening for some days, and with a degree of brightness eight or nine hundred times greater than on the 14th, when it was by no means a faint telescopic object. Its orbit is remarkable for its near coincidence with the plane of the earth's path, the inclination being little more than two degrees. The observations of the 14th gave the following positions:—At 12h. 57m. 39s.; mean time at Twickenham, right ascension, 3h. 2m. 34s., 0; north declination, 19 degs. 14m. 36s. In the course of a few days I hope to be able to communicate more definite particulars respecting the comet's track in the heavens. It is not one that has been previously computed.

**THE STEAM ENGINE SUPERSEDED.**—A new machine, by means of which its inventor hopes to supersede the steam engine is the order of the day in France. It has been already introduced with success into a paper factory belonging to a M. Auzon. This machine can, it is said in a report of the Academy of Sciences, be made to do the work of a steam engine of equal power at an economy of from 60 to 70 per cent. It is, too, free from such drawbacks as the necessity of high chimneys, smoke, or the danger of explosion. In many ways it bears a close analogy to the Ericsson engine, and is called a *gazomoteur* being composed of three principal parts—namely, an air pump, a smoke-consuming furnace, and a motive cylinder. The furnace, when the engine is at work, remains closed, unless at the orifice by which the air pump opens on it and the one by which the heated air sets the cylinder in motion. It is so arranged that a quantity of combustible matter equal to that which it consumes falls constantly into it. A state of combustion is kept up by the air pump. Part of the air passing from this rushes into the furnace; the rest combines with the coal gas, forming thus a gaseous mixture, the volume of which is far greater than that of the air previous to its introduction to the furnace. This mixed air acts on the piston of the *cylindre moteur* with a force proportionate to the volume produced by the augmentation of the elevation of the temperature.

## TO CORRESPONDENTS.

*Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.*

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# The Dublin Builder.

VOL. VI.—No. 113.

## THE TRANSACTIONS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS FOR THE SESSION 1863-64.

IT may seem rather late, in the ordinary course of things, to direct attention in the month of September to the proceedings of the Institute of British Architects during the past session. We are not sure, however, that we have not selected the most fitting season for bringing the volume of admirable, thoughtful, and well-digested papers before us under the notice of the members of the profession in this country, who (we say it after due deliberation), under an ill-advised and illiberal regulation of the Institute, are deprived of the privilege which they formerly enjoyed, of seeing the papers read before that society in the weekly building periodicals. We say the most fitting season, for the great majority of these papers are not to be read hastily amid the turmoil of business; and we trust that at this time those members of the profession whose care has been greatest, and whose toil most unceasing during the past year, are enjoying some well-earned leisure by the seaside or elsewhere—if they are not, we commiserate their unhappy fate, and heartily wish they were—which will enable them to shake off their daily round of cares in a small way, and turn a contemplative eye to what the rest of the world is doing in a larger way. One object, which most of all we would desire to accomplish by directing attention to this subject, would be to stir up some spirit of emulation among the members of the Institute of the Architects of Ireland. The leisure and relaxation of the autumn afford opportunities for gathering the materials of many an interesting paper by every wayside ruin, and in every moment of undisturbed and peaceful thought. We have heard it said, and feel the slight the more acutely from the fact of there being some trifle of truth in it, that, taking us in the lump, as an architectural community, we are somewhat behind our contemporaries in other parts of the kingdom. We would willingly repudiate our provincialism, and say with the Phœnician Queen—"Nec tam aversus equos Tyria Sol jungit ab urbe"; and so would we urge on the members of our Institute, in a kindly spirit, to "make hay while the sun shines," as it is now doing, and prepare themselves—we say it without disparagement to what has been done—for a more vigorous and productive session than the last.

Pursuing the idea suggested above, we are not prepared to say that every one will agree with us as to where the architectural sun has its rise; but of this we are sure, that if a comparatively vigorous and healthy School of Design, and an earnest community of architects, possessing the literary and scholarlike attainments which this volume evidences, are of any weight in the scale, the school of Great Britain, which has its centre in the metropolis, may fairly claim to be the first of all living schools.

The titles of the papers read, and the names of the authors, are in themselves suggestive of thought, and are as follows:—

Title.	Author.
Opening Address .. .. .	The President, W. Tite, M.P.
Memoir of M. Charles Frederick Neupen. Architect, of Versailles	Prof Donaldson, Ph.D., Fellow.
Some Researches on Colour and Coloured Decoration, with Illustrations .. .. .	T. Hayter Lewis, Fellow.
The Restoration of St. Michael, Penkevil, Cornwall .. .. .	G. E. Street, Fellow.
Some Remarks on Hungerford Market (just removed) .. .. .	C. Fowler, Fellow.
On the Conventual Arrangement of Canterbury, with Illustrations .. .. .	The Rev. Mackenzie E.C. Walcott, M.A., F.S.A., &c.
Sundry Sanitary Building Applications .. .. .	John Taylor, Junior, M.A., F.S.A.
On the Abbey Churches at Caen .. .. .	J. H. Parker, F.S.A., Hon. Member.
A Discussion on the Practical Ventilation of Buildings .. .. .	—
On Artificial Stone .. .. .	Professor Kerr.
On certain Analogies between Architecture and the other Fine Arts .. .. .	The Rev. W. Whewell, D.D., F.R.S., &c.

Title.	Author.
The Abbeys of Ireland .. .. .	The Rev. J. L. Petit, M.A., F.S.A., Hon. Mem.
On the Photographs of the Sculptures of Wells Cathedral, issued by the Architectural Photographic Society .. .. .	Wm. Lightly, Associate.
The Crypt and Chapter-house of Worcester Cathedral .. .. .	The Rev. R. Willis, M.A., F.R.S., Hon. Member.
Note sur la Ville de Perga en Pamphylie Asie Mineure .. .. .	M. Charles Texier.
Perga. Topographie de la Ville .. .. .	Same.
Heads placed over Arches .. .. .	Sir Gardner Wilkinson, F.R.S., Hon. Member.
A few Notes on some Polychromatic Construction at Aston Church	M. E. Hadfield, Fellow.
Description of the Tribunal of Commerce now erecting by M. Bailly, Architect, at Paris .. .. .	T. L. Donaldson, President.
On the Principles to be observed and the Processes employed in the Decoration of Churches .. .. .	Wm. Lightly, Associate.
The Stereochromic and other Technical Processes of Painting considered with reference to their Employment in Mural Decoration .. .. .	Thomas Purdie.

We shall be obliged to hold over our notices of any of the above papers until our next number, contenting ourselves with a brief reference to the President's Opening Address, which, though of a most interesting and exhaustive character, does not demand much special notice, being, as it is, for the most part, a critical *resumé* of the events of the past year bearing on the profession, and some of which are necessarily of ephemeral interest. We suppose there is a natural love of a fight implanted in the human breast, be the subject at issue what it will, or the combatants who they may,—which will be our excuse for concluding with one passage of the Address, in which we are much mistaken if our readers will not agree with us, that a proper and dignified rebuke is administered to the somewhat unpopular department of Science and Practical Art, and more particularly to that distinguished officer of the "department" facetiously known as "King Cole" in artistic circles, whose animosity to duly educated architects, and whose enthusiasm in favour of what he is pleased to call "Heaven-born" ones, is well known.

Mr. Tite says, after referring to the gratifying fact that, at the personal suggestion of Her Majesty, certain distinguished architects had been invited, *as architects*, to suggest the subject for the Prince Consort Memorial:—

"With this gratifying fact before us, we may, I think, dismiss from our thoughts all further reference to the studied neglect of architects by the Government department connected with the Art Education of this country. We may also forget and forgive the absurd and laboured attack of one of the officers of that department, who seemed not to remember that such men as INIGO JONES and CHRISTOPHER WREN, CHAMBERS and SOANE, or SMIRKE and BARRY, had ever lived in England; that MICHAEL ANGELO or BRAMANTE, VIGNOLA or PALLADIO, or countless others, had flourished in Italy; that PERRAULT or PERRONET, HITTORF or VISCONTI, had lived, or even *were living* in France; that KLENZE or SCHINKEL had ever flourished in Germany; or that he must have known architects in *this country* to whom his compatriots were not insensible, as having their claims acknowledged by the scientific world."

We commend the above once more to the notice of Mr. Cole, not, however, being vain enough to insinuate that that important personage whiles away many hours of official tedium in the perusal of the DUBLIN BUILDER; and to the members of the Irish Institute we once more "point the moral" of our remarks—we respectfully address ourselves to both Fellows, Associates, and Students also—not to let the autumn slip away without collecting some materials, however trivial they may seem, to contribute to the meetings of the coming session.

## WEXFORD WATER SUPPLY.

We have much pleasure in laying before our readers the report of the County Surveyor of Wexford, Mr. James B. Farrell, on the subject of the water supply of the town of Wexford, and also the report of the meeting of the Water Committee to confer with Mr. Hawksley on the subject, from which it will be seen that that body appeared disposed to adopt estimates on a more extended and liberal basis than they at first contemplated, or Mr. Farrell proposed. Mr. Farrell's calculations appear to have been based on the requirements of the Corporation, as set forth by an advertisement—we presume advertising for plans. He proposes to construct a reservoir, with a storage capacity of 8,167,500 gallons; equal, he states, to two months' supply, if 130,000 gallons be assumed as the daily consumption; and is of opinion that the resources on which he has to draw are sufficient for

the supply of a population of 50,000. Mr. Hawksley however, warns the Corporation that, in nearly every case, the waterworks constructed some years ago have proved totally insufficient to fulfil their respective duties. He proceeds, assuming the present population of Wexford at 12,000, and the certainty of its increase, to advise the Corporation that they should not, under any circumstances, provide a less quantity than would be sufficient to supply a population of 18,000 with 25 gallons per head per diem, equal to a total supply of 450,000 gallons per diem. Mr. Hawksley farther states that from the experience of districts where the rain-fall is similar to this one it is necessary to have a storage capacity for 150 days' supply—less the quantity brought down by the supplying stream—that accordingly in this case a storage capacity of 850,000 gallons for at least 140 days would be required, equal to 49,000,000 gallons; and that, therefore, in his opinion, a storage capacity of 8,000,000 gallons would be utterly insufficient, not only for the supply of a population of 18,000, but even to supply the minimum quantity that should be distributed to a population of 12,000.

We trust that no considerations of false economy will induce the Corporation to entertain the notion of providing a supply less in quantity by a single gallon. It is utterly impossible to over-estimate the value and blessing of an abundant supply of water to a town, whether we look on it as fostering manufactures, affording security from the ravages of fire, drawing away foul disease, or improving the habits and morality of the labouring classes. We can assure the Corporation that the subject is one which cannot be treated with too great gravity, and it will be a lasting stigma on the town of Wexford, if it now neglects to supply itself with so important an element of health, wealth, and independence, and now particularly so if there is any reliance to be placed on Mr. Hawksley's estimate that this can be effected at the comparatively moderate cost of about £1 4s. a-head on the present population.

## DEATH OF DOCTOR LOVER.

On Monday, the 22nd ult., William Lover, Esq., M.D., the well-known lecturer on natural philosophy and kindred sciences, departed this life at his residence in Talbot-street, in the 63rd year of his age. During the thirty years in which he was engaged in the several academies and public institutions, as lecturer, he earned for himself, by his ever courteous and gentlemanly bearing, that good opinion and title to respect and esteem which he enjoyed to his last hour, and will be long remembered by his friends and pupils. About five years since, on the visible decline of his health, a numerous signed memorial was got up and forwarded to the Treasury, setting forth the strong claims he had for being placed on the Literary Pension List. Accompanying this memorial were testimonials from influential persons in towns where he had so successfully lectured. We have copies of several of these documents before us, and in that from Armagh we find the following:—"Doctor Lover's valuable services to his country in the promotion of education, for the last twenty-three years, are well known throughout Ireland; and the fact that his bodily health has been rather seriously impaired while so engaged, would seem to justly entitle him to the favourable consideration of the executive authorities. Some pecuniary recognition of his long and useful labours in the cause of education would meet with general popular approval, and our own experience of him as a lecturer fully warrants us in recommending him most warmly to the favourable consideration of the government."

The following is a portion of the Drogheda testimonial:—"We look upon Doctor Lover as the most successful and zealous friend of education we have had the pleasure of meeting with; and we trust that for such long services the government may confer on him a pension. We can scarcely say whether we esteem him more as a private friend or as a popular and elegant lecturer in the several subjects in Science and Philosophy, so often and so successfully treated by him in the lecture-room of our institution."

The appeal to government, however, totally failed, and our late friend struggled on and continued punctually to attend his various classes until a few days previous to his decease. Doctor Lover was brother to Samuel Lover, the well-known author.

### THE POWER LOOM AS APPLIED TO LINEN WEAVING.

AN interesting lecture on this subject was delivered in the Central Hall of the Industrial Exhibition on the 10th ult., by Mr. Arthur Dobson, the well-known machinist of Belfast and Bolton. The subject is now an all-important one, and of general interest, affecting, as it does, so materially the development of the resources of this country; and one fortunate circumstance at least has resulted from the unhappy American war—that never, at any time, in its most palmy days, was the linen trade of Ireland in such a prosperous state; and it is not unreasonable to anticipate that when the cotton trade regains its former position—if it ever quite does so—Irish linen will have obtained a position in the markets of the world from which it will not easily be dislodged.

The lecturer began by adducing evidence from the Bible and ancient writers in proof of the great antiquity of linen as a covering for the human body and other purposes, and then proceeded to trace the history of the loom and the linen weaving of a more recent period. Referring to the times of our grandfathers and grandmothers, Mr. Dobson observed:—Sometimes when the lady of a family had numerous servants, she kept them employed, “tasked her maidens” in spinning and weaving, not only for the supply of the family, but also for their own requisite benefit for making to sell to bachelors and other unfortunates who had no means of providing themselves. Collectors or pedlars called at the various houses through the country, and purchased the products of the home manufactures, or exchanged their novelties for them, then forwarded their “packs” of webs so gathered to their employers in some large towns. This family domestic labour, however, was casual, and of course the supplies of cloth were so also, and could not be depended upon. Small holders of land cultivated as much soil as would produce flax sufficient for their requirements, and employed their daughters or female servants to spin and weave the same, any surplus being for sale. The distaff and the “busy wheel” were the machinery for spinning. The loom differed from the old Israelitish or Egyptian loom, in being pre-cumbent—raised from the ground by four legs, and in the direction of the blow of the sleigh or beam which drives home the cross thread or weft being horizontal instead of vertical. Little change has taken place in the construction of the hand loom from its earliest application in Britain to the present time. People are accustomed to regard Ireland as the chief original seat of linen productions. This is not a correct view of the case. The saffron-dyed cloth used by the ancient Irish was not manufactured in the country, but brought there by the Phœnicians or other visiting traders. The first linen was made in Ireland in the eleventh century: this probably only in quantity sufficient for home use. Irish linen for ecclesiastical purposes was used in England in the 13th century, and in the 13th century its export may be recorded as commenced. Still, however, the production was small, and most probably the linens sent away were of a special, high class, whilst their supply for domestic use was imported from England, where it had been manufactured by the Manchester merchants from yarn spun in Ireland. About the 17th century this manufacture, taken up with spirit by the Ulster colonists, assumed a character of national importance. Bounties and drawbacks—even compulsory orders were granted in favour of the trade—nay, more, a law was passed which, unfairly interfering with and limiting the exports of woollens from Ireland, completely ruined that prosperous trade, and developed immensely the sister manufactures. Ireland now had to compete with French and Flemish artizans; and in Queen Anne’s time, the most skilled persons, whose services were obtainable, were brought over from those countries to teach the improved methods practised abroad of spinning and weaving. The family of Cromelin settled in Ulster about the year 1700, and by their enterprise, knowledge, and superior skill, greatly improved the linen trade and the mode of conducting it. They set the example of factory employment, having machinery for the preparation of the yarn, and for weaving it in large buildings in which considerable numbers worked at the more complicated and elaborate descriptions of fabric, such as damasks and other figured goods. Perhaps two reasons might account for the adoption of this course—first, the great value of the machinery and equipments, which, by this means, were retained under the care of the employer; secondly, the delicate nature of the work, which was all the better done for being kept under the employer’s eye and supervision. Again, the great cost of the damask looms before ready to

work any one pattern was out of the reach of the small farmers and cottiers who employed some branch of their family or establishment at the loom, which, from its having been handed down from generation to generation, was literally an heirloom. The mode in which the business of these small manufacturers was carried on was as follows:—When he went to market to dispose of his flax, oats, or other produce, after ascertaining the description of cloth in demand, and therefore most likely to be easily and profitably sold, he bartered for or purchased yarn for warp and weft. He procured the reed (which is part of the machine, regulating the closeness of the warp or longitudinal threads to each other), with the heddle’s one eye or loop to each thread, for the purpose of forming the shed, i.e., dividing the warp into two layers and raising one over the other, so as to allow the passage through of the weft or cross-thread. He then placed the yarn on the yarn beam or roller, passed the threads each through its own proper interstice in the heddle and reed, fastened the ends to another beam, which rolls all the cloth as it is woven, and having dressed or brushed a portion of the warp with a preparation which, serving as a lubrication and surface protector, would allow the warp threads to cross each other without injury from frictions by contact. He now proceeded to weave or handed the loom with its provisions to whoever was to complete the manufacture. Weaving consists of interlacing the warp threads with the weft. This is done, in weaving by hand, by the pressure of the weaver’s foot alternately on levers by which the upper and lower ranges of heddles are worked. This action causes the warp to separate into two strata, diverging from each other until the extreme depth of the opening is about two inches. Through this opening the weaver deftly throws the shuttle, or canoe-shaped box, containing the weft yarn wound on a spindle, and called a pirn. When the shuttle has passed across the web, leaving in its “race” a line of weft yarn, the beam to which the reed is attached is pulled towards the weaver as he sits. He next pushes it away from him, works the treadle, or lever, which causes the heddles to cross the threads of warp again, and so form another shed, at the same time enclosing the weft last thrown in. The shuttle is again jerked across the loom, the reed brought forward again, pushed back, the treadles worked again, and so on. To perform regularly and for any length of time this constantly recurring series of mechanical motions by the hands and feet required great practice and expertness, as well as much muscular exertion, on the weaver’s part. To produce a perfect web of cloth, in which the number of picks or shoots, or threads of weft, shall be the same in whatever portion of its length—a surface of, say, one-fifth of an inch—shall be examined, requires not only the above qualifications, but also careful attention to another important point: As the weft is put through the warp, and the warp, by the heddle crossing bent over it, an absorption of the length of warp yarn takes place, as it is thus woven into cloth. This cloth must be rolled up on the beam provided for the purpose; this was generally done by inserting a short lever at right angles to the axis of the roller, and suspending a weight to its end, by which the cloth woven, and the unwoven warp were kept in a certain state of tension; at the same time the yarn beam was not held rigidly in its place, but was permitted to give off a sufficiency of yarn for the requirements of the weaving, by allowing it to revolve under the cheek of a friction break, formed by a rope fastened to the loom-frame or floor at one end, rolled once or twice round the axle, and tightened by a weight. This is called the pace rope from the fact of its controlling the pace or rate of speed at which the yarn is given off. If the weaver were steady, expert, and careful, and looked well after this taking up and giving off, and kept the warp properly lubricated or dressed, and was particular in the matters of cleanliness, a good web was the result. When completed the cloth was taken to the market, and sold for a sum which left a respectable balance as wages for weaving, to agents who attended from the larger buyers to purchasers. This system of manufacturing continued so long as yarns were spun at home by cottagers and others, when, however, the introduction of machinery—spun yarns stopped this branch of domestic industry. The manufacturers, who were often proprietors of spinning mills, sent the yarn to the country markets, there to be given out to the weavers who attended, with an understanding that it was to be returned in a specified time, woven into cloth of a quality decided upon for the weaving of the cloth, so much was to be paid on return.

For a time this rate of remuneration continued to be fair enough, but as machinery reduced the price of yarn, and consequently of fabrics woven from them, the linen trade increased, and competition with it, until at length the weaver was obliged to be content to undertake work at a rate which did

not support him, and kept him only just removed from starvation. The days of hand-loom weaving as a handicraft were numbered; the class who previously devoted themselves to it accepted it only as a necessity; they lost their pride in the excellence of their work; often resorted to improper means to improve the appearance of the cloth or to conceal defects, and were generally unpunctual and dilatory in returning the woven webs. When outdoor employment was to be had, they would leave their loom, and work in the field as long as they could; this neglect of the manufacturer’s orders causing much annoyance and loss. This state of things was not improved when depression in the linen trade occurred, and even the poorly-paid employment was not to be had. Then the famine came, and caused many families—in some cases every weaver in a district—to emigrate. When these clouds passed away, and the linen trade was re-animated, weavers in sufficient numbers could not be found; the cottage, where the “click-clack” of the loom and the song of the weaver made cheerful music, or at least cheerful sounds, was now deserted, and occasionally, doubly melancholy was the desolation from the sad memento of the past in a beam of the old loom, built into the wall too firmly to be removed with the rest of the machine, which had, perhaps, been sold—perhaps broken up and used as fuel in those dreary black days. Of those who left their homes, some, especially females and young persons, obtained employment in the large factories in towns—more particularly in Belfast.

After remarking on the effect which the congregating of women, young persons, and children in large factories has or may have on their moral training, and referring to the disgraceful riots then at their height in the capital of Ulster, Mr. Dobson proceeded:—Not only the irregularity of the quality of the weaving, or the unpunctuality of delivery of the goods, operated prejudicially, but the impossibility of procuring the requisite supply of fabric from hand-loom weavers, compelled those who had adventured capital in this trade to obtain means of finding a reliable source whence they might secure a standard regulated quality (so far as the weaving is concerned) of cloth, and also a regulated supply. Weaving by power had long been the practice of the wealth makers in England, who applied the invention to the manufacture of cottons, and the Scotch manufacture of sail-cloth, and a fabric used for bed-ticks, composed of cotton warp and flaxen weft. An enterprising gentleman in Belfast endeavoured to apply the machine as used in England to the purpose of weaving linen warp with linen weft, so as to produce entire linen cloth, woven by power. He procured looms from Bolton, in Lancashire, made on the same principle as cotton looms, but heavier in the framing. He applied these to linen warps, and found that linen, not being so elastic as cotton, was very liable to break or snap; that a web could not be produced without many knots (resulting from the tying of broken threads), fluffiness and roughness of surface of the piece, and irregularity of weaving. Much trouble was taken by this gentleman and the machine makers he employed to remedy the evils, which for some time could not be overcome, though he was the first in this country who did weave linen by power. At this time it was said linens could never be woven by power. The practical answer given by an English firm of machine makers was “Give us the order and we will do it.” They constructed a machine which wove linen better than had been done heretofore, but which was still not perfect, inasmuch as, being *absolutely* (not entirely) dependent on the “pace rope” for the regulation of yarn supply, and consequently, of the due relaxation of the yarn to be woven. An ingenious man invented what may be termed a compensating motion, by which, as the warp was absorbed in weaving, not only was the requisite quantity let off from the yarn supply or beam, but an allowance was made for the rigid inelastic nature of the warp by a yielding or submitting action of the bearer over which the yarn passed before it reached the heddles. This was a great step forwards, yet the desirable result was not obtained. The cloth was still rough in appearance, owing to the effect of friction of the threads against each other; and the material hitherto applied dressed on to the yarn was, eventually, replaced by the use of more suitable aid. Flour applied to cotton warps did well enough, but to linen did not help the easy manufacture, but was actually detrimental, as it died and soon became desiccated. Carigeen moss, with a portion of carbonate of soda and tallow, and sometimes rosin, boiled was then used, and still is in common use, the proportion varying, and also the precise mixture. This was another advance, yet the loom was not perfect for the purpose of making linen cloth. The same firm (which I have the honour to represent) who sent over the machinery which produced the first power-woven pieces of linen in Ireland, and who are the oldest established and one of the most extensive

firms in the world, gave their attention to the details of the loom and the correctness of the fitting of all the parts. Their means and appliances enabled them to do this. Every point levelled and planed by machinery must, necessarily, fit its neighbour: every bearing turned and gauged; screws and bolts all to one standard; no looseness of parts, or packing of bad joints by inserting pasteboard, &c. The result was that they produced a machine which manufactures linen warp and weft into an even fabric, at a rapid rate, with ordinary care on the weaver's part. Of course, much depends upon the quality, evenness, and strength of the warps. Accordingly as the loom is supplied with good quality or bad, so will its production be regular and fast, or uneven and slow. Among the many valuable patent and unpatented inventions for improving the action of power looms, I will only, to save time, mention the most important, *i.e.* the beautiful appliance called the weft-fork. As the shuttle, with its thread passes the end of the reed space, and before it returns to the opposite side, it is subject to the inquiring action of what is called a "weft-fork"—a little bent lever, so delicately balanced that if the weft thread is broken and not in its place to touch it, and lift it from the notch of the lever over which it works, this deficiency of weight of contact prevents it rising over the notch, catches the lever, stops it, and detaches a spring which simultaneously shifts the power belt from the driving pulley to the loose one, and brings a friction break into action, stopping the loom firmly, quickly, yet gently. Such is the linen power-loom, imperfectly described—all but an automaton. It must certainly have the energy provided for it, and also a proper degree of temperature. With this, and common attention to prevent accidents, it will work evenly, faithfully, reliably, and profitably. Plain cloth, twill, drill, diaper, check, and damask weaving are all performed in the linen power-loom; the four former by very simple applications to the heddles and shuttles, the latter by a rather complicated apparatus. In the year 1852 there were no power-looms in Ireland employed in waving linen. At the present there are about 6,000. These 6,000 machines turn of as much work annually as 50,000 of the best and most expert hand-loom artisans could perform. This motive power granted, there is no weariness or consequent weakness. The action of the hands, wrist and feet are effectually imitated, even human intelligent observation, as the machine stops when the weft thread breaks. The power-loom of course increased the production of linen, and shortly after it became more commonly used, a lull took place in the demand for cloth of ordinary finish. I had previously experimented and devised a means of benefitting the hand-loom trade, which was in a lamentable state, and succeeded by introducing a peculiar mode of finish of the cloth in its brown colour, sometimes varied by stretching it alternately in wrap and weft, the threads crossing and clearing each other at angles of 45 degrees, the effect of which was to render the cloth elastic. Her Majesty was pleased to approve of the samples which were submitted to her notice, and they were used by the ladies of the Royal family for seaside and summer robes. From the colour of the unbleached but partially prepared fabric, I called them "Isabean," from the peculiar colour which is said to have been the result to a certain Royal lady's lace, from adhering to a vow respecting the duration of the siege of Ostend. The name was not affirmed or its significance comprehended, and the materials became known as "Patent Finished Linens." Ladies and children adopted them here and over the world, and the most beneficial results ensued to the hand-loom weavers of the North of Ireland; also to the power-loom trade, as they presently commenced to manufacture an approximate quality of cloth. Again, the power-loom linen trade was depressed, especially in those fabrics made from raw flax yarn; cloth could not be sold otherwise than at a loss. I was the means again of bringing it into an entirely new demand. By a patent which I secured in 1856 I prepared the cloth in a peculiar manner, finished it for market by special machinery, and originated a trade, which I am assured not only saved the power-loom trade from despair and decadence, but actually increased it by establishing a branch for demand, which has never yet ceased, but has been annually augmented. I mention this as evidence of what the linen trade of Ireland can gain by attending to its development. The market day does not now see the cottier or farmer weaver bringing his webs for sale as formerly. There is no rivalry or boasting as they trudge on the road; no speculative pleasant thoughts as to what the "fairing" to be purchased out of the profits shall be; no strings of closely-packed carts of linen leaving country linen markets. Those markets, indeed, that still remain open are fast losing their characteristics. Their linen halls or public sale markets are all but unused. Business is done quietly, methodically, and the cheerful

"marketing" of the past generation is ended. Centralization is gradually and surely bringing all interests to itself and the advantages or disadvantages to those concerned progress and increase. And, to conclude, so far as the linen trade is interested, the cause of this centralization is the introduction of the power-loom to weave linen, and the increase of centralization is due to the extension of this class of machinery. I may, perhaps, be allowed to state that any district where flax is grown is fairly entitled to a share of the large profits arising from the manufacture into yarn and afterwards into cloth. As regards the former, large capital is necessary certainly; also the presence of numbers of trained workers. But yarn is always to be procured from the spinner in exchange for flax; and there is no reason why, in many localities, power-loom factories, on a moderate scale, should not be established and profitably worked.

At the conclusion of his lecture, Mr. Dobson exhibited some admirable specimens of different kinds of linen produced by power-loom.

On the motion of Mr. Phineas Riall, J.P., seconded by Mr. Sigismund Moss, a vote of thanks was passed to Mr. Dobson for his instructive lecture.

#### WEXFORD WATERWORKS.

MR. FARRELL'S REPORT TO THE CORPORATION. GENTLEMEN,—In pursuance of the resolution passed at the special meeting of your body, held on the 5th of last April, that I should "supply plans and estimates for the conveying of water to the town of Wexford from Newtown; such estimates to include the laying of pipes, with a sufficient number of hydrants through the town to the end of Maudlintown," I have carefully examined the localities, and, having made such preliminary surveys as were necessary to enable me to carry your instructions into effect, beg to submit the following detailed report with plans that accompany it.

Referring to the latter, you will perceive it is proposed to construct a reservoir, the site of which extends from above Newtown bridge to a quarter of a mile below it, taking in Kelly's mill, which it is intended to purchase. It would afford an area, at a level of 116 feet above the standard low water of spring tides in the harbour, of three statute acres, with a maximum depth of thirty-six feet, from which the water would be drawn by a syphon, at a depth of twenty feet from the surface, leaving a depth of sixteen feet for a settling reservoir. The main depth available for the supply of the town would be ten feet, providing 8,167,500 gallons, or more than two months' supply, if not more than 130,000 gallons is to be assumed as the daily consumption.

Your knowledge of the district, and the report which I had the honor to lay before you in October last, render it unnecessary to enter here into any detailed description of the drainage area, which comprises 2,300 acres. I shall only remark that, having tested its capability of supply, as hereinafter alluded to, I consider it sufficient for a population of 50,000, allowing 20 gallons per day to every individual, and that to meet such a demand, it would not be necessary to make a larger reservoir, but merely to increase the size of the pipes to such extent as would utilize all the water that could be had; and further, that if, in any future time it may be found necessary to provide for a still greater number of inhabitants, there is, immediately below the site now selected, another, where an additional storage reservoir might be constructed with an area of 7 statute acres. Dismissing, therefore, for the present, this portion of the subject, I shall proceed to the consideration of the works proposed for execution, and to the questions of their sufficiency and cost.

In the formation of a dam to impound a large body of water, it is, with reference to its permanently effective condition and stability, of the utmost importance that the natural foundation on which it is to rest, and the materials of which it is to be constructed, should be not only sound and impermeable, but as far as may be practically possible, of equal density, and so incorporated as to form, approximately, one homogeneous body. I have therefore, in consideration of the rocky formation of the site to be occupied in this instance, determined to adopt a construction of solid masonry to be firmly inserted in the rock, and set in strong hydraulic cement. It would form a segment of a circle with a mean radius of 105 feet, its convex side being opposed to the pressure of the water. An outlet culvert is provided for at the bottom, to be supplied with a valve having a clear diameter of 2 feet. Two valve-houses would be erected to cover and protect the syphon and machinery from the weather, with means of regulating the temperature to guard against the effects of frost, all being so arranged as to be within the control of a caretaker, who would have easy access to them at all times, and keep them under lock and key.

The precipitous and rocky nature of the sides of the valley would render the execution of the usual waste water channel difficult and expensive. It is therefore, proposed that the dam itself shall supply the means of discharging the surplus and flood waters, as a weir. In order to preserve it effectually from all injury that could be anticipated from such arrangement, six vertical, circular waste pits, each 2 feet in diameter, and lined with stoneware pipes, are to be constructed through buttresses built in connection with it, on its outside face, and in addition to its calculated sectional area. These waste pits would deliver into the river, below and completely clear of the base of the dam. They would be arranged at such level as to discharge more than the heaviest floods could send down from the drainage area, with such head of water over the weir as would preserve the mill above the bridge from any danger of backwater, thus materially improving its condition; as, from information received from its proprietor, it is at present so interfered with when the water is ponded in rainy seasons for Kelly's mill.

The lines for the pipes are shown on the accompanying plan, taking such direction as would easily supply all the houses between the reservoir and the town, which are within reach of the head of water; such, for instance, as Somerton, the Union Work-house, &c.

For a distance of 2,656 yards from the reservoir, at the end of which the summit level is attained, a 7-inch cast-iron pipe would be laid, terminating in an air and pressure shaft, to be erected on the highest point, in which the head of water being renewed, a 6-inch pipe, extending to the top of Hill-street, would be sufficient for the service of the town.

In the following table the streets are specified through which it is intended to lay pipes, with their respective diameters and lengths. There are others, and some lanes, not therein enumerated, which it is proposed to supply by fountains erected at convenient stations—17 in number. Should it be considered more advisable to lay pipes through these also, and omit the fountains, about £500, in addition to the annexed estimate, will be sufficient to cover the extra cost.

(Here follows the table referred to.)

The report proceeds—

As all the pipes will run full, there will be little, if any, corrosion; it is, however, proposed to cover them with anti-corrosive coating.

In estimating the sufficiency of the supply, I assume as a basis what may be safely considered a minimum of rain-fall, taking the months of May, June, and July, 1859, referred to in my report of October last, already alluded to, during which the aggregate amount did not exceed 0.69, or about two-thirds of an inch. Calculating that only four-tenths of this would be delivered into the reservoir, after allowing for absorption and evaporation, the drainage area would yield, during a similar period of 92 days, 13,775,850 gallons, or 149,737 gallons per day, being more than what you stated in your advertisement would be at present required. This would be the result, depending solely on the assumed fall of rain. The spring water supply is very considerable—far more than sufficient for all present purposes. I had the discharge measured above Mr. Leared's mills at a favorable point, where the velocity and sectional area of the stream could be fairly ascertained, and, after making every necessary reduction, found that it amounted to 10,6875 gallons per second, or 923,400 per 24 hours. The observations were made on the 12th of last April, during which, and five days immediately previous, no rain had fallen, and the whole quantity registered for 25 days preceding it (that is, from the 17th of March) did not amount to one-fourth of an inch. I do not consider it necessary to follow this question further. I am satisfied the supply is ample for a much larger population than the present. One-sixth of an inch of rain delivered into the reservoir off the whole drainage area would more than fill it. Taking the springs into consideration, it would be always full, even in the driest seasons.

The main pipe from the reservoir would deliver, at least, 236,722 gallons daily for distribution through the town, with a pressure varying from 42 feet at the highest point of John-street, to 106 feet at the highest point of quays.

Having taken a minimum of rainfall as a basis of calculation whereby to test the sufficiency of supply, I have, in the opposite direction, adopted one that is excessive for a test of the means provided for discharging the surplus waters of floods. Taking, in the first place, the quantity of spring water as above stated, assuming that the stream bordering Ballinacree, which joins the main river below the point where the discharge was measured, yields a proportionate amount, and adding the sum of both to 2 inches of rain delivered in 24 hours from the whole drainage area on a full reservoir, there would be 16,862,994 cubic feet to be discharged.

The weir, to be formed in the dam, would deliver, in the same time, 18,308,208 cubic feet, with a depth of water over it not exceeding 7 inches. As this depth should be increased to 21 inches before it would reach the bottom of Mr. Leared's lower mill wheel, he is, thus, protected from all risk of interference from the backwater, which, it appears, sometimes prevents his working, under present circumstances. The waste pits being arranged at such level as would enable them to void 22,046,544 cubic feet in 24 hours, it is impossible that this 7 inches over the weir could be exceeded. Ample provision is thus made for any extreme contingency that may occur from floods.

The outlet culvert may be frequently used for washing out the sediment from the reservoir without materially affecting the supply to the town; and if required, would discharge the whole of the impounded water in 5 hours and 20 minutes.

With reference to our present town reservoirs, I have made provision for filling them, but do not otherwise interfere with their present state. To render them perfect would be costly, and it is questionable whether they are worth the expense. They might, hereafter, if found desirable, be converted into filtering beds. A much better site for a service reservoir might be had in the neighbourhood of Park stream, which may very easily be made available. Its drainage area is about 200 statute acres.

The following estimate covers every expense necessary for carrying the foregoing into execution:—

Excavation for reservoir, pipes, foundations, &c.	£1106 18 6
Masonry in dam, waste pits, valve houses, pressure shaft, culvert, &c.	1704 14 6
Syphon valves, valve boxes, screens, wash out sluice, &c.	68 0 0
Land, land leave, and Kelly's mill	550 0 0
Pipes, including setting; bends, junctions, cleansing cocks, hydrants, and fountains	3134 10 0
Contingencies and parliamentary expenses (unopposed bill)	1656 8 4
<b>Total,</b>	<b>£8,220 11 4</b>

Interest on the above at 5 per cent. would be	£411 0 7
Probable cost of repairs, distribution, superintendence, and sinking fund	350 0 0

The annual expense would thus amount to .. £761 0 7

Making the annual charge to each individual, taking the population at 12,000, an average of 1s. 3½d., and to each house, assuming that there are 1,500 houses rateable in the town, say 10s. 2d. At this comparatively extremely cheap rate there would be provided not merely an ample supply, but the means of throwing water upon the roof of every house below the level of the monument near Windmill Hills; a hydrant being placed at every 50 yards through the streets.

JAMES B. FARRELL.

22nd June, 1864.

#### REPORT OF MEETING.

ON August 8th the gentlemen comprising the Water Committee—Mr. WALSH, J.P., in the chair—met Mr. Hawksley and Mr. Muggeridge at White's Hotel, to hear the opinion of the former on the question of a water supply to the inhabitants of the town.

Mr. Hawksley, addressing the meeting, said—What I understand to be my duties, in coming to you here, were to attend on you for the purpose of examining the scheme which has been proposed to you by your engineer, Mr. Farrell, and to suggest, if need be, any improvements or alterations which my greater professional only experience may enable me to point out, and which gentlemen only locally employed cannot be expected to attain to. I will at once step into the professional business, and commence by stating that the facilities which are afforded for the procuring a supply of water to this town are of a very unusual character. You have within a very short distance of the town the power of obtaining a quantity of water which is clearly sufficient to supply from 90,000 to 100,000 inhabitants. In most cases such a supply cannot be obtained within a distance of 10 or 15 miles. Here you have it at a distance of only about two miles. But I am told, as against that, that you have some pecuniary difficulties to contend with; that the rateable value of this town is so small as not to admit of your raising a sufficient revenue to cover the expense of obtaining this supply. I shall have by-and-bye to say something in regard thereto, but I may state, in the first instance, that I do not see any reason for apprehension on that ground. I am not introducing this matter without being able to give you the results of experience in similar undertakings. A difficulty presents itself in this case, not unusual in its own character, but arising from the peculiar circumstances in which the town is placed; that is a difficulty with reference to the provision you should make for the supply of water, not only for present use, but for future purposes. Therefore, without wishing to lead you to any par-

ticular conclusion, I will tell you what is usual. In an application to Parliament, when that application is made by corporate or municipal bodies, for powers to supply a town with water, it is always usual to apply for powers to obtain a supply sufficient for a population one-half larger than the existing population. This is based upon the consideration that that supply will last for about 25 or 30 years. I understand that the present population of Wexford is about 12,000. I am told that you are likely to have railway communication. I see from my own observation in the locality that it is a very beautiful neighbourhood; that you have a very good port; that the land is good; and, looking at all these circumstances, I cannot conceive why this town should not increase in the ordinary proportion in which such towns do increase. I therefore do not think it would be prudent to apply for any scheme smaller in its character than that which usually receives the assent of Parliament in similar cases. If this were a case of applying for powers to supply by means of a corporate company, it would then be necessary to apply for powers to supply double the existing population. But when the application is made by municipal bodies, the same extensive views are not always taken as to the powers requisite to be applied for. And therefore I think it would not be necessary for you to take powers to supply more than one-half in addition to the present population. Now, experience has shown that if you are to have a good supply for domestic purposes, and for sanitary purposes, including the flushing of sewers, the supplying of baths and wash-houses, the watering of streets, the extinction of fires, and such like purposes, and also for manufacturing purposes, and the supply of shipping; if you contemplate a supply for all these purposes, you will require about 25 gallons per head per diem. For a population of 18,000 you would thus require about 450,000 gallons per day. That, I can assure you, is not too large a quantity to afford a sufficient supply. For the present, therefore, I shall base my observations upon this estimate of the quantity required; at the same time telling you that, if you like to diminish it to the bare quantity required for 12,000 inhabitants, you may thereby lessen somewhat the cost of your works, but in all probability they will fail—fail after being a very short time in use.—Therefore, I do not think it prudent you should take the narrow view which may be entertained by persons who will tell you that provision for the supply of the present population will be enough. I have had the pleasure of accompanying your joint committee over the proposed water shed, and I find it most ample for the purpose. It would supply a town much larger than Wexford, if only sufficient storage were provided. I have ascertained, with the aid of your engineer, Mr. Farrell, what site is proposed for the reservoir, and I have seen also another site to which I shall shortly more particularly refer. I have ascertained by actual gauging what is the yield of the stream—not in the driest weather, for this is not perhaps the driest weather likely to prevail in a district like this—but in ordinary dry weather. I have also learned from Mr. Farrell the levels at which the water is obtainable, both on the site of the reservoir which has been suggested by Mr. Farrell, and on the site of the other reservoir to which I have already referred. I find that the yield of the stream at the lower point may be taken at the present at 110,000 gallons per day. This, you will observe, is only about one-fourth of the quantity you ought to possess for your daily supply. Therefore, supposing you adopt that site, about three-fourths of your supply would have to be obtained from storage. Supposing you adopt the other site you will then have a daily supply of about one-eleventh less—say 100,000 gallons—from the stream. The difference is so trifling that it comes to be of little practical account, when we come to consider the storage required. The reservoir which has been proposed is situated, as I understand, at a head of 116 feet above high water mark. As I understand also, the highest point of the town is about 100 feet above the same point, it appears to me that the situation proposed is not elevated enough to give sufficient pressure. It seems also that the other situation is about 50 feet higher, while it is not much farther away, and it appears to me that by going there you will be not only enabled to store a much larger quantity of water, but also to diminish the size of pipe necessary, while you would have the advantage of being enabled to comply with that clause of the Waterworks Act which requires that a constant supply shall begin even into the top storeys of the highest houses within the district. It is quite clear that the lower site is not high enough for that purpose, and, therefore, if pecuniary considerations do not press too heavily upon you, you should go to the higher level. There is another reason why I think it necessary, apart from the question of sufficient pressure, to adopt the higher level. We know from experience that in

all these cases of gravitation waterworks, where there is a rainfall similar to that usual in this district, it is necessary to have a storage of 150 days' supply—less the quantity which is brought down by the stream. You would require, therefore, storage for 350,000 gallons for at least 140 days. That would require a storage power of 49,000,000 gallons. I understand the proposed storage power is one of 8,000,000 galls. I have no hesitation in saying that this is not only too small for the maximum (required for 18,000 inhabitants), but that it is also much too small for the minimum quantity you might be called upon to distribute to 12,000 of a population. This is based upon the results of experience upon which you may rely. During the last twenty years it has been discovered that many of the reservoirs first constructed are altogether insufficient for the purpose for which they were intended. If you mean to give a sufficient supply to this town, you must be provided, not merely for ordinary seasons, but also for seasons of extreme drought. Supposing you do that you will require a reservoir of about 8,000,000 cubic feet. If you can get a reservoir that will be on the average 10 feet deep, you will require an area of little less than 20 acres. In the situation which I have suggested, and which, with Mr. Farrell and your committee, I had the pleasure of visiting to-day, there is no difficulty in obtaining a reservoir of that acreage. Of course, at present I reserve the question of cost, as I presume that will enter very gravely into your consideration. Supposing the question of storage to be settled, we next came to that of pipeage and distribution. It would not be prudent to lay pipes to the town of less than 10 inches diameter; and for this reason—you will not only have to pass a large quantity of water through them, but water of exceeding purity, such as this is, always occasions, sooner or later, a great oxydation of the pipes. You would find, in the course of time, that these pipes would become oxydised very nearly an inch thick; and there is no means of preventing this. You will, of course take the usual precaution of coating the pipes with asphalt; but notwithstanding all the precautions you can take, the water will penetrate the coating, and oxydation will set in. And that is by reason of the extreme purity of the water—a misfortune on which you ought to congratulate yourselves. Those waters which proceed from the quartz rocks and slate rocks always contain a vast quantity of oxygen, and that enters into combination with any oxydisable substance with which it may come into contact. The consequence is that you then have to provide larger pipes than would otherwise be necessary; and upon this point I wish to be particularly strenuous, because in the case of water supplied to Whitehaven from a district similar to that which is the subject of this inquiry—in the case of Whitehaven, the incrustation within 14 years has diminished the diameter of the pipes nearly two inches. You cannot prevent this effect; you can only delay it. Therefore, you must be prepared to provide larger pipes than would be necessary in the case of a town which did not possess the advantage of such exceedingly pure water. With regard to the piping for the town, I have had the opportunity of seeing the plan upon which Mr. Farrell, with very economical intentions, has based his estimate, and I find that instead of allowing, as I should have done, for an extent of distributory pipes amounting to fully six miles, he has based his estimate upon the supposition that you could, by the adoption of a very economical and limited extent of pipeage, reduce the quantity to 4½ miles. I do not think you would be satisfied with that scheme if it were carried out upon so limited a principle. You should aim to distribute it into the houses of the people, and thereby obviate the necessity of their resorting to stand pipes, at considerable distances. The latter is not a good system of supply. It does not provide conveniently and amply for public purposes; and it leads to the congregation around the stand-pipes of numbers of people to their own moral detriment as well as the inconvenience of the public. Now, wherever there is anything like a continuity of houses—that is, houses within even scores of yards of each other—it is considered necessary and proper to lay down a continuous line of pipeage. Moreover, it happens that the cost of that extra amount of pipeage is really quite insignificant. You cannot by any possibility, expend in the laying down of street pipes—including fire-plugs and valves, and all incidents that are necessary to distribute water in the most perfect way—more than £500 per mile; and therefore I do not see why you should deprive yourselves of a mile and a-half of pipeage, when the supply of it would not alter the cost of your undertaking by more than £750. Of course you cannot make the waterworks of greater extent than you are able to pay for, and I am quite aware that you cannot raise more in a town of this magnitude, and circumstanced as it is, though it is a thriving town—you cannot raise more than a limited amount of

revenue, and therefore it is worth while to see what it is possible for you to raise without pressing hardly upon the people to be supplied. It is very generally admitted that a water rate for domestic consumption is moderate if it does not exceed one shilling in the pound on the rateable value of the property taxed. I understand that the rateable value of town is about £14,600. The rateable value, I need hardly add, falls far short of the actual value. I have some acquaintance with Griffith's valuation, and I believe I am correct in stating that it amounts generally to only about two-thirds of the actual rent. In England it is the custom to levy the water-rate upon the actual rent; but in this country the water-rate is generally levied upon the stated valuation.—Well, suppose you make the estimate upon the rateable value, and that you take, as in Dublin, a rate of 1s. in the pound for domestic purposes, you would realise thereby £730 a year. This would really amount only to about 8d. in the pound on the actual rent. In England the rates are generally about 1s. in the pound on the actual rent. It is usual, in the cases of supplies by public bodies, to levy a rate of 3d. in the pound, for all public purposes, such as those I have mentioned—sanitary purposes, the extinguishing of fires, the flushing of sewers, baths, wash-houses, &c. This would produce about £180 a year. Then we come to the supply of water for manufacturing purposes, and shipping. That usually produces about one-fifth the amount produced by the domestic rate—say £150.

Mr. R. J. Devereux asked if the rate upon shipping could be made compulsory.

Mr. Hawksley—No. The usual mode is to have it put on board by an officer of the corporation, from a standpipe on the quay at a charge of sixpence or a shilling, as the case may be, for every cask containing 100 gallons or less; one shilling extra being charged for the first 100 gallons, to defray the expense of attendance, of tear and wear, &c. The proceeds of these supplies would be very moderately estimated at £150. Supposing, then, you framed your bill on the usual basis, your income would be £1,060 a year—less the poundage on the difference between the gross rental of £14,600, and that proportion of it which applies only to houses. Now, I do not know what is the rateable value of the houses alone, but I should suppose it to be £11,000 or £12,000 a year. Take off therefore 1s. in the pound on £3,000, or say £160, and your net income would be £900 a year. This income is based upon a very moderate estimate indeed. Supposing you made a gravitation water-works, such as those proposed, you would not spend more than £200 a year in maintenance and superintendence. That would leave you a nett revenue, for the payment of interest on the works, of £700 a year; and as you could raise money at 4 per cent., it would give you the power of raising capital—I do not say that you should necessarily exercise to its full extent that power—to the extent of £17,500. I take it, therefore, there is no difficulty in raising a sufficient amount of money to make a thoroughly good water-works without pressing heavily upon the ratepayers. The next thing, I apprehend, to be considered is the probable cost of the undertaking, and upon that point I am less able to give you anything more than an approximate estimate. Mr. Hawksley then proceeded roughly to estimate

The cost of land for reservoir, &c., &c., at..	£2,500
Embankment and other works connected with reservoir .. .. .	3,500
2½ miles of 10 inch pipes .. .. .	3,000
25 miles pipes through town .. .. .	8,000
Parliamentary expenses, engineering expenses, expenses of arbitration, &c. .. .. .	2,000
Total .. .. .	£14,000

Mr. Hawksley continued.—You have the power of raising £17,500. For the outlay just sketched, you would obtain a constant supply to the extent of 450,000 gallons a day. With regard to works of a similar nature in other towns, they in general cost from £2 a head on the population, at a minimum, to £5 a head at a maximum. Here they would only cost somewhere about £1 4s. a head, and therefore you would have, even if you expended £14,000, exceptionally cheap works. I have endeavoured to show you the best of the water supply, and the worst of the expenditure. You can reduce them if you like, but if you do, you will not have so valuable a scheme. The scheme is substantially Mr. Farrell's, and all I have had to do is to look it over, and to represent to you the improvements which I think might be made in it, and the increased cost which these improvements would render necessary.

Mr. R. J. Devereux—Was your estimate throughout designed for the supply of the larger number, that is, 18,000 inhabitants?

Mr. Hawksley—Yes.

Mr. W. Walker—As far as I understand there is no provision for the ulterior extinction of the debt upon the works, in Mr. Hawksley's estimate.

Mr. Hawksley—Parliament deals with that mat-

ter in several ways. I, for my own part, do not see why there should be any provision for the extinction of the debt. Nevertheless, where public bodies undertake these works, Parliament thinks it possible they may not execute them so well as a trading company would, and therefore it is usual to insert in the bills a redemption clause. That clause has latterly assumed this form, that only one per cent. shall be set aside, and the operation of the clause is usually suspended by Parliament for from seven to ten years after the act has been obtained. The reason of this is, that generally within these seven years you are almost certain to derive such an increase of income, beyond that which you would obtain in the first instance, as will go far beyond what is necessary to meet that additional charge. I think, therefore, it is scarcely necessary to introduce that element into the calculations at all.

Chairman—We have to go before the inhabitants generally, and suppose they say to us that the sum is too large, would the supply originally proposed by Mr. Farrell be sufficient?

Mr. Hawksley—It would not. I find the supply originally required was 130,000 gallons per day, being only ten gallons for each person, which is quite insufficient.

Mr. Farrell—That is 30,000 gallons per day more than originally appeared in your advertisements. The supply there asked for was 100,000 gallons.

Dr. Coghlan (who had not heard the whole of Mr. Hawksley's statement), asked if there was any reason, besides the advantage of increased 'head,' for constructing the reservoir above Leared's mill rather than below it?

Mr. Hawksley—I consider it quite impossible to make a reservoir sufficiently large at the lower level. If you go for a supply which is to yield 450,000 gallons a-day, instead of 130,000 gallons, you must, of course, have a very much larger reservoir, and I do not see that you could enlarge your reservoir at the lower level without destroying property, and otherwise incurring greater expense than would be involved in the compensation of the mills.

Mr. Farrell—If you go below the present proposed site of reservoir, you will incur an additional expense that would purchase the mills.

Mr. Hawksley—I do not think it would be necessary to purchase the mills, but you could compensate them either in money or in water. I should think it would be your interest, perhaps, rather to give them compensation in kind. There is plenty of water for the purpose, and all that would be required would be increased storage.

Dr. Coghlan—But the entire yield is at times not sufficient for the supply of the mills.

Mr. Hawksley—These streams fluctuate between a minimum of 1 and a maximum of 300—that is the quantity at certain times is to that at other periods as one to 300, so that with sufficient storage there can no difficulty arise. The mills at present are obliged to let an enormous quantity of water pass by them unused during the winter season. All, therefore, that you have to do is to store sufficient.

Mr. R. J. Devereux—It would be our interest to see that they did not waste the water.

Mr. Hawksley—What Parliament will do is to require that you shall give them a certain quantity, more than which they cannot claim. I never saw a case more free from difficulties. You have a superabundance of excellent water almost at your own doors.

Dr. Coghlan asked if it would not be necessary to make provision for a settling reservoir.

Mr. Hawksley—The water is so pure that I apprehend no filtration would be necessary. If it were it could be provided for at any time, and at very small cost. As to settling, a large reservoir of 20 acres would always be in a settled state. Filtration, as I have said, would not be required. At the place where we propose to construct the reservoir we get above all nuisance and impurities.

Mr. Devereux—Then you are quite well pleased with the quality of the water?

Mr. Hawksley—Yes; the quality is that of rain water. You cannot have better water than that which comes from the primary formations, as this does.

Mr. Pierce inquired what was the difference in the gross annual cost of the scheme as proposed by Mr. Hawksley, and that proposed by Mr. Farrell.

Mr. Farrell said that in the one case it was estimated at £730, and in other at £900.

Mr. Hawksley—The income would very much improve. In such a case as yours, where the works would be the property of the Corporation, who would not consider profit as a desideratum, increased income would be applied to the reduction of the domestic rate.

Mr. Walker believed they had already reduced the rate in Glasgow.

Mr. Hawksley—In Glasgow the circumstances

were very peculiar. They had to compensate two previously existing private companies. These are compensated by perpetual annuities. These constitute a charge, of which, of course, they can never get rid.

Mr. R. J. Devereux—On what scale would public factories, that may, for instance, hereafter be established, be charged?

Mr. Hawksley—They would be supplied by meter, in the same way as gas is supplied.

Mr. Sinnott—Will not the cultivated land through which it passes affect the quality of the water?

Mr. Hawksley—It does not appear to be very highly cultivated.

Mr. R. J. Devereux—It is the least cultivated of any district in the neighbourhood.

Mr. Hawksley—Unless you start from the mountain side, and there you, in all cases, have great difficulty in forming a reservoir, you must have water which passes through more or less highly cultivated land. But the quantity of organic matter in any case is very trifling. London is supplied from the Thames. Now, above London there are some 700,000 inhabitants on the course of the river; and yet no more organic matter exists in the Thames, at London, than two grains per gallon. The organic matter is so easily oxydised that it almost immediately disappears. Besides, the foulest matters are composed of the purest materials. It is only their combination in certain forms which renders them impure, and when these combinations cease, the matter so separated is quite pure.

Dr. Coghlan—Would there be any mechanical difficulties, supposing you place the reservoir there, to be overcome, except the laying down of the pipes?

Mr. Hawksley—None, whatever. It is usual to make a small reservoir near the town to equalise the draught. There are several beneficial effects arising from that mode of delivery. The supply is less fluctuating, and the friction is diminished. That would involve a slight additional cost, but it would not be necessary to incur it at once. It could be done at any time hereafter. It might, however, be well to take powers to make it.

Alderman Stafford—What would be the thickness of the pipes that are to be ten inches in diameter?

Mr. Hawksley—Half an inch, or fully that.

Mr. Walker—Now that we have heard from Mr. Hawksley this very able statement, I think we must congratulate ourselves on our good fortune, in having obtained the service of so able, so talented, and so experienced a gentleman. All the circumstances of the case have been laid so clearly before us, and the statement has been given in such an intelligible manner, that I think we cannot separate without returning to him, through you, Mr. Chairman, a vote conveying our best thanks. The statement he has made has been so simple, so clear, and altogether so lucid as deeply to entitle him to this mark of our satisfaction. I have, therefore, great pleasure in proposing that he be awarded a vote of thanks for his kindness, and his uniform urbanity. No question that has been put to him by any member of the committee, but was answered fully and courteously. I, therefore, beg to move that the thanks of the committee be given to Mr. Hawksley for the able report he has now laid before us.

The proposition was seconded by Dr. Coghlan. The meeting then separated.

The *Morning Post* of September 29th, when describing Benson's great clock in the Exhibition says:—"The large clock in the centre transept is a fine piece of mechanism, one of the largest chiming." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawingroom, diningroom, bedroom, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting-house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established, 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

Mr. Holman Hunt has undertaken to paint, probably in water-glass, a series of subjects from the history of St. Michael the Archangel, in the church at Cambridge, dedicated to that saint.

## LECTURES ON PUBLIC HEALTH.\*

*Sanitary Architecture and Engineering: Hospitals: Dwellings: Sewerage.*

AFTER medicine, the professions most concerned in the preservation of the public health rank those of the architect and engineer, and that they have been alive to this responsibility is evident from the constant attention which the subject has received in the columns of their influential organ, the *Builder*, and its younger sister, the *Dublin Builder*. When speaking of ventilation, water supply, baths, and public parks, and the approaches to them, I had occasion incidentally to trespass upon the domains of these most useful professions in laying down the principles upon which these sources of health depend, and I shall now endeavour to apply their teachings to the case of hospitals and the dwellings of the poor, and afterwards bring before you a few facts connected with sewerage, and proposals for the utilization of refuse. Hospitals have existed for fifteen centuries, and have been always regarded as institutions where every aid which science or benevolence can command should be brought to bear on the care of the sick. It seems, therefore, almost ridiculous to insist that they shall at least do the sick no harm; but it was once necessary, for in the older civil hospitals the mortality was very much greater in them than among patients suffering from the same diseases out of them; and as regards military hospitals, Sir John Pringle, 1764, was stating an undeniable fact, when he asserted that "hospitals are among the chief causes of mortality in armies, on account of the bad air and other inconveniences attending them." They were, again, called "dismal prisons, where the sick are shut up from the rest of mankind to perish by mutual contagion;" and Pouteau also, at about the same period, asks, "Des hôpitaux servent ils donc plus pernicieux qu'utile à l'humanité?" Of modern hospitals no such remarks can be made, and although there is ample room for improvement in their construction and regimen, they have made fast advances towards perfection in the last eight or nine years. This we owe chiefly to that female Howard and greatest of living philanthropists, Florence Nightingale. Her extraordinary labours during the Crimean campaign, when, forgetful of home, friends, or fortune, and unmindful of personal fatigue or danger, she unceasingly strove to save the health and lives of our soldiers, have been recognized by a grateful nation, but her efforts to improve hospitals at home are less known. It is sad to have to record that she has been reluctantly compelled to relinquish her most useful labours, owing to her own shattered health. Mortality in different hospitals varies most widely, and there is no doubt that it is capable of being reduced in those of the highest average by well organized hygienic improvements; for instance, in twenty-four London hospitals, which, on an average, contain 4,214 patients, there occurred during the year 1861, 3,828 deaths, or 90·8 per cent. per annum upon the inmates, nearly every bed yielding a death within the year; in twenty-five provincial hospitals capable of containing 2,218, 866 deaths, or 39·41 per cent., and in the Margate Sea-Bathing Infirmary, where there were 133 patients, 17 deaths, or 12·78 per cent. "Facts such as these," says Miss Nightingale, "have sometimes raised grave doubts as to the advantages to be derived from hospitals at all, and have led many a one to think that in all probability a poor sufferer would have a much better chance of recovery if treated at home."

If well-ventilated rooms, assiduous nursing, the best medicines, and the fittest food, could be secured at the patients' homes, along with that high-class skill and constant attention which even the foremost in the medical and surgical professions bestow on hospital patients, I have no doubt that such would be the result; but you will see at once these circumstances are impossible, and therefore, under existing conditions, hospitals must be relied on for the treatment of the severer cases of illness or accident, and their advantages are, at least in this city, fully appreciated by the poor, the greatest anxiety to gain admission being constantly displayed. The death-rate in the Dublin hospitals is much lower than that which Miss Nightingale gives for the twenty-four London ones, as appears from the following figures:—In the nine general hospitals in this city—namely, Adelaide, City of Dublin, Jervis-street, Mater Misericordiæ, Meath, Mercer's, Richmond, St. Vincent's, and Stevens', there were admitted from January 1 to December 31, 1863, 11,991 patients, of whom died 552, or 46 per 1000; but even this mortality is made greater in proportion to that among cases treated at their own homes by the following circumstance: some of our dispensary medical officers are also hospital surgeons, and most of them are connected in some way or other with these institutions, and while anxious to do the best for the suffering poor, they prefer to have the more acute and serious cases in hospital under their more constant supervision, where also these examples

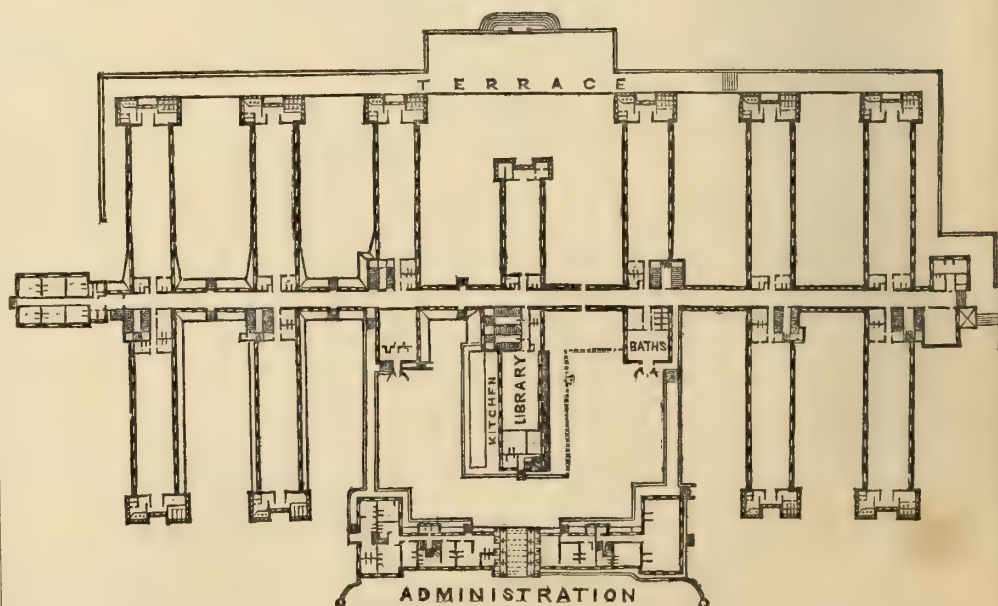
of disease confer the important, though indirect, benefit of serving humanity, by training scientific physicians and surgeons. The difference in mortality in hospitals depends also upon selection of the cases; for instance, in those with large clinical classes, striking and severe examples of disease will be naturally sought for, and sent there by practitioners who have been educated at the institution. To render the statistics of our hospitals more readily comparable with those of London, I have computed from the Census Reports that on the 7th April, 1861, there were in the eight existing hospitals—for the Mater Misericordiæ was not opened—703 patients, and allowing the death-rate to be proportional to what I have ascertained for last year, we would have a percentage of 74 deaths instead of 90, or that of twenty-four London hospitals. As I have said before in respect to other branches of medical statistics, the extension of registration to this country will enable fuller and more accurate numbers obtainable. In a previous lecture I have endeavoured to show that some diseases owe their origin, and many their untoward course, to want of ventilation, and I may here express my conviction that with a full regard of the necessity of fresh air in these institutions, the most contagious cases may be mixed up with ordinary patients. The innate virulence of contagion I do think has been too much dreaded, to the neglect of simple precautionary measures, as is seen throughout all the old quarantine laws. So close was the affection of contagious matters for substances in particular conditions considered to be, that it was once laid down that feathers separated from the birds could not be admitted from a plague-stricken country without the most imminent danger. Miss Nightingale argues that feverpatients should be mingled with ordinary patients, and if any others catch the infection it is a proof of so wretched a sanitary state that we may expect fevers to arise without any germ at all. I may, however, mention the fact, to be explained as it may, that there is scarcely a year that the life of some zealous student is not sacrificed, if his benevolence has led him to too close a contact with infectious cases.

Separate fever hospitals were first advocated by Dr. Haygarth, of Chester, and have since met with general favour, for their advantages are patent. They remove from the filthy homes of the poor the source of disease, which will infect the rest of the family and even the neighbours, and the rich become attacked by the contagion being carried by servants who will visit their relatives when stricken down. By want of ventilation, and the lurking of the poison or continuance of its causes in their homes, the poor get relapses, whereas if removed to hospital their homes can be purified during their absence. In the three fever hospitals of this city there were admitted 3564 patients last year. Now as one patient may be fairly calculated to infect four others, and as one in eight of those attacked die, it may be justly inferred that these admirable institutions have prevented 14,256 cases, and 1,782 deaths by fever. Highly, however, as I value these benevolent and admirably conducted establishments, I must acknowledge that till every effort is made to prevent by pure air and perfect sewerage the occurrence of fever, the treating of it may be compared to the task of Sisyphus. As the

fullest ventilation is required in such hospitals to burn off the peculiar poison of the disease, they should be never over-crowded. I will adduce for you some instances of evils from the agglomeration of a number of sick under one roof—evils which are almost wholly avoidable, and which will never, I fervently trust, be reproduced on so great a scale. In one of the Scutari hospitals there were at one time 2,500 sick and wounded, and two out of every five of them died—a proportion not, however, equalling the mortality by disease during the first seven months of the Crimean campaign, for 60 per cent. per annum of the troops died, a death-rate as high among the soldiers as that of the sick in cholera or plague times in cities. In one month there were in the Scutari hospitals eighty cases of that fearful fruit of sanitary mismanagement, "hospital gangrene." Sanitary improvements, mainly promoted by Miss Nightingale, reduced the mortality among the sick during the last six months of the war to nearly the rate of deaths among the healthy of the Guards at home. In times long gone by the Hôtel Dieu, Paris, contained in 1,200 beds as many as 7,000 patients; this was accomplished by multiple beds, and by these being used in turns, "forms being provided on which the sick whose turn it was to be out of bed could rest in the mean time." One out of every four patients used to die. Its air was such as to be called "a most foul and pestilential congregation of vapours." One-fifteenth of the women delivered within it died, and one-third of the children. Even three years ago the illustrious Malgaigne declared that as regards sanitary conditions the hospitals in Paris "were the most detestable in Europe." St. Thomas's Hospital, London, was, up to 1741, remarkable for its high death-rate (1 in 10); but after ventilation and other alterations it fell to 1 in 15·6. One lesson more, which, from having occurred at home and in the memory of us all, may make more impression. In the Irish famine-fever of 1846-7, the rate of mortality in hospitals and poor-houses was far greater than among the poor creatures who lay in the open air along the hedges exposed to the inclemency of the weather, and without sufficient food or raiment.

With regard to the situation of metropolitan hospitals, while I am fully impressed with the importance of obtaining healthy sites, I do not think all other considerations should be ignored as they are very nearly by Miss Nightingale, so anxious is she to secure the most healthy positions. She seems to fear opposition from teachers of medicine, and remarks that if medical instruction be an object, it is better that students should watch rapidly recovering than lingering cases, and twice as many cases can thus be submitted to them. Even removal of the hospital to the suburbs of a town would benefit medical education, for "the quiet and studious habits of a college would be substituted for the desultory lecture-hunting and hospital-walking of London." After all, medical education is but a secondary object of these institutions, their primary function being the care of the sick; and when one reflects on the distance a severe accident or acute case should be carried, or the patient's friends should travel in visiting them at a suburban hospital, we must feel some satisfaction that in this city, healthy and extensive sites may be had at short distances from the centre at moderate rates.

## PLAN OF HERBERT HOSPITAL.



The first principle of hospital construction, Miss Nightingale asserts, must be that it shall be built in pavilions or separate blocks, having wards, nurses' rooms, sculleries, lavatories, baths, and water-closets, unconnected with other pavilions, save by a common

airy corridor; the building for the administrative part of the establishment being central.

The Herbert Hospital, near Woolwich, which I lately visited, is the most scientifically constructed hospital in Europe, and forms a noble monument to

\* By E. D. Mapother, M.D., Professor of Hygiene, and Medical Officer of Health for the City.

the truly great man after whom it is named. It consists of seven pavilions, the ends of which all project into free air, as will be understood by studying the plan, and which are separated from each other by twice their height in distance. Below the wards there is a basement story which accommodates the museum, library, medical officers' rooms, and stores. There are but two floors to each pavilion, and each ward has a large end window commanding beautiful prospects in front towards the Thames, behind towards the Crystal Palace (not, however, improved by a cemetery a quarter of a mile distant). The baths and water-closets are in the free ends, and the latter are thus thoroughly aired. Each ward is 26½ feet wide and 14 feet high, which latter measurement is below what we would wish, and contains 30 beds, making 650 altogether, the cubic space for each being therefore about 1,300 feet. The windows are abundant, there being one for two beds, and arranged along opposite walls, and as the axis of the wards is a little to the east of north, each side will be enlivened by the sun during some part of the day. The central blocks contain the administrative quarters, kitchens, library, and convalescent's day room; one end has lunatic wards, and in the other is the operation theatre, with a few beds attached. The conveyance of food, medicine, and coals, and the removal of refuse, will be carried on by means of lifts and shoots in a basement corridor along the centre, so that no bustle will disturb the patients. Open corridors looking on beautiful gardens will be available for convalescents in fine weather, and a covered one in wet. The wards are warmed by two open fireplaces at the middle of the wards, the flues giving additional heat by being carried under the floors, which, however, are made as fireproof as possible, consisting of iron beams filled in with concrete and boarded with oak—an arrangement which likewise dulls the noise from the upper to the lower ward. The walls have a most pleasing light-coloured and polished surface to prevent the adherence of dust or organic particles. For similar objects, Parian cement and silicated surface have been recommended. Hot and cold water, softened by the lime process which I before explained to you, will be laid over the whole building.

Dr. Parkes has suggested a plan in which the pavilions project in radii from a semicircular corridor, but for hospitals of the size which is usually adopted in this city, two pavilions in a line is the best form. The distance between the blocks should be at least twice their height, there should be but two floors on each block, and only one ward on each floor. The typical size of the ward should be such as to hold about 30 beds, small wards being objectionable for the following reasons:—They are hard to ventilate; corners are multiplied; attendants must be proportionally more numerous; discipline is preserved with greater difficulty, and a death has a more depressing effect on the other patients. I look on separate operation wards as most desirable, for while the sufferer has the advantage of greater quietude, other patients do not suffer from the shock, or from the smell of the discharges which so often follow. The superficial area for each bed is a point which has been often overlooked; no vertical height of the ward will compensate for its deficiency, although it may afford an abundant cubic space; it should be at least 100 square feet. Clinical instruction, the use of the bath, cleansing, the isolation of infectious cases, will be then readily attainable, and with wards 15 ft. high, each bed will have 15 cubic feet of space. In a previous lecture I dwelt at some length on the ventilation of hospitals, which, considering the abundance of organic emanations, should be the best ventilated of all buildings, and I stated that air shafts were necessary to attain perfection of airing, which consists in the air the patients breathe being as pure as the outer air, without their being chilled. In fever hospitals free access of air is especially required, and no plan can be more effectual than that adopted by the Commissioners of Health during the epidemics from 1846 to 1850. It is described in the following words:—

"A sheet of zinc or tin plate is punched (not drilled) with holes one-twelfth inch diameter, and half an inch apart—thus prepared, it is inserted in place of a pane of glass in every window, or every alternate window, as required, care being taken that the side on which the burrs project is turned to the weather so as to throw off the rain. Neither wire-gauze nor perforated zinc of the ordinary kind will be found suitable, as both permit blasts of cold air and rain to pass through them, and the former is liable after some time to become choked with dust. Those who have had practical experience of the importance of ventilation to the sick, and of the difficulty of maintaining it, will appreciate the value of a simple plan that combines utility with cheapness, and which cannot be interfered with by the inmates of the hospital."

You are, perhaps, aware that Dr. Corrigan has for many years advocated this mode of ventilation, and they have been found during an experience of twelve years in the Hardwicke and Whitworth Hospitals

superior to all others. As he remarks, they are beyond the reach of the inmates, who have the strongest tendency to close up or obstruct with clothes all ventilators. I am an earnest advocate for numerous windows in hospitals on the scores of ventilation and of light, enabling the patients, if convalescent, to read in bed, or to enjoy the prospect of scenery or gardens which should always surround the building. The window space should be half the wall space, notwithstanding the low temperature of this climate, which may be compensated for by additional production of artificial heat or clothing, or by double sashes or panes, which are very useful in preventing extremes of heat or cold. For similar reasons, the walls and ceilings should be of a light colour, and their material should not be porous, but hard and polished; pale green paper, not arsenical, varnished, has been found most suitable in this city. Whitewashing of walls, to be effective for the removal of carbonic acid, should be renewed every three or four weeks, to the intolerable disturbance and even danger of the patients; and we have already learned that that gas is by no means the most noxious constituent of foul air; ordinary plaster becomes in a few years loaded with organic matter most abundantly. The surface of the floor should be made polished, and impervious to moisture, as advantageously adopted in many institutions in this country. The stairs and landings should be of stone. There are many improvements in bath-rooms and lavatories, sculleries, water-closets and sinks, which, if carried out in hospitals, would not only expedite the recovery of its inmates, but inculcate wholesome lessons applicable to their homes when they return to them. Care should be especially taken in building latrines, which, projecting at the end of the pavilion, should have the closets along their outer wall; and for better ventilation the partition should not reach the ceiling, and the whole apartments should be aired by opposite windows kept open. The hospitals in this city, though small, are numerous in proportion to the population, and I think we have cause for congratulation in this circumstance, for multiplication of these institutions is more desirable than enlargement. It may be said that extensive fields for clinical study are not presented, but by a system of reciprocal admission to hospital students, as was mooted some years ago, this may be obviated.

The distribution of the nine general hospitals was exhibited by the lecturer on a map.

(To be continued.)

#### MONUMENTS, STATUES, ETC.

A MONUMENT to the memory of the late Lieutenant Clifford, of the 1st Punjab Cavalry, is to be erected in Thomastown Church, Co. Kilkenny. It will comprise a tablet, with sculptured design representing the gallant deceased in the battle-field, where he fell. Its execution has been entrusted to Mr. Thomas Farrell, of Gloucester-street, a gentleman of whom we have so often spoken in terms of commendation for the many works of art which have been issued from his studio. The cost will be over £100.

A commission has been given to Mr. Foley, R.A., to proceed with a statue to the memory of the late General Jackson, to be presented to his native county, Virginia. The subscription is still open to provide a suitable pedestal. The committee state that the announcement has been made to the authorities of the Confederate States, who have returned gratifying answers. Mr. Beresford Hope is treasurer to the fund.

A memorial tablet to perpetuate the memory of the late Sir C. Barry has been just erected in the nave of Westminster Abbey, over the spot where the distinguished architect of the Houses of Parliament lies buried. It consists of a large cross set into a massive slab of black marble about 12 ft. in length by 5 ft. in width, and the inscription on the cross is as follows:—"Sacred to the memory of the late Sir C. Barry, R.A., F.R.S., architect of the New Palace at Westminster and other buildings, who died on the 12th of May, 1860, aged 64 years, and lies buried beneath this brass." The following text is also inscribed round the outside of the marble slab:—"Whatsoever ye do, do it heartily, as to the Lord and not unto men, for ye serve the Lord Christ."—Colossians iii., 23, 24.

The colossal statue of the Prince Consort at Perth was, on Tuesday morning, the 16th inst., placed upon the pedestal at the foot of the North Inch without having sustained the slightest injury. The site has been happily chosen, and the statue will be seen to the best possible advantage.

The inauguration of the statue of Rossini took place on August 21st, at Pesaro, in presence of a large number of spectators. The hymn sung on the occasion, composed by Mercadente, was much applauded. The Ministers Signor Peruzzi and Manna were present. Signor Peruzzi delivered a speech in presenting the medal sent by the municipalities of Florence and Bressia.

#### LONDON BANKING AND INSURANCE BUILDINGS.

THE cost of the superstructures which are being reared in London (says the *Times*), great as that is in every case, bears no comparison to that of the ground on which they stand, for the value of land in some parts of the city has risen to a degree perfectly fabulous, the sites of houses removed with a view to re-construction having of late been bought at the rate actually of a million and a-half sterling the statute acre, and at a higher rate than that even in some instances. At present in Lombard-street alone four banking-houses, all within sight from one point, are being rebuilt in a style of palatial grandeur, and others equal in stateliness have recently been erected. The most striking of the buildings now in course of erection there is that intended to be used as the bank of Messrs. Bevan. It is of four storeys, and upwards of 60 ft. high, with a frontage nearly 100 ft. in width, and extends backward from Lombard-street 115 ft. It is being erected by Messrs. Ashby and Horner, from designs by Mr. Hardwick, R.A. The front is built almost entirely of Portland stone, and presents a magnificent appearance, having a principal entrance in the centre of stately proportions, and being adorned by massive columns and an elegant cornice. The building, which throughout is fire-proof, will probably cost £30,000 or £40,000. Scarcely less striking is that now in course of construction in the same street, for the accommodation, principally, of the Royal Insurance Company. It is, also, four storeys high, with an extensive frontage of stone, both in Lombard-street and Clement's-lane, and having a main entrance of great width and height. Near to it a building intended for a bank, and facing Lombard-street and Clement's-lane, has recently been begun. As yet the walls are but little above the foundations; but enough is visible to indicate the elegance of the design, a prominent feature being the introduction into the elevation of pillars of polished granite. A substantial building, erected in 1829, in Clement's-lane, has been taken down to make way for it. The new bank of Messrs. Roberts, Lubbock, and Co., of which Mr. Hardwick, R.A., is the architect, has just been finished. It is of four storeys, with an entrance at each extremity; the basement being of stone, with massive ornamentations, and the upper part of white brick, slightly decorated. The London and County Bank, close by, is of recent erection, and though smaller than any to which reference has been made, is a remarkably handsome building. It is entirely of stone, with eleven windows in front and a very elegant entablature. Near the Monument, with a frontage in Gracechurch-st. and Eastcheap, the Scottish Commercial Insurance Company have lately erected a building, which forms a conspicuous ornament to that part of the city. At the corner of Rood-lane, Fenchurch-st., a substantial edifice of four or five storeys has been built for mercantile purposes. Of late several very handsome banking and other premises have been erected in Mincing-lane, giving with Clothworkers' Hall—a noble building erected within the last few years—and the Commercial Salerooms, an air to the whole street almost as imposing as that of Pall-mall. The directors of the London and Westminster Bank are making extensive additions to their premises in Lothbury, rendered necessary by their increasing business. Again, a very elegant and costly building, erected by Messrs. Cubitt and Co., on the site of the old Cock Tavern, in Threadneedle-street, for the North British and Mercantile Insurance Company, has just been finished, imparting additional grace to the surrounding architecture, which in that part of the city is conspicuous for magnificence. Some buildings of minor interest, but harmonising well with the massive character of the thoroughfare, are being put up in Broad-street; and the ancient church of Austinfriars, hard by, is in course of restoration at considerable cost. On the site of the old East India House, in Leadenhall-street, a substantial range of merchants' offices, four storeys high, has been built, covering the whole area. The directors of the Union Bank of London are enlarging their premises at the back of Prince's-street, in the direction of Grocers' Hall, and close by, on the site of the premises of a banking firm of long standing recently taken down, a handsome structure, adjoining St. Mildred's Church, at the east end of the Poultry, is about to rise. Guildhall is being roofed and restored at a cost of about £70,000, and it is in contemplation, provided the consent of the Common Council can be obtained, to take down and re-construct all the adjacent buildings now used as offices of the Corporation and the law courts there. The scheme was at one time so bold as to suggest the sale of the Mansion-house, and the erection in its stead of a suitable residence for the Lord Mayor within the congenial precincts of Guildhall.

## Archæological.

THE Archæological Institute of Great Britain and Ireland have this year held their annual congress at Warwick. Although not within the county of Warwick, or the diocese to which it is attached, the proximity of Lichfield and its magnificent cathedral made it the principal centre of attraction. The Association devoted its attention chiefly to the cathedral, in which Professor Willis acted as cicerone, and read an interesting paper on the subject, in the course of which the Professor strongly condemned the restorations of Wyatt, and expressed his disapproval of the throwing of the building open from end to end, and putting the organ out of sight, where it could be imperfectly heard. Mr. Beresford Hope expressed some dissent from the researches of Professor Willis in these respects. Mr. Winslow read a paper on the ancient stained glass of the cathedral, which was originally brought from the Abbey of Herckenrode in Belgium, and dated from the 16th century. The new screen—a work of art by Skidmore of Coventry—second only in importance to the glorious piece of metal work recently erected at Hereford, excited much attention. The Institute subsequently devoted a day to the classic field of Stratford-upon-Avon, the reminiscences of Shakspeare, and the interesting parish church, where the great poet lies buried, for a description of which we cannot do better than refer the readers of the DUBLIN BUILDER to Washington Irving's reverential notice in the "Sketch Book," written years ago.

Some very interesting explorations were recently made at Richborough Castle, preparatory to the meeting of the Kent Archæological Society. A few feet below the surface there has been discovered a platform of stonework, some five or six feet thick, with a superficies of something like 120 feet square. This is supported by a mass of masonry about 60 feet square, and piercing to a depth which no excavation has yet reached. Nearly three sides of this block have been exposed by excavations of former years, and now a fourth has been nearly completed. Other interesting discoveries have also been made at this spot; but as to the purpose of the structure antiquarians are divided in opinion.

It is said that a ring has been discovered in the excavations now being made at the Camp ai Chalons, which, it is believed belonged to Attila, King of the Huns. This ring is of copper and has the name of Attila inscribed on it in Latin characters.

If any science could tempt us from politics it would surely be archæology. There is nothing hard or unpleasant about it—no grammar, no rudiments; contrary to Aristotle's maxim, there is a royal road to it all the way, and an uncommonly pleasant one. What you do in modern times, if the antiquarian fever seizes you, is to join the Archæological Institute. Then, once a year, you and all the other jolly and amiable enthusiasts swarm like mediæval bees about some old town. It must have a castle or a cathedral somewhere within reach; some Roman remains, a barrow or two—not the navy's—and a disputed Saxon site. These things provided—and if they can't be found they can be made—all the rest is the nicest style of study imaginable. You may flirt as much as you like—there is no Salic law in archæology; you may sip sherry cobbler; you may suck oranges; but all the while, if you only go the rounds, you may awe yourself even with the profundity of your pursuits. Well, perhaps, not yourself, because you well know in your own heart that you would sooner excavate a pigeon pie than open the most complete tessellated Roman atrium within the beat of the society; and that while the very acute but somewhat grubby Doctor Dryasdust is demonstrating that there never was a Lady Godiva, or Guy of Warwick, your mind has left the shadowy past to ponder upon the pic-nic baskets that are being unpacked, and the cords which are being drawn for modern throats. But, if you don't deceive yourself, everybody else must take you for a sage. Suppose, for example, that you had joined the institute in this their last annual swarm with Lord Leigh for a queen bee. Look what you would have gone through if you were only faithful to science. You would have heard all about the siege of Kenilworth, and its curtains and fosses, and barbicans, and hornworks. You would have poked your nose into the Greyfriars' Convent at Coventry, now a work-house, and upon that solemn spot abjure Lady Godiva and the Dun Cow. You would have visited Stratford-upon-Avon, and digressed to Lichfield—always in the jolliest society, and with the most agreeable arrangements in reference to the present wants of man, as distinguished from his hunger after old bones and his thirst for a ru-ty fibula. You would be a walking Dugdale at the end of the week, a living Camden, a pocket Selden, a diamond edition of Strype; and all at the cost of eating the Warwickshire brawn, of drinking the Warwickshire ale, and flirting with the Warwickshire lasses; every one of those things—

delightful science—being perfectly permissible to the happy people who year by year have such a capital outing together, and call it archæology. But why not call it archæology? The pigeon pies taste as well by that name as any other; the champagne pops as briskly to wash down the "dust of old" as it does at a ball or wedding. Archæology need not mean that one must make one's coat and hands in a mess, like Dr. Dryasdust, or break one's shins up a belfry staircase, or plunge into the bowels of a *tumulus* with pickaxe and lantern, like a respectable resurrectionist. You may go through a whole course of archæology nowadays without drawing off a lavender kid glove; and the most expansive crinoline in the midland counties may accompany the learned expedition from first to last with confidence. One or two good and worthy enthusiasts, like Dryasdust and his brother officers, do the real business, get up the old authorities, and grope about the neighbourhood for curiosities. All that the rest contribute is to let him chatter pleasantly, and to pretend to listen, which is quite a cheap way of becoming a savant. That is why we should like to join the Archæological Institute, if it were not for that terrible ode of Burns about Captain Grose. Archæology owes the poet of Ayr a grudge, for he did the charming and merry science an ill turn with his catalogue of the captain's private collection. One ought to be very grave about antiquity, as it has to do with our great-grandfathers and grandmothers; but antiquarians inevitably bring up to the mind that wonderful museum which the poet labelled and described. A cinder of Eve's first fire, the poker and shovel of Tubal Cain, and the witch of Endor's broomstick, were some of its highly interesting items; others were a pattern of Adam's first garment, and the knife that Cain used against Abel, with "auld nick-nackets" far too numerous or too recondite to mention. We should be a little haunted by that remarkable idyll if we were archæologists, and we should have to forget the story of "Bill Stumps, his mark," and that parallel and veracious one where the Spanish antiquaries discovered S. VIA on a stone near Murviedro. They were so cock-sure that it must stand for "Santa Viaria," that the Roman Church went to the expense and trouble of canonizing a mythical lady of that name to please them, and Santa Viaria was duly installed in the calendar. Afterwards it turned out that S. VIA was part of the old inscription, "*Præfectus viarum*," stuck up by some little local Roman road trustee, to commemorate a successful bit of macadamisation. Alas for archæology! Still, though poets will have their satire, and novelists their jests and anecdotes, the "antiquaries" do well to pursue their placid way in spite of them. So would we if we could get such a capital holiday every year out of what is called science. Minerva in a gipsy hat and feathers, and with a crinoline rubbing against the awful agis, is a very attractive goddess indeed; and if pic-nics are not nice study, what in the range of wisdom can be called so? We do not wonder, therefore, that the institute is already twenty years old, and attains its majority next year, either at Hull, or Dorchester or London. If it continues to unite the *utile* and the *dulce* so delightfully, we don't see why it should not last out to the year of grace 5,000. The institution of eating and drinking and chatting over the broken bits of the past, snatched from the cupboard of cave or castle, is about the most likely to continue of anything human with which we are acquainted; and our good friends the archæologists have wisely blended their existence with it—have built their house, so to speak, upon that rock of comestibles and good company. Let them go on, therefore, genteelly poking about for curiosities, and gravely settling whether there was or was not a Dun Cow at Warwick. Let them by all means "prospect" Dorchester and Warwick, and Hull or Dublin after Dorchester. There is such a charming principle of vitality in dead bones handled thus, that, in a spirit of second-sight, we can foresee the day when their descendants will in turn descant upon the doings of the parent society; when the Dryasdust of a dim future will disinter the memories of his profound brother and great-great-great—inconceivably great—grandfather; and when the pigeon pies of the new era will be consumed above the touching and eloquent remains of those which were lately employed to sustain the exertions of science at Dugdale's county town.—*Daily Telegraph*.

BALLYMENA.—The property known as "Bell's Green," on the east side of Bridge-street, has been purchased by a company who propose to expend about £12,000 in the establishment of a power-loom weaving factory. Hitherto this thriving town has been chiefly known as a market for the sale of yarns which were manufactured into the staple products of "the north" elsewhere; and an enterprise such as this, though comparatively limited in extent, must be looked on as a move in a right direction, to keep some more of the legitimate profit of the staple in the district in which the raw material is produced.

## Railway Intelligence.

The Board of Trade has issued a circular to the railway authorities of the kingdom on the question as to how far it might be possible to allay the sense of insecurity at present prevailing among railway passengers. The Board refers specially to two of the suggestions which have been thrown out in the course of the controversy on this subject—the placing of windows between the compartments of each carriage, and the adoption of the Continental system by which guards can pass with safety from carriage to carriage while the train is in motion. The Board considers the latter proposal deserving of consideration, and requests the directors of the various companies to give their opinion of the value of this and other arrangements, and to offer any suggestions which they may think adapted to meet the requirements of the case. Recent wants have made the question of communication in railway trains of something more than vital importance. *The Saturday Review*, in an able article of July 23rd, points to dangers which, if not familiar to readers of the public journals, are not unknown to the experience of many who travel much by rail. While the male traveller, *tête-à-tête* with a single companion, may dread the sudden blow of the assassin, and the female traveller apprehend unmanly insult, which, we trust, although we have heard of such things recently, are comparatively unknown; every one is open to a far more common crime, the unfounded charge of some gross impropriety, made with a view to extort money, which, although incapable of proof, will leave an unpleasant reminiscence about the most unspotted reputation,—nor is this serious annoyance so uncommon as is generally supposed. Thorough communication between the carriages appears to us at once the general principle on which any perfect personal security can be obtained.

DUBLIN AND BELFAST JUNCTION.—The report of the directors for the half-year ended 30th of June, 1864, has been submitted. The amount received for passenger and goods traffic and mail services, during the half-year was £33,329 18s. 3d. (being £861 10s. 6d. less than the receipts from the same sources during the corresponding half of the year 1863); and working expenses, including renewals, amounted to £13,655 4s. 2d. The total income of the company for the half-year was £34,624 15s. 11d., and the total expenditure £23,122 0s. 8d., leaving as profit £11,502 15s. 3d., which, with £1,039 3s. 7d. credit balance from the preceding account, and £8,035 13s. 5d. the amount of calls received and dividends declared on forfeited shares (cancelled by Dublin and Belfast Junction Railway Act, 1864), left at disposal £20,577 12s. 3d., which was recommended to be applied as under, viz:—1st, £14,194 7s. 6d.: To pay dividend at the rate of three and a quarter per cent. per annum, less income tax (at the rate of 6½d. per £1), on the company's share capital. 2nd, £549 17s. 7d.: To write off sundry amounts many years due, but which there now appears to be no hope that the company will be able to realise. 3rd, £5,833 7s. 2d.: To be allocated, so far as may be necessary, to meet any deficiency there may be on sale of the company's government stock, which in the accounts is rated at par, and any balance which may then remain to be carried to credit of the revenue account. Total, £20,577 12s. 3d. The continued agricultural and commercial depression and the extremely high rates of interest which have ruled, have to such an extent adversely affected the net balance realized from the working of the line during the past half-year as necessarily to lead to the recommendation of a reduced dividend on the present occasion; but the directors anticipate that renewed activity of traffic, of which there have been indications since the commencement of the current half-year, will produce a decided improvement in the revenue. The Act of Parliament obtained by the company during the last session extinguished unissued and forfeited shares, thus reducing the share capital from £950,000 to £873,500, and increasing the borrowing powers from £135,000 to £291,000. The directors having undertaken to communicate with the Board of the Dublin and Drogheda Railway Company respecting amalgamation of that company and this company, communications and meetings have taken place between committees appointed by the boards of the two companies to discuss that question, but have not resulted in any definite arrangement.

ULSTER.—The following are extracts from the report submitted to the meeting of shareholders on the 12th ult. The gross receipts on the Ulster and Dungannon lines for the half-years ended 30th June, 1864, and 1863, are—half-year ending 30th June, 1864, £63,515 10s. 10d.; half-year ending 30th June, 1863, £56,859 14s. 10d. The increase amounts to £6,656; and it has been earned upon 105½ miles, compared with an average of 100 miles in the corresponding period, the Clones Extension having been opened for passenger traffic on

the 2nd March, 1863. The working expenses, exclusive of rates and taxes, amount in gross to £29,324, a sum which is reducible by £2,475, received for working the Banbridge line. The amount to be compared with the half-year of 1863 is £26,849, and the increase £1,739. This increase arises chiefly from the working and maintenance of the Clones Extension for a portion of the half-year which was not open for the same time in 1863. There has also been an advance in the price of coals, and an increase of £310 in the amount payable for mileage and hire of waggons. After discharging the liabilities arising from interest on loans and debenture stock, payment of 3 per cent. on the £12 10s. shares, and the rent due to the Portadown, Dungannon, and Omagh Company, there remained a balance of £18,186 8s. 3d., to which must be added the sums entered at credit of revenue account, making the total balance available £18,967 3s. 11d. Out of this balance the directors recommend a dividend of 22s. 6d. per share on the £50 shares, and 11s. 3d. per share on the £25 shares (being at the rate of  $4\frac{1}{2}$  per cent. per annum), less income tax, payable on the 17th day of August, to all shareholders not in arrear of calls. This will leave £2,549 4s. 6d. to be carried to the credit of reserved fund. The cost of the new lines and works exceeded the estimates of the engineers; it will be necessary to obtain powers to raise further capital, for the purpose of discharging the liabilities of the company and completing the lines and works in such a manner as will enable the traffic to be worked with efficiency and economy. In the meantime the directors have deemed it expedient on their own responsibility to borrow temporarily what was required to meet present expenditure, and the interest thereon has been charged against the revenue account.

**DUBLIN AND DROGHEDA.**—The half-yearly meeting of the shareholders of the Dublin and Drogheda Railway was held on Thursday, under the presidency of the chairman, James W. Murland, Esq. The report showed that there was a balance available for dividend from the traffic of the line of about £13,824, out of which a dividend of four per cent., less income-tax, was recommended. This was an increase of nearly £600 on the receipts of the corresponding half-year of 1863, and the chairman, in moving the adoption of the report, stated that he believed that the company had arrived at the end of the period of depression, and had recommenced its old career of improvement. The report and statement of accounts were adopted.

**IRISH NORTH WESTERN.**—The following are extracts from the report submitted to the proprietors at the half-yearly general meeting, on Thursday, the 25th ult.:—There has been a falling off in the traffic receipts to the extent of £3,127 10s. when compared with the corresponding half year in 1863. The passenger traffic has, however, somewhat increased. The decrease in the traffic receipts is to be referred to a diminished trade in coal, cattle, and breadstuffs. The accounts exhibit a small increase in locomotive expenses; but during the past half year upwards of 12,000 miles have been run more than in the corresponding half-year of 1863, in connection with the haulage of the Finn Valley line. The balance of income for last half-year, after deducting working expenses, amounts to £6,744 9s. 6d., out of which the interest upon the Government loan and the debenture debt has had to be provided. The interest and discount accounts have amounted to the large sum of £3,970 0s. 8d.—a very heavy charge indeed, but one which the directors have found impossible to provide against, owing to the financial difficulties which have existed and the state of the money market. Since last meeting the bill promoted to carry out the arrangement agreed to at the adjourned half-yearly meeting of 4th November, 1863, has become law, having received the Royal assent on the 27th July. The board are happy to say that their exertions to carry the measure met with the universal approval of the shareholders, and are confident that the result will prove that the feeling which dictated that measure, both on the part of the company and Lord Erne, has been as beneficial to all the parties concerned as it was fair and honourable. The notices recently forwarded to the shareholders have been in compliance with the Act of Parliament, and the allotment of stock, in satisfaction of the arrears of dividend, will be finally closed within three months. The board also obtained power under the act to sell the Clones and Cavan branch, and have communicated to the Ulster Company their willingness to submit to you a proposition to that effect upon fair terms. The board has also, since the last meeting, effected an arrangement with the Loan Commissioners, by means of which the Government debt will be discharged as a terminable annuity. The board consider this arrangement will afford a considerable relief to the company in its present condition. The completion of the Bundoran and Enniskillen line, now in course of construction, will render it necessary shortly to submit to the shareholders an arrangement entered into by the board of this company with the Bundoran Com-

pany for the working and maintaining of their line, and which, under the act of that company, requires your sanction before it is final and complete. The Dundalk and Greenore line will, when constructed, prove of advantage to the interests of this company, and the board would recommend the company (in conjunction with the London and North Western Company) to afford such assistance in the way of traffic arrangements as it can legitimately do, having regard to your interests. Under the Act of 1862 the company are bound to extend their line to the quay of Dundalk. This extension has not as yet been entered upon, but if the financial position of the company admitted of its being done, the board consider that an impetus would be given to the importation of coal and to the general traffic which would amply compensate for the expenditure, which is estimated at about £5,000.—W. EYKELBOSCH, Secretary.

**CO. DOWN, KILLYLEAGH.**—A serious accident happened on Wednesday, the 10th ult., at the spinning mill of John Martin, Esq., by which three men lost their lives, and five others sustained serious injuries.

**NEWRY, WARRENPOINT, AND ROSFREVOR.**—The receipts on this line during the last half year show an increase as compared with last year of £214 8s. 1d.—£44 2s. 7d. for passengers, £170 5s. 6d. for goods. The Newry and Armagh line being now open great benefit is expected from that quarter. The award of Messrs. Broughton and Forbes has been duly amended under the special instructions of the judges of the Court of Queen's Bench, simply providing that the joint profits of the two companies should be equally divided, and neutralising the condition, which was beyond the arbitrators' authority, that future differences should be decided by the chairman of the clearing house—a course of proceeding, however, so reasonable as likely to be mutually adopted, if reference of the kind should be at any time requisite. Although the directors are not in a position to declare any dividend for the past half-year, it is gratifying to observe an average increase in the receipts for the current half-year of £23 1s. per week.

**KILRUSH AND KILKEE.**—On Wednesday, the 17th ult., the government valuator, P. Prendergast, Esq., who had been deputed by the Commissioners of Public Works, held his arbitration court at the Vandeleur Arms Hotel, Kilrush, for the purpose of disposing of the claims of proprietors and landowners whose interests and property were affected by the above line. Colonel Vandeleur, M.P., chairman of the company, was in attendance, as also several gentlemen, or their agents, whose lands were the subject matter of the award. Mr. Armstrong, solicitor, of the firm of Messrs. Newton and Armstrong, attended on behalf of the company, and Mr. Brassington as their valuator. The draft award which had been prepared by the latter gentleman had been assented to by some proprietors, owing to its being acknowledged as a fair representation of claims which has taken place secures the speedier completion of the line of railway in question, and will be of much public utility.

**GREAT NORTHERN AND WESTERN (OF IRELAND).**—The report of the directors was submitted to the proprietors at the fourteenth half-yearly ordinary general meeting, held on Tuesday, the 16th ult. The traffic of the line, the report stated, was in excess of the preceding half year's, but, until an improvement should take place in the state of Ireland, no great increase could be expected. The directors recommended the payment of dividends at the rate of £5 per cent. per annum upon the preference capital, £3-176 per cent. per annum upon the £113,350 ordinary capital held by the Midland Great Western Railway Company of Ireland, and £3 per cent. per annum upon the ordinary share capital of company other than that held by the Midland Company, paid up to the 30th June last, less income tax. The two bills introduced into Parliament by the Great Northern and Western (of Ireland) Railway Company at the commencement of the late session have become law. Notwithstanding a most determined opposition on the part of the Midland Great Western Railway of Ireland Board, Parliament has accorded to this company the right of passing over the Shannon at Athlone by means of the Midland Railway; a privilege which secures for ever the independence and prosperity of the Great Northern and Western (of Ireland) Railway. Parliament has further granted to the company free access to the Great Southern and Western Station at Athlone.

**NORTHERN COUNTIES.**—On Tuesday, the 16th ult., the half-yearly meeting of the Belfast and Northern Counties Railway Company was held at their offices, York-road, Belfast. A dividend of 3 per cent. was declared, and its comparative smallness was accounted for by a diminution in the receipts of the company. The chairman—the Hon. George Handcock—adverting to the declension in the receipts of the half-year as compared with those of the preceding half-years, said there was much reason for hope with regard to the prosperity of the concern, and he mentioned this extraordinary circumstance:—In the year

1863 the number of acres under flax in this county was 21,576, and this year the extent is 13,271 acres in excess of that number. The meeting was afterwards made special for the purpose of authorising the exercise of powers conferred by the Northern Counties Railway Act, 1864. The resolutions submitted were unanimously adopted.

**WATERFORD AND LIMERICK.**—This company held their half-yearly meeting at their board-room, new offices, Bridge-street, at 12 o'clock on Friday, W. Malcomson, Esq., chairman of the company, in the chair. The directors' report for the half-year ending 30th June last noticed a falling off in the receipts, which, compared with those of the corresponding half-year, in 1863, showed deficiency of £773. The entire deficiency of receipts arises from the falling off in the passengers' department. This is a branch of traffic over which it will be evident that the exertions of the directors could extend but little influence. It may be possible, by judicious encouragement and careful arrangement of rates, to promote and increase goods and cattle traffic; but in a half-year like the past, in which the season did not admit of pleasure travelling, it is evident that the passenger traffic must depend on the state of trade and on the prosperity of the country. While passenger traffic is thus temporarily depressed, it is cause of satisfaction to find that the ordinary goods traffic exhibits an increase of £647; and considering the scarcity of stock for some time in the country, that the diminution in the cattle traffic is but £82, this result may be felt as a proof that the resources are undiminished, though affected in one branch by the depression which is felt by the railway interest in Ireland generally. The state of the money market during the entire of the half-year has also increased the interest on the floating debt and deposits to a considerable extent, so that, after paying interest on loans and dividends on preference stock, the sum applicable for dividend to the original shareholders is but £1,334 9s. 7d. From this the directors propose to pay a dividend of 2s. 6d. per share, and carry forward the balance to next half year's account. The new terminus at Waterford may (except a few minor details) be considered finished, and only awaits the inspection of the officer of the Board of Trade to be opened for passenger traffic. The building is a handsome structure, and the arrangements for traffic will be found very complete. The expense of the whole has been moderate, and the directors believe the small advance on tickets, and the rents derivable from the parts of the ground and tenements which have been let, will nearly pay the interest on their proportion of the outlay.

**BANBRIDGE EXTENSION.**—The half-yearly meeting of this Company was also held on the 26th ult., at Belfast. It was stated that arrangements had been made with Mr. Bagot, the contractor, to enter on the Ballyronney and Dundrum line, with a branch to Newcastle so soon as a bill could be obtained, and to complete it within twelve months. This line will afford through communication between Belfast and the beautiful and much frequented watering-place of Newcastle, and runs through a rich and prosperous district.

**NEWRY AND ARMAGH.**—The first train for the conveyance of passengers over the line started from the Drummond Station on Monday, the 8th ult.

The *Morning Herald*, October 23, 1862, speaking of the plate in the Exhibition, says, "Mr. Benson, who has a medal for plate, exhibits some beautiful things." Benson's argentine is a splendid material composed of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps; and an illustrated catalogue containing 300 engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "Excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson, branch establishments, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## THE PERSIAN GULF TELEGRAPH.

(Continued from page 165.)

THIS system, which lessens the chance of loss of continuity, preserves all the electrical advantages of the solid circular conductor, and has been adopted for the first time on the cable we are describing. To ensure, also, the highest conducting power, each hank of copper was carefully tested for its conductivity, the bad being rejected and an extra price given for all copper which was above a certain fixed standard of conductivity, this standard being equal to the copper of highest conducting power hitherto used. To assist the manufacturers in the selection of their copper, Mr Brasher, an assistant of Messrs. Bright and Clark, made a series of experiments on the conductivity of the ingots previous to their being drawn into wire at the works of Messrs. Wilkes, by whom every facility was given for these operations. The diameter of the conductor is 0.1 of an inch, and weighs 225lbs. per nautical mile.

We now come to the insulating material. A great deal of discussion has taken place, and of late amongst electricians and manufacturers, relative to the respective merits of india-rubber and gutta-percha. Fierce has been the battle that has been waged at public institutions and in scientific journals by the untiring partisans of each insulating gum. Papers have been read, experiments have been made, champagne breakfasts and special trains have been provided for special meetings, with the hope of proving to engineers, electricians, and directors, the superiority of one or other gum. Discussions in the press have more than once verged on the personal, through the conflicting opinions and interests of the different advocates of each particular gum. India-rubber has set forth its advantages in glowing terms, and proved, over and over again, that all cables insulated with percha must fail, while percha has taunted india-rubber with its utter unfitness for the purpose, until the battle of the gums has become as notorious as the "battle of the guages." It would seem at first sight, therefore, to be a difficult matter (amongst so many conflicting opinions and interest-) to decide on the best insulator for so large and important a work as the Persian Gulf cable, particularly if we take into account the number of failures which have taken place in submarine telegraphs, and which are, one and all, laid by the advocates of india-rubber, in the most unscrupulous manner, to the adoption of gutta-percha as the insulator.

To those who examine more carefully the evidence which has been published on this subject, it will be easily seen that those failures can be traced more to want of sufficient mechanical protection in most cases, and in others to carelessness in manufacture, or a want of skill in the operation of submergence, than to any deficiency in the insulator used. Gutta-percha has been used on many cables ever since the year 1851, with perfect success, and evidence is still wanting to show that it deteriorates when kept under water, although many cables have been lifted, and carefully examined, in various seas; while india-rubber, whatever part it may ultimately play in submarine telegraphy, has never yet been employed on any submarine line; and, indeed, in the only practical experiment which has been made to ascertain its durability—viz., the submergence of a length of two miles off Kurrachee—proved a complete failure.

The facts were, therefore, not such as would justify any departure from the course hitherto adopted, more especially as the Gutta-percha Company have made great progress during the last few years in cleaning and manufacturing the gutta-percha used for submarine cables, and could, it was well known, produce a far better insulator than had hitherto been employed.

Col. Stewart, with whom rested the final decision of this matter, although well acquainted with the facts we have mentioned, prudently requested the opinions of the chief scientific authorities, among whom we may mention Messrs. Bright and Clark, Professors Thomson and Wheatstone, Messrs. Varley, Jenkins, and Siemens, the majority of whom decided in favour of gutta-percha. But although, at the present time, there can be little doubt as to the superiority of gutta-percha over any other substance for this purpose, still, the improvements that have been made during the last three years in the preparation of india-rubber, through the untiring perseverance and skill of Messrs. Hooper, Silver, and Hall and Wells, give great hopes that the well-founded objections to the use of rubber may be, ere long removed. India-rubber, when first manufactured has, it is well known, superior insulating qualities, as well as a lower specific inductive capacity, and, in addition, will stand a greater change of temperature without affecting materially its insulating power—a quality which is of the highest importance in tropical climates.

Its chief disadvantages at present appear in a tendency to change its solid for a semi-fluid state, resembling that of treacle; in other cases it becomes hydrated after submersion. How far vulcanization will remedy this evil still remains to be proved.

But in addition to these various drawbacks, the mode of applying the material, which consists in lapping it spirally round the wire, thus forming a spiral joint the whole length of the cable, cannot (however perfect it may be appear when first made) be so safe as the mode adopted in covering with the more plastic material, gutta-percha, which consists in passing it through a die for each successive coating, in which case the covering consists of a series of concentric tubes, forming a continuous and unbroken coating. The whole of these layers are cemented together during the process by a layer of insulating material known as "Chatterton's compound." How far the late attempts to remedy the objections to india-rubber will prove effective will be proved by the results obtained on the various lengths of experimental wire which Col. Stewart has, with a laudable desire to investigate thoroughly the whole matter, taken from England for the purpose of submergence in the Persian Gulf.

The core of the Persian Gulf Cable, then, consists of the conductor, which we have described, insulated with four coatings of the purest gutta-percha, united by four distinct layers of "Chatterton's compound," having an ultimate diameter 0.38 of an inch, and weighing 500lb. to the nautical mile (225lb. of copper, 275 of percha).

The core was also manufactured in much longer sections (sometimes nearly 4,000 yards in one unbroken length) than any that had been hitherto made, thus reducing the number of joints in the whole cable considerably—a great advantage, as the joints are found electrically to be the weakest points in any core. The core thus manufactured was presented to Government for testing at the Gutta-percha Works.

The core when tested was carefully wound on large drums in lengths of three to four miles, and delivered to Mr. Henley, at his factory at North Woolwich, to whom the contract for the completion of the manufacture of the cable was entrusted by the Government of India. The design of the protecting parts differs to some extent from that of other cables, and consists of, first, a serving of soft yarn wound round the core, which again is surrounded by twelve galvanized iron wires of No. 7 Birmingham gauge, or 0.18 of an inch diameter. As has been already pointed out, such a cable, though far more protected than the Red Sea or Mediterranean cables, by reason of the increased quantity of iron and the galvanising of the latter, would still be liable to perish from rust at places after some time. As a further precaution, therefore, the following coating, designed by Messrs. Bright and Clark, was placed round the iron wires:—First, a serving of the best Russian hemp yarn is wound round the iron cable, and is then covered with a thick layer of mineral pitch, mixed with silica, and applied warm. This is again covered with a second serving of hemp in the reverse direction to the first, and in its turn is again covered with another coating of warm compound, the whole finally passing through grooved rollers, so as to consolidate the whole, and to produce a smooth and cylindrical surface. Thus the iron wire is effectually protected from contact with the water by a solid cylinder of hard asphalt, bound together by innumerable fibres, acting, as it were, as bond courses. This process has been already adopted in a less perfect manner on cables in the North Sea and Irish Channels, when only one serving and coating, however, was used, and has been found an excellent protection against rust.

The machines for applying this coating consist of two tanks, the one behind the other, and heated by steam jackets. In front of each of these is a disc carrying bobbins, on each of which is wound a length of hemp yarn. The cable passes through mandrils, on which the discs are attached, and over (not through) the compound in the tanks, the compound being lifted and poured on to the cable, as it passes along, by means of a small wheel with internal paddles; any superfluous compound that adheres to the cable being removed by a movable die.

These machines, of which there were six, together with an iron shed over all the cable tanks, as required by the specification, and various fittings and preparations for testing, had to be designed and erected especially for this work.

Owing to the engineering knowledge possessed by Mr. Henley (a knowledge rather scarce amongst submarine telegraph contractors), and his readiness to oblige and meet the views of the engineers (a quality still more scarce amongst submarine telegraph contractors), many little difficulties in the adaptation of the necessary machinery were speedily overcome; and, indeed, when we consider that the contract was only let in December, it reflects the highest credit on Mr. Henley and his engineer, Mr. Frasi, when it is stated that the cable was fully started in February. The cable, as manufactured, was coiled into tanks and kept submerged in water; tests were taken of the core both on the arrival at Woolwich from the Gutta-percha Works, and every day on each section under manufacture by a staff of electricians, under Mr. F. C. Webb, who superintended the manufacture of the

cable on the part of Messrs. Bright and Clark, as also the shipping of the cable, the designing of the machinery, and fitting of the ships.

To ensure a perfect test of the core for insulation, the hemp serving between the core and the iron wire consisted of white Russian washed in salt water (a system patented by Mr. Willoughby Smith), as it has been found in practice that when the hemp is tarred a faulty place may be stopped up by the tar, and thus the cable test will, until the tar is dissolved, which sometimes does not occur until the cable has been submerged for some weeks or months.

## CHURCH BUILDING, IRELAND.

The Dean and Chapter of St. Canice's cathedral, Kilkenny, had a conference last week with Mr. Deane, the architect, and Mr. Cockburn, the contractor, when further preliminary arrangements were made for the first portion of the work of restoration—the new roofing of the structure. The operation of stripping off the old roof, and commencing the erection of the new—already in course of preparation by Mr. Cockburn—will commence in about three weeks. The Marchioness of Ormonde will pay for the architect's plans, thus saving the chapter an expenditure of two and a-half per cent. on the entire outlay. Mr. Deane has offered to put up a stained-glass window at his own expense.

On Sunday, the 7th ult., the parish church of Mohill, diocese of Ardagh, was re-opened for Divine service. The old square pews have been replaced by single benches, and a new pulpit and reading-desk and chancel railing erected. The Ecclesiastical Commissioners contributed more than half the funds, and Sir Morgan G. Crofton, Bart., the landlord, generously gave upwards of £120, and about £50 was collected in the parish.

The Rev. J. W. Hardman, LL.D., chaplain to the donative curacy of Barrow, Gournay, Somersetshire, has presented to the church of Ballintoy, Co. Antrim, an elegant baptismal font of Bath stone, chastely and beautifully carved.

A new reredos has been erected in Downpatrick Cathedral.

A new church is in course of erection at Killadeas, Co. Fermanagh, from designs by Mr. W. Armstrong, of Belek, architect, consisting of a nave and side aisles, and deep chancel, with seats and sub-sillars for choristers, north and south porches, and a local marble, little known, inexpensive and beautiful, is used in the nave piers.

## CHURCH BUILDING, ENGLAND.

Stavelay Church, near Ripon, has been consecrated. Architect, Mr. Sone. Cost, £2,000.

The church of St. Mary, Hunslet, Leeds, has been rebuilt on the site of the old edifice, at a cost of £8,000. The building is in the Geometric period of Gothic architecture, and is from the designs of Messrs. Perkins and Backhouse. The windows are by Clayton and Bell, London.

A new chapel of ease for the free use of the inhabitants of Wolverton has been built from the designs of G. G. Scott, R. A.

The parish church of Ditchling, Sussex, has been re-opened, after restoration, from designs by Mr. Slater.

The foundation stone of a new brick church was laid by Mr. G. Cuttitt, M.P., in Arundel-square, Islington, in the district of St. Clement, Barnsbury. Architect, G. G. Scott, R. A.

A new window has just been erected in St. Mary's church, Chard, Somersetshire. Maker, Mr. A. Gibbs, Bedford-square, London. Subject, "The Last Judgment." The cost was £230.

On Saturday, the Bishop of London consecrated a new church, St. Saviour's, South Belgravia, London. The Marquis of Westminster gave the site, and, we believe, £8,000 towards the edifice.

It has been decided that, in restoring the church of St. Bartholomew the Great, Smithfield, London, the ancient Norman apse shall be opened, and reconstructed as far as possible.

The new stalls and throne for Llandaff cathedral are almost finished. A new and suitable entrance has replaced the ugly modern door which disfigured the entrance to the Lady Chapel, and a fine old buttress, discovered in removing the earth, has been restored, and the ancient level of the floor regained. The nave and choir have been lighted by jets of gas carried round the string-course under the clerestory windows. The three pictures for the reredos, by Mr. Rossetti, are also completed.

Among churches consecrated, we may mention St. Saviour, Halton, Lancashire, and St. Stephen, Huddersfield, by the Bishop of Ripon. The foundation-stones of new churches have been laid at Tupsley, within the precincts of the city of Hereford, by Lady Saye and Sele, and at Rhayader by Mr. Pritchard.

## Law Intelligence.

**Clarke v. Killen.**—In this case, which was tried at the late assizes at Belfast, before Baron Fitzgerald and a common jury, plaintiff, a builder and contractor, brought the action against defendant, parish priest of Killough, Co. Down, to recover the sum of £200, alleged to be due for stones and mortar supplied, and for excavations made in building a portion of the Killough Roman Catholic Chapel, and for his time and superintendence. The defendant pleaded that the value of the work done was only £116 16s. 4d., out of which he had paid £60, with the consent and by the direction of the plaintiff; and that, when other proper deductions were made, the amount due to the plaintiff amounted to only £16. Before the case had far advanced it was agreed that, in addition to the £16 lodged in court, the plaintiff should be paid a sum of £15. A juror was then withdrawn, and the case thus disposed of.

## Miscellaneous.

**DRAINAGE IN IRELAND.**—Amongst the proceeds of last session of Parliament I expected to have seen some of the fruits of the late enactment 26 and 27 Vic., c. 88, for the Drainage of flooded lands in Ireland, the only measure that seemed to me well calculated to meet the difficulty of providing remunerative employment for the struggling poor. I anticipated that land-owners would joyfully avail themselves of the powers thus conferred, and that Parliament would have been called upon this session to pass several of the supplemental acts for new drainage districts. I was in hopes that by this time we would have seen the engineers in all directions busy preparing to start their works, either getting up their contract plans and specifications or providing implements and men to work under such other arrangements as the Drainage Committee might prefer. There seems to have been nothing to prevent this state of things. Notwithstanding, the result of the session produces but one solitary act for the formation of one district—viz., the Athboy, in the County Meath. How it is that the proprietors in that one locality alone succeeded in forming a district I am also at a loss to know. For several months since, engineers, valuers, solicitors, &c. *et hoc genus omne*, were busy at work in several directions getting up districts, and all seemed quite certain that their own respective projects were all right for this session. Now, however, that such has turned out not to be the case, our best hope is that the Athboy Committee, who have succeeded in getting their act, will lose no time in starting their work, and by taking advantage of the remainder of the season, get so much done as will leave the lands below Athboy free from surface floods during the coming winter, and enable them to have an early start next spring, at the heavy portion of their excavation; and as they have set other committees an example by getting the first bill under the new act in good style, they will now follow it up by showing how they can use it to the best advantage of their proprietors and the benefit of the people of the locality. The honorary secretary and engineers connected with this district should be congratulated on their success, and we should wish them every success in the further progress of the measure.—*Correspondent in Saunders.*

**WELLS CATHEDRAL.**—It is rumoured in Wells that it is the intention of the Department of Science and Art to have casts taken of the whole of the extreme north-western buttress of the Cathedral, including all its sculptures, mouldings, set-offs and decorative carvings. Also, that two of the *miserere* seats of the choir of the Cathedral are to be deposited in the South Kensington Museum; these were removed from their proper places when the building was restored, and cannot now be used. They are among the most beautiful examples of wood carving the country possesses. It is gratifying, if this rumour be authentic, to learn that the Department of Science and Art are about to take any additional steps to give the mediæval art treasures of Great Britain their due place in the Government art education of the country.

**CLIFTON SUSPENSION BRIDGE.**—The bridge, it is expected, will be open for traffic early in October.

**ST. PATRICK'S DAY AT DUBLIN CASTLE.**—This fine picture, representing the Upper Castle Yard during the time of relieving guard, is among the collection at the Royal Hibernian Academy. It has been painted by M. Angelo Hayes, Esq., R.H.A. Its size is 9 ft. by 5 ft. It is proposed to purchase it by subscription, for presentation to His Excellency the Earl of Carlisle. The Catalogue price is £262 10s. "The names of all subscribers are to be inscribed on the frame."

**BANBRIDGE, LISBURN, AND BELFAST RAILWAY.**—The half-yearly meeting was held at Belfast on the 26th ult. The receipts for the half-year showed a decided improvement over those of the preceding one.

**DOWNPATRICK.**—Since the last assizes, the County Court-house has undergone some internal improvements. The walls of the different corridors and passages have been wainscoted to a height of about four feet, and the remaining portions newly plastered and finished. The wood-work and plastering were executed by the Messrs. Jordan, builders, Scotch-street; and the painting by Mr. Peter Ferguson, Irish-street.

**NEWRY.**—The new organ was inaugurated in St. Mary's church on Friday, the 5th of August. Dr. Chipp, of Belfast, performed before a large and attentive audience.

**CO. TYRONE.**—The grand jury of Tyrone have raised their surveyors' salaries to £400 per annum each, this being an increase of £100 yearly over the previous salary.

**DALKEY.**—The Commissioners have accepted the tender of the Hibernian Gas Company to light the township for three years at £3 12s. 6d. per lamp, the company supplying lamp-posts, &c., and keeping same in repair.

**"LIVES" OF BANK NOTES.**—The average period which each denomination of London notes remains in circulation has been circulated, and is shown by the following authentic account of the number of days a bank note issued in London remains in circulation:—£5 note, 72.7 days; £10, 77.0; £20, 57.4; £30, 18.9; £40, 13.7; £50, 38.8; £100, 28.4; £200 12.7; £300, 10.6; £500, 11.8; £1,000, 11.1. The exceptions to these averages are few, and therefore remarkable. The time during which some notes remain unrepresented is reckoned by the century. On the 27th of September, 1846, a £50 note was presented, bearing date 20th of January, 1743. Another for £10, issued on the 12th of November, 1762, was not paid till the 28th April, 1845. Carelessness gives the banks enormous profits, against which the loss of a mere £30,000 note is but a trifle. In the 40 years between 1792 and 1832 there were outstanding notes of the Bank of England—presumed to have been lost or destroyed—amounting to £1,330,000 odd, every shilling of which was clear profit to the bank.—*Cyclopædia of Commercial Anecdotes.*

**OUR MINERAL WEALTH.**—The value of the minerals (says the *Mining Journal*) produced in the past year was £29,151,976, from which metals valued at £36,364,327 were extracted. Of gold quartz we produced 385 tons, worth £1,500; of tin ore, 15,157 tons, worth £963,985; copper ore, 212,947 tons, worth £1,100,554; of lead ore, 91,283 tons, worth £1,193,530; of silver ore, 88 tons, worth £5,703; and of zinc ore, 13,941 tons, worth £29,968. During the year in question there were sold 95,376 tons of pyrites, for £62,035; and the rarer minerals—wolfram, uranium, gossans, arsenic, and earthly minerals raised were of the value of £1,980,866. These items, with the value of 9,101,552 tons of iron ore, £3,240,899 and 86,292,215 tons of coal, £20,572,945, raises the total to £29,151,976, which was manufactured into nearly £40,000,000 of merchantable produce. To produce these results direct employment has been given to at least 500,000 men, so that our mineral industries may be considered alone as supporting a population of nearly three millions, in addition to adding much to the general wealth of the kingdom, and especially to the wealth of those whose capital has been employed in mining operations.

**UTILIZING COAL DUST.**—In the coal mines of Charleroi, in Belgium, 800,000 tons of coal dust have accumulated, impairing the working of the mines, and M. Dehaynin, jun., and another company are working on this coal dust. After having it pulverized and freed of all strange matter by machinery, this dust receives the forms and dimensions best adapted for heating locomotives, by agglomerating eight parts of coal tar to 92 parts of coal dust. This mixture, heated to 300 to 350 deg. with superheated steam, becomes a paste, which is mechanically and powerfully pressed into cylindrical or rectangular forms, and, after having been cooled, solid compact cylinders of about 5 in. in diameter, and weighing 18 lb., or prismatic blocks of about 5½ in. by 7 in., and 12 in. high, and weighing 20 lb., are obtained. These blocks have very nearly the density and weight of the solid coal, and they burn without giving obstacle to the circulation of air through the grate. This new combustible is warranted not to give more than six per cent. of ashes, and is now in great demand by railroad companies, on account of its greater heating power, and its being actually cheaper than the black coal. M. Dehaynin, jun., and the other company manufacture now, annually, 255,000 tons of agglomerate.—*Mechanics' Magazine.*

**ANCIENT FRESCOS.**—An important discovery has been made at Lucerne, consisting of frescoes which were laid bare during some restorations in the house of Corazzioni, and which are ascribed to Hans Holbein. They represent, among other subjects, the Resurrection, the Ascension, John the Baptist, St. Beatus, and a bishop consecrating a chalice. They bear the date of 1523—the time when Holbein was engaged in decorating several houses in Lucerne with frescoes.

## General Items.

One of the most improving landlords in England is the Duke of Northumberland, his landed property amounts to one hundred and sixty thousand acres! out of the rent from this there has been expended in making or repairing roads, in farm building, in cottages, and in draining, about £50,000 a year for the last sixteen years—that is, ever since the duke's accession—or rather more than half a million of money! No doubt all this will eventually be recovered in the improved state of the property, but it is impossible to overrate the enormous increase of comfort and prosperity which must needs result from so liberal an outlay. But, in addition to this, the duke in that period has expended nearly a million more in the restoration and additions to Alnwick Castle, in building churches, parsonages, retreats, and other structures for the benefit of the public.

A curious relic was found the other day when clearing away some of the debris of the old church in the Savoy, lately destroyed by fire. Under the floor was found a "posie ring," much larger than those in use at present, and composed of metal which jewellers call twenty-two carat gold—the finest which can be worked. It bears the date of 1652, and is consequently 212 years old. The legend engraved is, as usual, quaint but melodious—"God for me appointed thee."

A quarryman employed at Brixham, in Devon, perceived some time since, after blasting, an aperture 12 ft. or 14 ft. overhead. It has been found to lead to an extensive stalactite cavern, which extends in several directions and for considerable distances. Many of the crystals of lime have assumed beautiful and curious forms. It is understood that a scientific exploration of the cavern will shortly be made.

A Crystal Palace has been opened at Amsterdam with great solemnity, and in the presence of the inhabitants from all parts of Holland. The model of Sir Joseph Paxton's structure of 1851 has been adopted with much success, and the structure offers a remarkable contrast to most of the public and private buildings in the capital.

An accidental fire which took place at Constantinople a few weeks ago has led to a rather interesting antiquarian discovery, by clearing a mass of houses which had concealed an important monument of Byzantine history hitherto but little observed—the Coronation Hall of the Emperors from the time of Heraclius downward.

It is proposed to erect on the North Wall Quay, in the Parish of St. Thomas, an iron church, at a cost of about £500. It is calculated that for that sum one capable of accommodating 500 persons can be purchased.

At a meeting of the "Alliance National Land, Building, and Investment Company," held on Friday, the 26th ult., a resolution was passed by which its title has been changed into "Estates Bank."

The *Clerkenwell News*, Oct. 27, speaking of Benson's watches in the Exhibition, says:—"In Benson's great case are some fine specimens of engraved watch-cases, designed by the pupils of the Schools of Design. They are, perhaps, on the whole, the best specimens of engraved watch-cases in the Exhibition." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63 Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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In quantities of 100 barrels, at 6d. less, and in quantities of  
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weighing less than 75 lbs. to the bushel, thereby becomes much  
cheaper, independent of its superior quality. It is GUARANTEED  
to bear the "HYDRAULIC" and other tests as ordered by the  
Engineers to the Government works.

## CERTIFICATE.

Sutton-street, Lambeth, June 6th, 1864.

Mr. T. CHEESMAN,

SIR,—In reply to your enquiry as to my opinion of the  
"Berney Arms Cement," I have used it largely in connection  
with river works. I fully approve of the cement; it is really  
a "Portland cement," and not a "Roman;" therefore requires  
cooling, and takes a day or two to attain great hardness, yet  
is quick enough for work in tidal rivers. My opinion is, if  
properly cooled, it will not "fire crack," and has great uni-  
formity of colour.

I like the cement, and those who know how to use Portland  
cannot but do justice to my remark.—Yours faithfully,  
WILLIAM LAVERS.

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## TESTIMONIALS.

From WILLIAM TITE, Esq., M.P. for Bath, and Architect of the  
Royal Exchange, London.

House of Commons, 2nd March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have  
used both the sorts of Cement manufactured by your firm, and  
that of Messrs. Francis & Son; I mean the Cement usually  
called Roman Cement, or the more recent introduction of  
Portland Cement. I believe these Cements, manufactured by  
either of your firms, to be equally good. I know no difference,  
chemically or practically, between them; and I should  
use, and authorize to be used indifferently, either one or the  
other. You are at liberty to use this note, if you think it ne-  
cessary.—I am, Dear Sir, your obedient servant,  
Messrs. White & Son. (Signed) WILLIAM TITE.

From R.O. MINNIE, Esq., Surveyor to Board of Ordnance, London.  
War Office, Pall Mall, London, S.W.,  
3rd March, 1864.

GENTLEMEN,—In reply to your request, I have much pleasure  
in stating my favourable opinion of the quality of your  
Portland and other Cements, which have been extensively  
used in the Public Works connected with the War Department  
at home and abroad, especially in several of the fortifications  
now being erected in this country. On all occasions within  
my knowledge the quality has been equal to that of any other  
manufacturer, and has given great satisfaction.—I am, gen-  
tlemen, your obedient servant,  
(Signed) R. O. MINNIE, Surveyor.

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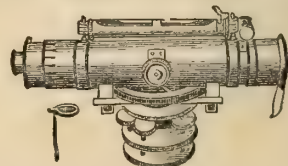
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# The Dublin Builder.

VOL. VI.—No. 114.

## PROGRESS OF IRISH MANUFACTURE —THE BELEEK POTTERIES—LORD PALMERSTON'S ESTATES—SLIGO ABBEY.

HE who is "on pleasure bent," with a secret misgiving at heart of the untimeliness or indiscretion of the indulgence in prospect, what amazing fertility of imagination will the circumstances provide him with to find for himself reasons of the most plausible and grave character, why it is not only desirable, but absolutely necessary, that he should do the thing his heart desires. The man, however, who will persuade himself that his sole object in travelling into the north-west by the lovely highway of Lough Erne, is a solemn duty of visiting the potteries at Beleek, and making himself acquainted with so important and interesting a branch of native industry, will meet with no disappointment in other respects. He will pass by the line of the Irish North-Western Railway through a country interesting, if it were for nothing else, that it is less generally known and explored than many other districts of Ireland, through the ancient and loyal town of Enniskillen, noting rapidly, as he goes to take ship at the little port on the lake, as the two most notable features of the town, its noble Royal School and the imposing monument to General Cole which crowns the heights—a monument evidently copied from the Dublin Nelson one in its general features, with the sole exception that the figure surmounting it is much more pleasing in outline than our well-known friend at home, and more suited to his elevated position in society. He will probably have little time to observe much more until he is on board the steamer "Devenish," and dropping slowly down the tortuous passage which leads to the lake. Once fairly afloat on its bosom, he will pass rapidly and reluctantly, if he loves such things, the Island of Devenish, with its round tower and interesting ruins, and on by many a wooded island and tender curving bay, through scenery of a character not often met with, and which he will not soon forget, until he ends his voyage at the village of Beleek, or—if the waters of the lough are so low from continued drought as they now are—he will be compelled to have recourse to land-carriage once more at a point some five miles lower down the lake, at a temporary landing stage among the plantations of Castle Caldwell. Arrived at Beleek, and at the potteries, should the fates be propitious, and should he only meet with a tithe of the unwearied painstaking civility which we met with on the occasion of our visit from the enterprising resident partner, Mr. Armstrong, he will find much to interest him and induce him to prolong his stay for several hours. As many of our readers are probably aware, these potteries, although they may be said to be still in their infancy, have been established, and are being worked by a firm, the head of which is Mr. M'Birney of Dublin, who has entered on the speculation with the assistance of Mr. Armstrong, an architect, who, when engaged in an extensive practice, had his attention first directed to the manufacture of chinaware by being professionally brought into connection with some of the Worcester potteries; the result being that he has abandoned, in a great measure, the

practice of his profession, and devoted his energies and abilities to the establishment of these works.

One is not surprised to learn that Worcestershire and Staffordshire derive the raw materials of their manufacture from diverse and remote localities; distant Cornwall, even Sweden, are put under contribution for certain ingredients; Beleek itself supplies not a little; but it strikes the visitor with amazement to learn the extraordinary variety of ingredients, and the facilities which this favoured district affords for this manufacture. Not only is there almost unlimited water power, but there is found, within a limited radius, not only the kaolin (china clay), flint, and felspar, which are the essential ingredients of stone china and Parian ware, but also the shale from which are constructed the fire-clay "saggers" in which the ware is fired. The firing of the kilns up to an advanced stage is effected with the peat which is abundant in the neighbourhood, leaving nothing to be imported but a moderate quantity of coal wherewith to complete the process, and of "ball clay," which is brought from England, and is used, if we understood rightly, in the manufacture of a common description of delf. The factory is a handsome building erected of limestone, with cut stone dressings to the windows and doors, &c., is 160 ft. long by 38 ft. wide, and 56 ft. high, divided into three stories. The stone of which it is built was excavated from the site, and the bricks were also made hard by; the floors are fire proof, constructed of iron girders and concrete, with Portland cement flooring, and are of great strength. The buildings throughout are of the most permanent and substantial description, and appear to be well planned and adapted to the requirements and economical working of the trade. The entrance and staircase occupy the middle of the building, and thus divide each floor into two separate departments, those upon the left hand, on entering, being devoted chiefly to the grinding, &c., of the materials in their raw state, and the preparation of enamels; and those departments on the right to the more delicate handicrafts of the manufacture, show-rooms, stores, &c.

The examination of the materials in their raw state, and the grinding of them, of course naturally attracts attention first. This is effected in huge vats or tubs, with curved revolving arms or flyers of iron working horizontally, which propel rough blocks of stone loose between them, and so effect their purpose. We may mention, as another marvel, that this peculiar stove, supposed at first to be found in only one place in Great Britain, and at first imported here, has since been found of an even better description at this all-producing Beleek. These grinding machines are worked at an enormous power, and are consequently of great strength. The difficulty under which the machine labours when the material becomes too stiff to work easily, or partially sets—or as it is technically termed "sucking"—is very great and a serious one, and is simply and ingeniously met by the arms or flyers above mentioned, being connected with the driving power by friction only, so that when the resistance of the refractory material exceeds a certain limit, say 16-horse power, the machine refuses to do its work with a loud screaming noise which alarms not only those in the factory, but often startles reposing Beleek from its midnight slumbers. In this room are also apparatus for grinding and preparing the glazes and enamels. The material when ground is conveyed to large vats where it is kept in a fluid state, and after passing

through a succession of them, and time being afforded for any of the coarser particles to gravitate to the bottom, the clay may be said to be ready for the preparation of the "biscuit," as the ware in its unfired state is called. As some of the clays used have a greater affinity for water than others, some holding absorbed at all times a considerable quantity of moisture, while others contain little or none, it is essential to the success of the manufacture that they should be brought to a uniform state of solution, which is effected by the simple process of adding water to the clay in large vats, until the mixture is found uniformly to weigh 24 oz. to the imperial pint, at which stage it is known from experiment to contain 7 oz. of clay. Passing into the other departments, we find hands at work fashioning the ware in moulds, and finishing it with the hand in its soft state, after which it is conveyed to the drying closets, a range of which run down the centre of each room, which simple and admirable arrangement, not usual in manufactories of this kind, is productive of both convenience and economy of labour, and obviates much injury that might ensue to the ware in its plastic state in conveying it to a greater distance.

We may mention that one of the branches in which there is fair reason to anticipate that this establishment will be most successful—more so than others—is the production of china tiles for floors, telegraphic insulators, pestles and mortars, &c., &c., of a more than flinty hardness. These are manufactured by compression of the dry material in powerful machines, an operation which does not require the skill of a more than ordinary labourer, thus rendering the cost of production almost nominal. On the occasion of our visit, Mr. Armstrong had just completed an experiment to which he had devoted considerable cost and anxiety, and had triumphantly produced his first mortar—his "first-born" he reverentially called it; and certainly the experiment appears to have been crowned with complete success, if one is to judge by the comparison of this vessel with the ordinary ones in use. After its first firing only it presented a surface of such closeness and hardness as could scarcely be conceived, and we trust that Mr. Armstrong's anticipations that his pestles and mortars will drive all others out of the market may be realised.

In other rooms we found persons employed in carrying out further stages of the work, adding to the ware the essential element of pottery glaze, and some men and a few young girls engaged in the more delicate and artistic employment of adding the coloured decoration to the ware, a department which embraces every gradation of art from the mechanical transfer to the ware of the abominable and barbarous patterns that are found essential to meet the taste of the market, up to the production of subjects chastely decorated, and of a highly artistic character. After leaving these last-mentioned departments, the ware passes to the kilns, situated at the rear of the building, where it is "fired" one or more times at an immense heat, enclosed in the fire-clay "saggers" before referred to. After viewing these, the visitor of a mechanical turn of mind may inspect a water-wheel well worthy of attention. This admirably constructed piece of machinery is one of the last erected by Fairbairn; it is on the ventilating system, and is of 100-horse power.

When this object of interest is exhausted, there is nothing left for the visitor, who has, we have no doubt, tasked the patience of his conductor for some hours, but to express his acknowledgments of the courtesy which we

are sure he has received, and take his departure with the best wishes for the prosperity of the undertaking. The Beleck potteries have our warmest wishes for their success, and we sincerely hope that no difficulties may arise to cloud the prospects of so important a branch of national industry.

Is our tourist a man of discrimination, turning his back on Beleck, he will direct his steps towards Sligo. Is he an artist, here will he find broad landscapes, and lovely wayside nooks, for his pencil, and stately, well-favoured peasant girls, green-gowned and red-petticoated, that would do honour to any foreground—nay, should he desire a study of the nude figure, he will find many facilities for doing so, in an approximate way, among the juvenile male population which he will encounter. Is he an angler, he will find salmon fishing of an unexceptional but highly expensive character, and excellent fishing for black trout and golden “gill a roos” of a less costly description, in the waters of Lough Melvin—a lake deserving of a visit for its great natural beauties, if for nothing else. Having passed through the town of Ballyshannon, remarking with regret that here there are but few signs of progress, and that it wears the aspect of a commercial port which has fallen on more evil days than it once enjoyed, a drive of a few miles will bring the tourist to the improving and pretty watering-place of Bundoran, a pleasant and neat little village which has sprung up, and is making rapid progress under the judicious care of its owner, Mr. Thomas Conolly, M.P.; and if a lovely prospect of the opposite coast of Donegal, and fresh bracing air from the Atlantic, are inducements to visitors, Bundoran will prosper still more.

Passing still onwards by the coast under a bold and singular range of hills, we reach the village of Cliffoney and its neighbour, the new watering-place on the headland of Mullaghmore, the property of the Right Hon. Viscount Palmerston, &c., &c. Here the indefatigable Premier has effected marvels by a liberal expenditure: a harbour has been constructed at a cost of upwards of £20,000, and great tracts of shifting sand have been cured of their vicious and nomadic habits, by being first planted with bent grass, and, when somewhat subdued by this firm but judicious treatment, have been treated liberally to a plantation of pines and other young trees, which have flourished wonderfully, and transformed the face of a whole tract of country. Cliffoney walks with a step most assured, and Mullaghmore holds its head very high indeed, for are they not the property of the great Prime Minister of all England? and all Cliffoney to a man, and Mullaghmore to a boy, conceive that they have a vested right and title in the Constitution of Great Britain over and above ordinary mortals. Should the tourist wish to experiment on the popular state of feeling, let him ask who and what is the Lord Palmerston to whom this property belongs, and observe the mingled dignity and contempt with which the favoured native will inform him of the noble lord's place and calling in life, possibly adding in addition all his titles and honors, with an accuracy which Garter king-at-arms himself could not surpass.

All things are only relatively great or small, important or unimportant, according to the standard we apply to them, and locality is everything in applying the rule to architectural improvement. “Wigging” the front of the principal shop in the remote country town is as great an affair, looked at in this light, as the erection of a palatial warehouse in the metropolis. Then, if we notice building improvements at all, why should we omit

honourable mention of the vast expenditure of whitewash on the numerous cottages up and down Lord Palmerston's estate. Everything—houses, out-offices, walls, mud fences—we are not sure that we are strictly accurate in excepting the trees, flowers, live stock, and inhabitants—have recently been put under a thorough system of this wholesome process, possibly in anticipation of a visit from the noble owner, making every little homestead a staring monument of cleanliness, and with its newly-thatched roof, trim garden, and comfortable aspect, affording relief after the contemplation of the roofless cabins and blackened walls, which in other places too forcibly call to mind the sad era of famine, disease, and depopulation, sixteen years ago.

Further on, on the road to Sligo, will be seen, at Drumcliffe, a portion of a ruined round tower, and an interesting and beautiful early Irish cross in good preservation.

Space will not permit us, in the present number, to do more than give a passing glance at the principal object of interest which the architect or archæologist will find in the town of Sligo—the ruined abbey church. This curious and quaint building is of the Franciscan type, and is for the most part of late date, and presents to any one accustomed only to the great abbey churches of England a strange miniature of a monastic establishment. There is much to repay careful examination both in the choir and the strange little cloisters; but the state in which the whole building (at present used as a much overcrowded Roman Catholic burial-place) exists is simply a disgrace to the town of Sligo, and those under whose custody it may be—choked with rank dirty weeds, crowded with great unsightly tombs, blocking up the church and cloisters, and jostling each other in a most unseemly manner; but these are not the chief indecencies of which complaint is to be made: in every nook and corner are strewed human remains, irreverently torn up to make room for new tenants of the overflowing cemetery, and mingled with half-decayed portions of coffins and noisome filth of the most disagreeable description. It is impossible to conceive how those whose care it ought to be would permit such a state of things; and the apologetic observation of the custodian—one of the gentler sex by the way—scarcely mends matters. We were informed in reply to our disparaging remarks, that it was a mistake to suppose that nothing was ever done to remedy this state of things, as, on the contrary, it was usual to collect the remains and coffins at the bottom of the churchyard, and make a bonfire of them occasionally. This is making the matter more decent with a vengeance, truly—to leave its disgusting irreverence out of the question—a pleasant and wholesome practice in the heart of a populous town. We venture to hope that this may meet the eye of some one interested in the abbey, and that when we once more turn our steps Sligo-wards to resume our notice of the objects of interest in this district, and study the peculiarities of the interesting structure which gives Sligo its chief charm to the professional visitor, we may find a different and improved state of affairs.

#### INFANT MORTALITY—THE REGISTRAR-GENERAL'S REPORT.

“FIFTY-FOUR children have died from convulsions in my district since the 1st of last January,” Such is the statement of the Registrar of No. 3 District, North City, made to the Registrar General, in the present week. Half a hundred short graves break up the level of the churchyard. It is not natural that the young should thus die the moment that they enter into life. There was no plague, no epidemic, no unusual sickness, yet fifty-four children shivered into death. The record startles one; and the more,

when we find that sanitary officers are praised for their indefatigable supervision, and that the Legislature has entrusted extraordinary sanitary powers to the Corporation. Yet, if we examine further, we learn that in the district thus sadly signalized the air is fetid and impure, there is no supply of water, and the drains are insufficient. It is the old story. The poor breathe a poisonous malaria, the water they drink is impure, and beneath their feet are festering cesspools, but no one is to blame. The record stands out, nevertheless; and, thanks to the Registrar-General's published returns, we dare say something will now be done.

It is not probable that insufficiency of food had anything to do with these deaths, though the food given may have been improper. Long before the infant hungers, the father and the mother suffer and need material comfort. The clothing will be in rags, the fuel be reduced to a few broken twigs or dry refuse from the tanyard, a cheaper and a lowlier lodging will be sought, and numbers will huddle together with the instinct of sheep when the storm rages. The weekly or nightly rent is lowest where the drainage is bad, the water foul, the air laden with malaria. In these damp or dusty lanes the scavenger takes his ease and the water-cart is seldom seen.

There is, moreover, another cause of death which has not been noticed sufficiently. Many a mother struggles to earn a few pence, as the times are hard, and food and clothing are always dear when there are no means. The mother who goes to the fish or vegetable market at the dawn, and cries her poor stock in the suburbs of the city, it may be in the rain or cold, leaves the young to the mercy of a stranger or the care of a neighbour as poverty-stricken and as anxious as herself. Perhaps a sister, born old, as it were, and prematurely called upon to perform duties of which should be the object, is entrusted with the charge of children but little younger than herself. Happily, in this country the bottle of laudanum, or Godfrey's cordial, or “quietness,” is not seen in every room, nor is the surgeon called in to visit some infant “in convulsions,” appalled by the sight of a dozen children with pallid features, sunken eye, and drowsy heaviness, dying of slow poison; but the puddle and the cesspool do the work effectively, and no man taketh it to heart.

We know that all the dark lanes and courts of our city cannot be cleansed and purified in a day or in a month. We cheerfully believe that the officials are working earnestly; but one important advantage of the Registrar-General's weekly returns is this: they put a mark upon the plague spots of the city and show where exertion is most needed. And the public expect that the result of the publication of these returns will not be a controversy respecting medical etiquette or corporate responsibility, but a hearty willingness on the part of all concerned to accept the indication given by the Registrar, and to co-operate vigorously to remedy the evil he has most rightly noticed.

There are some kindly remarks in the report of Dr. E. Smith, which will not be presented to insensate hearts in a city celebrated for its benevolent institutions. He says—“It is important that the employers of labour, and the better-off classes generally, should understand how many forms of help there are which represent money's worth to the recipient without representing money's loss to the giver. Often the most permanently useful form of help which the better-off classes can afford to the poorest, will be the mere imparting information, for surely the poor man will best succeed in helping himself when he shall have most knowledge suitable to his circumstances, not alone when he shall have learned how to obtain, without wasteful purchase or wasteful cookery, the fullest vital value for his scanty spendings on food; but perhaps even more, when he shall have learned the full results of the unwholesome and degrading uncleanness, amid which he is now condemned to live or die—when he shall have learned what false thrift there may be in sending forth wife and untaught children even to bread-winning labour.” No corporation or body of sanitary officers can do this. This is the duty and the privilege of all who come in contact with the poor, both before officials have done their work and after it.

The infant schools of our city have saved a vast amount of child life, but the pupils of these schools are not properly called “infants,” but young children; they are usually from three to seven years of age. We still need institutions—say one in each parish, where the mother, who is forced by dire necessity to earn her bread, may leave her infant child, however young, in the charge of a responsible nurse, with proper food and warmth, and under the supervision of a visiting physician. Had an institution such as we indicate existed in No. 3 district, we think the Registrar-General would not have had to chronicle 54 deaths of infants in a limited period of time. There surely are to be found in our city some who would join in forming the “nurseries” we speak of, and thus save many a young life.—*Irish Times*.

LECTURES ON PUBLIC HEALTH.\*

Sanitary Architecture and Engineering: Hospitals: Dwellings: Sewerage.

(Continued from page 173.)

I WILL not enter into the vexed question of hospitals for special diseases, and with respect to the advantages of hospitals for incurables, they are indeed most truly illustrated by the admirable institution of that nature which we possess in Dublin. In London, or rather its vicinity, there are institutions which may be regarded as convalescent hospitals, but in this country we have no such institution, although its desirability, or, indeed, absolute necessity has been often demonstrated. The daily papers about two years ago contained most convincing letters upon this subject, recommending that testimonials to departed great ones should take this form, instead of useless erections which have too often disfigured instead of beautified our city, and one of the most influential of them has recently urged that the plots of ground on which the Martello Towers stand should be allotted for the purpose, as these buildings are now

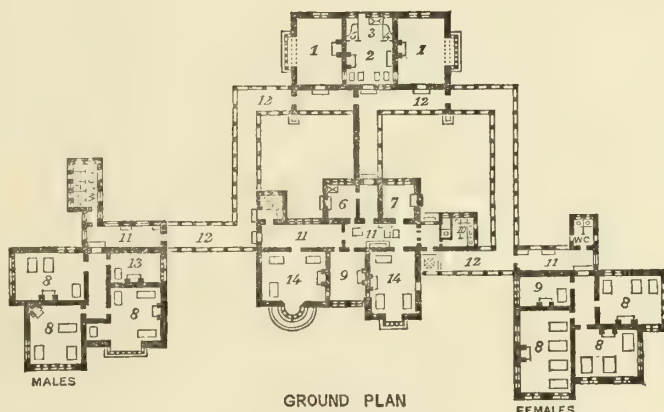
to be removed. Almost any of the twenty-seven plots round Dublin Bay would be suitable, and those at Killiney, Dalkey Island, and Howth may be preferred, on the grounds of there being no houses close to them and there being trains running frequently to them, by which patients might be conveyed. If the good work of establishing a convalescent and consumptive hospital was commenced by the co-operation of the committees of various hospitals—and there is no better way of economising their funds—wards would be gradually added to bear the name, and thus perpetuate the memory of the illustrious whom it was intended to honour. A convalescent hospital should differ entirely from the character of a general hospital, and if constructed in neat cottages, capable of holding about six, will best meet the requirements of cheapness, abundant ventilation, discipline and good example, by which the homes of the poor will afterwards profit. The annexed sketch and plan are copied from those made for the Wilts Herbert Memorial, and published in Miss Nightingale's book. In such an institution abundant employment of body and mind would be an important element of cure.

CONVALESCENT HOSPITAL.



PRINCIPAL ELEVATIONS

1. Dining-room and Day-room.
2. Kitchen.
3. Scullery.
4. Larder.
5. Stores.
6. Dispensary.
7. Maid-servant's room.
8. Convalescents' Bedrooms.
9. Sisters.
10. Bath.
11. Corridor.
12. Covered way.
13. Gardener.
14. Sick Wards.



GROUND PLAN

With respect to hospital nursing, I am glad to have this opportunity of advocating the system of "hospital sisters," which is carried out in University and King's College Hospitals, London, as I am strongly of opinion that it might be adopted in those hospitals in this city, where, at present, the entire care of the sick is entrusted to paid nurses. In University College Hospital, the sisters come from respectable ranks in society, and belong to the All Saints' Home, an institution in connection with the Church of England. They each superintend a ward containing fifteen beds, their principal duties being to direct the nurses. In King's College Hospital they are termed "lady nurses;" they superintend the paid nurses; and it is found that their presence has the greatest influence in elevating the moral tone and civilizing the habits of the patients. At both hospitals their services are rendered gratuitously (the sisters in King's College Hospital paying for their board). They are willing to give, but never obtrude, religious instruction and consolation to those who seek it, and it never assumes a controversial character.

Miss Nightingale seems to infer that if the entire establishment be administered by hospital nuns, Protestant or Roman Catholic, there will be lower average care of the sick, as "the idea of the 'religious order' is always more or less to prepare the sick for death." This opinion I cannot support, for I, in common with all other medical officers of hospitals under the care of religious orders in this city, have certainly never had to complain of want of anxiety for, or of attention to, mundane matters on the part of these sisters.

If, then, sisters in these London hospitals be so really useful, they seem required in even a greater degree for our poor, uneducated and previously uncared-for. There can be no doubt whatever, that many of our devoted fellow-countrywomen would readily apply themselves to the beneficent task; and besides the care of the sick, another field of usefulness would be opened—namely, the training of nurses for the rich and for the poor, which is now unattended to, save in the case of those who succour mothers in their hour of trial.

\* By E. D. Mapother, M.D., Professor of Hygiene, and Medical Officer of Health for the City.

this way, by precept and example, by proprietors, especially the Duke of Leinster, and Mr. Naper of Loughcrew.

Dr. Tucker of Sligo draws the following lamentable picture concerning the hovels of the Western poor:—"The medical officer of a district has the best opportunity to illustrate this sad state of existence. Some short time since I noticed the homely hovel of a small farmer (the tenant of a nobleman) which may be taken as the prototype of many in country districts. It was about twelve feet wide and twenty-four feet long. The domestic circle, happy family, or menagerie, that dwelt therein consisted of a sick man, his wife, four daughters, one son, three cows, one horse, two calves, two pigs, and poultry, all in one common undivided house—no partition. Generally the pigs dwelt beneath the beds, the people in them, and the poultry over head. They can enjoy the prospect of bacon and chickens which they seldom taste. An aboriginal from Maherow, named Heraghy, observed to me, in defence of this sad social state, that 'it was better have that house full than empty.'"

In many of the dilapidated parts of the Liberty, and even in close proximity to our national cathedral, there are now open spaces which, if converted into "spirit-raising and blood-purifying gardens" for the recreation of the people, would recompense their owner, and do much to raise our poor from the social degradation under which they surely suffer. With regard to pecuniary return for capital expended on houses for the poor, the Duke of Beaufort has most clearly shown the duties of the proprietors of the land, and in many English towns four to five per cent. has been realized from newly-built humble dwellings.

The means of cleansing and sewerage Dublin in the seventeenth century is said to have been so deficient, that Swift's well-known lines, describing the effects of a city shower, would seem to have been applicable to the state of his own district:—

"Now from all parts the swelling kennels flow,  
And bear their trophies with them as they go;  
Fifth of all hues and odours seem to tell  
What street they siled from, by their sight or smell;  
Sweepings from butchers' stalls, dung, guts, and blood,  
Drowned puppies, stinking sprats, all drenched in mud,  
Dead cats, and turnip-tops, come tumbling down the flood."

How imperfect was the sewerage of this city thirteen years ago will best appear from a report of a survey made in 1851 by our able borough engineer. He says, "The levels of the sewers I found in general very badly laid out, particularly in the streets running east and west, which cannot have rapid falls: in many cases they were almost level, in others full of hollows up and down, and frequently could act little better than cesspools, requiring to be regularly cleaned out. In some of this class of sewers we found as much as four feet of solid deposit, rendering all house drainage impossible."

The house drainage was even worse, from a mistaken idea among builders that it was necessary to have a drain twelve to eighteen inches square. The sides of these were built with bad rubble masonry, resting merely on the earth, and covered coarsely with flags, and they were brought under the basement with all kinds of angular turns and without regard to fall. They frequently became stopped, producing endless complaints from noxious smells or flooding, and from the readiness with which rats made their way into the houses. Most of these evils have been remedied by six-inch or nine-inch pipes of good vitrified stoneware. In the words of Mr. Neville, the "great essentials for effective house drainage are—that the sewer should have a good fall, and be laid with a regular inclination from the highest to the lowest point, and when necessary to change the direction, it should be done by regular curves, and not by sharp bends or angles. The sewer should be of such size and shape as to give the water passing through it power to scour out all deposit; and the material with which the sewer is constructed should be durable, and capable of being put together so as to secure impermeability, that the fluid flowing through cannot soak into the earth and cause dampness in the floors and foul and noxious effluvia. It is also very material that the sewer should be so built as to prevent rats burrowing through, and all openings should be properly trapped to prevent the gases escaping into the houses." Since he came into office, by the removal of sewerage works from the hands of the Paving Commissioners to the Corporation, twenty miles of large and small sewers have been laid down in streets which never had sewers before; also considerable lengths of old and decayed sewers have been taken up and new ones built in place of them; and where the old sewers were found sound, and their levels such as to permit of their being made available, they have been repaired, underpinned, and had brick inverts placed in them and their levels corrected, thus rendering them thoroughly effective. It is intended that those works shall be continued until every street in the city has a really effective main sewer. It is also proposed to remove all the old stone gully grates, and

substitute metal trapped gullies, also to make side entrances into the sewers, to facilitate getting into them for examination and repair, and render unnecessary the frequent breaking up of the streets. Forty miles of old sewers have been also cleansed and repaired during the last ten years, and means of drainage have been provided to at least 6,000 houses. As the Corporation has now the legal power of enforcing all householders to make drains when called on, the number will be far more numerous.

I have only time to give you one instance of the influence of imperfect house drainage on the mortality of cities. Stockholm ought to be the most healthy city in Europe, for it is built on small islands which secures abundant ventilation and cleansing. Owing to a bad supply of water to houses, there is not a single house, with the exception of hotels, in which there is a water-closet. I have ascertained that it has the highest death-rate of any European city, despite the advantages which its position confers. The state of things could be improved, even without water supply, by the adoption of the *separateur* system, so common in Continental cities. A *separateur* means an iron box pierced with holes, which, receiving the night soil, allows the fluid part to escape, and the rest is deodorized by charcoal and removed in air-tight cases.

All the large sewers discharge into the Liffey, and among them is included the Poddle, which carries down the refuse of about 450 acres of the foulest part of the city. This sewer is often dignified by the term "river," but it seems to me more to merit the description applied by Pope to the "Fleet Ditch:"

"The king of dykes, than whom no sluice of mud  
With deeper sable blots the silver flood."

I trust, however, we shall all live to see the Liffey "a silver flood," and not, as it is now, "an absolute pestilence, in consequence of its being made the channel for the whole sewage of the city," which are the words by which Lord St. Leonards described it in the House of Lords.

Various remedies have been proposed from time to time by engineers, such as covering over the whole river, and constructing a magnificent boulevard; running a railroad down the centre between solid walls, and dividing the stream into two portions, thereby increasing the scour; erecting flood-gates at Carlisle-bridge to be flushed at low tide. The stagnation of the water in the latter plan would be most objectionable; and the only efficient remedy lies in the construction of intercepting sewers similar to those devised by Bazalgette in London, and to which I referred in a previous lecture.

There is no doubt that the time is approaching when, by a process of deodorization, the sewage will be rendered innocuous, and will be applied to fertilize the land. The attention of the most able chemists and sanitary engineers is now fixed on the subject, as the pages of the *Journal of the Society of Arts* will testify. Lime and carbon, such as our peat, are efficient and not hurtful to plant-life, and the latter has been used for the destruction of the foul air of the sewers, which too often are distilled into the houses.

In one year, 144,414 tons of ash-pit stuff were sold in Birmingham to the neighbouring farmers; but taking into account all expenses, it must be acknowledged there was a loss of £6,000 to the borough. In the Liberty, and other poorer parts of this city, such matters have been up to this stored up in nightmen's yards to the great detriment of the inhabitants. The water of sewage has been the great difficulty, its weight and bulk making the cost of its carriage exceed its worth; and it has even been proposed to substitute a complete system of scavenging and immediate deodorization for sewerage, as such matters only become hurtful when putrefactive change begins. By some it has been deemed more advisable to use the fluid refuse, to irrigate fields in the neighbourhood of large towns, and this plan has been carried out successfully by the Earl of Essex at Watford, at Croydon, Rugby, and for some years on a vast scale at Edinburgh. At the first-mentioned place the following experiment was made: two acres were irrigated by 60,000 gallons of refuse, which cost about 14s., and two were left unirrigated. Both were sown with wheat, and treated in every way identically, and there was a clear profit of £4 15s. more from the irrigated than the unirrigated acres. At Carlisle Mr. McDougal has leased the sewage, which he deodorizes with his crude carbonic acid. At Hyde, in Cheshire, 180 cottages are placed under a dry method by the "Eureka Sanitary and Manure Company," and the Inspectors of Nuisances have reported most favourably of it.

Many parts of England are becoming so exhausted of plant-feeding constituents in the soil, that the question of utilization of sewage is becoming one of national importance; for the vast capital which leaves the country to pay for corn and other foods and manure should be kept at home for other purposes. As Baron Liebig has shown, "the employment of sewage in agriculture could make it possible to bring large tracts of

land into cultivation which hitherto, owing to expense of tillage, had been laid waste and neglected. It is neither fantastic nor ridiculous to believe that without purchasing foreign manure, and by a judicious utilization of the sewage of towns and villages, England would be able to dispense with the importation of food from abroad." The whole subject is exciting just now the greatest interest. Baron Liebig having stated that the manufacturers of artificial manures are "inimical to the utilization of sewage," a wordy warfare has arisen; and as the subject is to be one of three selected for discussion by the Public Health section of the Social Science Association at its congress at York on 22nd of September next, the meeting of that body will be more than ordinarily lively.

#### THE PERSIAN GULF TELEGRAPH.

(Continued from page 176.)

The shipping and laying the Persian cable presented also some points of novelty and interest.

Most cables have been laid from steamers; and in the few instances in which sailing vessels under tow have been employed, the result has been (except in one instance, viz., the Dover and Calais cable) the loss of the cable.

Thus one of the cables from Cagliari towards Bonah was lost, and another across the Gulf of St. Lawrence. To have taken a cable of the length of the Persian cable, weighing about 5,000 tons, round the Cape in steamers would have been a considerable expense as compared to the cost of the whole work. Besides which, it would have been very difficult to obtain sufficient steamers of the necessary construction for taking large coils without considerable delay. The idea of sailing vessels under tow was, therefore, once more discussed. It was shown on good authority that the prospect of fine weather in the Persian Gulf during the months of spring was considerable; and as the route of the cable lay in shoal water, where it could easily be grappled if any mishap should take place, it was determined by Col. Stewart to try once more this more economical mode of laying a cable. And it is only due to Col. Stewart to observe, that in deciding this question he was opposed by most of the engineers; and, indeed, certain contractors and their engineers laughed at the idea. At the same time it is obvious that as a sailing vessel under tow cannot be stopped so easily or quickly when required as a steamer, this mode of laying a cable imposes a more arduous task upon the engineers actually employed in the operation of laying, and by whom, in this instance, every precaution was therefore taken to avoid, as much as possible, the occurrence of any hitch in paying out.

There remained, however, still the difficulty of the change from hold to hold, and in which case the calculation of the time the ship will lose her way requires, accordingly, the greatest nicety of judgment.

The Marian Moore, of 1,036 tons, Captain Munce; the Kirkham, 1,061 tons, Captain Routhledge; the Tweed (late the Punjaub), 1,744 tons, Captain Stuart; the Assaye, 1,528 tons, Captain Thomas; and the Cospatrik, 1,199 tons, Captain Elmslie, were taken up by Government. In addition to these ships the Government purchased a small screw steamer of 441 tons, called the Charente, and renamed her the Amber Witch. This vessel was fitted with three water-tight tanks, for receiving cable, a break, and a complete machine for picking up (*i. e.*, winding in) cable by steam, and, indeed, with all other machinery for grappling, buoying, under-running, picking up, and laying cable. She is to be stationed in the Gulf as a general means of relieving the staff and provisioning the stations, as well as for repairing the cable should it break down at any time.

She is commanded by Lieutenant Stiffe, late of the Indian Navy, an officer of much experience in surveying duties in the Gulf, and who, in addition to his experience as a naval surveying officer, has served his time in a civil engineer's office in London. Capt. Stiffe, besides commanding the Amber Witch, will hold the office of engineer to the line, and there is little doubt that a better officer for the work could not have been selected.

These five large vessels were fitted each with three water-tight cylinders, or tanks, to receive the cable. These cylinders, which were mostly elliptical on plan, varied in dimensions from 23 ft. by 26 ft. in diameter, by 10 3/4 ft. deep (*viz.*, the fore tank of the Marian Moore), to 32 ft. by 34 ft. diameter, by 15 ft. deep (*viz.*, the main tanks of the Assaye and Tweed).

In the centre of the tanks a solid wood centreing was fixed in the shape of the frustrum of a cone, and having a perfectly smooth surface, rounded off at the top edge to a radius of 1 ft. Round this cone and near the top a ring was fixed, leaving a clear space entirely round the cone, and between it and the ring. A second ring, of larger dimensions, and in some cases a third, is fitted with machinery, so as to

\* In this instance also the towing hawsers broke, and the ship containing the cable drifted so much that the cable ran short, and was not completed until some weeks afterwards.

lower down, and yet remain rigid in any place to which it is lowered as the cable is paid out.

Between these rings and the cone the moving part of the cable passes, and sweeps regularly round, being guided in its course by the cone on the interior, and the rings on the exterior, of its path. Above the centre of the cone is fixed a bell-mouthed casting, through which the cable passes. This was so contrived that, by the removal of a single pin, it could be opened to free the cable when changing from hold to hold.

The rings were also fitted with loops, or bays, in which the bottom part of the cable leading to the next hold was placed. The rings being made complete by means of a solid piece, secured by two pins, are easily removed by a hammer.

From the cast-iron hawse the cable passes over a cast-iron saddle, or quadrant, fitted with rollers in some cases, and thence it changes to a horizontal direction along a series of fair leaders having rollers in them: fixed on a long platform erected in a fore-and-aft direction along the ship. This platform is placed at such a height, and at such a gradient, as to lead the cable with the least bends possible to the machinery for paying out. The system of cones and rings is claimed as a patent by Mr. Newall, and the Government pay a royalty for its use. The particular proportions of the cones, and the mode of arranging the fixed and moving rings, and the arrangements for maintaining the latter firm, together with some improvement in the latter which prevents the necessity of taking out a whole segment of the ring when changing from hold to hold, were designed by Mr. F. C. Webb, when fitting the ships. The break consisted of a cast-iron drum, 6 ft. in diameter, and having a break similar to a crane break on one side, fixed on a 7 in. shaft, 6 ft. long, supported on two bearings on the same side. On this shaft a second break wheel was fixed 5 ft. in diameter. The cable made four turns round the break drum, and then passed over a 4 ft. sheave fixed over the stern of the ship. The 5 ft. break was used in general, the larger break being only used as a precaution if it should be found necessary to restrain the cable at all costs to save life or limb.

The cable was coiled on board the ships as they arrived in succession opposite the factory at Woolwich, under the superintendence of Sir C. Bright and Mr. F. C. Webb: Mr. Henley also undertook this part of the work by contract. As the cable was coiled on board the tanks were filled with water, and, when filled with cable, decked over. One of Gwynne's centrifugal pumps, worked by a small steam engine, was fitted to each ship, for pumping the tanks up should they at any time require pumping out or filling. Each ship was fitted with proper instruments and batteries for testing the cable in a cabin fitted up especially for the purpose, under the superintendence of Mr. J. C. Laws, and the cable was tested regularly every day during the passage out by one of Messrs. Bright and Clark's staff, sent in charge of the cable; Mr. Woods being in charge of the cable in the Assaye, Mr. Moseley in the Tweed, Mr. Walker in the Kirkham, Mr. Donovan in the Marian Moore, and Mr. Crookes in the Cospatrik.

The ships left Woolwich, or Victoria Docks, on the following dates:—Marian Moore, August 15th; Kirkham, September 11th; Assaye, September 23rd; Amber Witch, October 21st; Tweed, October 24th. The Assaye, which put into Plymouth with her mainmast sprung during a gale, was detained to have a new mast fitted, sailed finally October 14. The Tweed also put into Torbay, through stress of weather, and sailed finally November 6th. As soon as the Marian Moore and Kirkham had arrived at Bombay their machinery, which had been stowed for the voyage, was again fixed, and every arrangement made for paying out, under the superintendence of Sir Charles Bright, who had arrived with his staff at Bombay on the 10th of December; the electrical arrangements being in the charge of Mr. J. C. Laws, and the arrangements for paying out under Mr. F. C. Webb—the general arrangements for the departure of the ships being made by Colonel Stewart and Captain Young, C.B., the captain superintendent of H.M. dockyard.

On January 21st, the Coromandel, Captain Carew, having on board Colonel Stewart, Captain Stuart, Sir C. Bright, and Dr. Esselbach, left Bombay, and in the evening of the same date was followed by the Kirkham, in tow of the Zenobia, Captain Carpendale, and the Marian Moore, in tow of the Semiramis, Captain Crockett.

The ships all arrived at Gwador by the 29th Jan., when they were met by the Victoria, Captain Arnot, and the Clyde (gun-boat), Captain Hewitt. The Kirkham's cable had to be laid first, as she had on board the shore end 6-37 miles in length. After a careful survey of the bay, it was found that the Kirkham could not approach within three miles of the beach. It was, therefore, determined to pay out as much from the gunboat Clyde as her draft of water would permit, and lay the rest as usual from boats.

The gunboat was, therefore, prepared for this operation by the removal of her heavy gun amidships, and filled with a portion of the Marian Moore's break, called the holding back sheave, which consists of a large V sheave, having a break attached to it. The cable passes over this sheave and is made to grip in the sheave by a small weighted pulley resting on it (termed commonly a jockey pulley). Thus, when the break is applied it checks the passage of the cable. This sheave is used on board the ships to make the cable lead tightly on to the large drum behind which it is fixed, in the same way that a man, when easing a rope round a bollard, holds on to make the turns bite. This machine has never before been employed as a break by itself alone, and its adoption was necessitated by the long length of cable which had to be laid in five fathoms water from a ship that was too small for the reception of the regular break. The usual plan adopted in landing shore ends is to check it by hemp hand stoppers, which are imperfect in their action, besides being quickly worn out when the distance is so great. Judging from the admirable manner in which it answered, this, or a modification of the same, will be used in laying shore ends in future.

Two miles of shore ends was coiled on the deck of the gunboat, and upwards of half a mile in each of the Zenobia's paddle-box boats. The Kirkham, Clyde, and paddle-box boats were then towed to a buoy, placed as near the shore as the Kirkham could approach, and the latter having anchored, the cable was paid out from the Clyde towards the shore, and afterwards that from the paddle-box boats. The end being landed, and the cable carefully tested by Mr. Laws, the electrician to the expedition, and his assistant, Mr. Lambert, the operation of paying out commenced at about 8 p.m. of the 4th of February. All the hands in the cable ships, consisting of a number of experienced hands from England, and a number of old hands late of the Bombay marine, were told off in two watches to their various stations. These stations consisted, firstly, of the cable men in the hold to clear away the wood packing, &c. Secondly, of the ring-men on the lower deck to lower and adjust the rings, &c. Thirdly, of the men stationed from the hatchway along the bridge of the poop, to pass the word from the lower deck or hold to the poop. Fourthly, of the breaksmen and their assistants, and besides these, the signalmen on the fore-castle, the logmen, and lamp trimmers, and various quartermasters and messengers.

Each of these separate departments had a leading hand in charge, besides a general foreman of the whole, who reported, at the beginning of his watch, and afterwards from time to time, to the engineer on duty as to whether each man was at his post, and all going well above and below deck. No shouting, or even loud speaking, was allowed, on any account. The ship's officers had to restrain the usual tendency of sailors to make themselves heard from the poop to the foretop, and, indeed, special precautions had to be taken to prevent, during the heaving of the common log, the cry of "Stop" when the glass is run out, and which in a ship when a cable is running out at the rate of  $6\frac{1}{2}$  knots an hour, has rather an alarming effect in the middle of the night to those who are anxious, or have delicate nerves.

All the machinery worked smoothly, and, as the cable was confined and guided by fair leaders and guides in the most perfect manner from the hold to the breaks, so as to prevent it effectually from jumping and swaying about, it ran itself overboard in the most docile manner, and in respectful silence, while, there being no ship's engines to clink and clack, another cause of noise was, in this case, eliminated, and the total absence of the usual noise in paying out a cable was really remarkable—the silence at times being such that the fall of a pin could have been heard.

Of course, as the motive power was not in the cable ship, it would have been impossible to stop so suddenly as in a steamer, where the engines can be reversed, and it was in consequence of this that every precaution was taken in designing the machinery and arrangements to prevent the possibility of requiring such a sudden stoppage, and, indeed, except to change from hold to hold, no such necessity for stopping at all during the laying of any of the separate lengths ever occurred.

It was only common prudence, however, to have at hand the means of communicating quickly from the cable ship to the towing vessel as to easing and stopping and going on. This was done in the daytime by three small hand flags, white meaning "go on" or "all right," blue, "ease her," and red, "stop her!" At night a white, green, or red light was used instead of the flags. One of these signals was constantly displayed on the fore-castle of the cable ship, and a similar one on the taffrail of the Zenobia, showed the signal was seen and understood.

It was further very desirable to have the means of communicating freely between the cable and towing ship, as to the course, tides, soundings, rate, and as

well as to give special instructions from the cable ship to the towing ship when the end was about to be buoyed, which occurred on two occasions during the laying of the Gwador and Kurrachee section. To have attempted to do this by the old cumbersome means of flags or lanterns would, it was felt, have been utterly useless.

The system of representing the dots and dashes of the Morse telegraphic alphabet in the day, by a rough piece of mechanism, which allowed of a white dot being shown suddenly on a black board, and kept there for any required period, and at night, by means of a light enclosed in a box, with the means of eclipsing or showing it at pleasure, was, therefore, experimented on between the Marian Moore and the Semiramis when on their passage from Bombay to Gwador, and found to answer so admirably that it was thenceforth adopted as the general means of speaking from one vessel to the other throughout the whole expedition. At first it was only used between the cable and towing ships, but the naval officers soon saw the value of the system, and were enchanted with it, and each began in the most persevering way to study the Morse alphabet. As several officers succeeded in learning to "read" and "send" very creditably, it was used as a general means of communicating between the ships when at anchor, and, indeed, when the Zenobia, Assaye, Amber Witch, and Scinde were lying in Gwador Bay before laying the Gwador and Kurrachee section, lights might be seen flashing away from three of the ships at a time.

The saving of time and labour to boats and boats' crews is sufficient alone to recommend the system to general use at sea.

With regard to the navy, it would, of course, be invaluable; but, true to their principles, it is not likely that that very cautious conservative body, the Lords of the Admiralty, will adopt it until it has been at least ten years in use by the mercantile marine, Lloyds, &c.

But, although there is not much hope of its being formally introduced by the Admiralty into the royal navy, there is some chance of its being brought in a less formal manner to the notice of naval officers generally, as Commander Bradshaw, R.N. (commander of H.M.S. Severn), who accompanied the expedition as principal surveyor, has learnt to "send" perfectly, and has flashed many a joke from the Zenobia to his friends in the cable ships.

(To be continued.)

#### MORE POMPEIAN DISCOVERIES.

Just two years ago I communicated to you my good fortune in witnessing, during a visit to Pompeii, the disinterment of a baker's oven, with its full batch of loaves untouched since the moment, eighteen hundred years ago, when they were there deposited by the unforseeing baker, for the sales on that morrow which he was fated never to see. In my present visit I find myself close upon the track of the discovery, hardly less curious, of another of the elements of human life—that of an ancient well, with its waters still as fresh and sparkling as when, on the day of the great catastrophe, the *aquarius* of the house to which it belongs drew from it the supply for the last meal of the doomed family. The well is in the cellar of a house which has been very recently excavated, and in which have been discovered many objects of interest, especially a small but beautiful statue, of which I shall have occasion to speak later. The well is about 65 ft. in depth, and still retains about 15 ft. of water. It is surrounded by a low parapet, but in all other respects is quite unprotected, being without cover or other defence; however, as the entrance to the cellar was completely blocked up with ashes, the well, although open, was perfectly secure from injury, and the water supply has remained probably undiminished in depth and unaltered in quality since the day of the eruption. Immediately on its discovery Signor Fiorelli caused specimens of the waters to be deposited in the museums of Turin and Naples, and he has kindly permitted me to carry away a phial of it, labelled, with all due authentications—"Acqua di antica sorgente scoperta in Pompei, il giorno xxiv. Maggio, 1864." The cellar is of small dimensions, but the approach to the well is rudely decorated with the customary altar of the Lares.

I have gone over with much curiosity the buildings excavated since my last visit, which derive additional interest from the judicious course pursued in the later excavations, of leaving in each house all the more remarkable objects which may be discovered (except those which would suffer from exposure to the weather), instead of, as formerly, transferring them all to the Museum of Naples. The discoveries of the last two years, although not very numerous, are extremely interesting, and some of them of great value. I was naturally attracted, in the first instance, to the house of the baker which I had seen disinterred during my last visit. It is now carefully cleared out, and all its permanent apparatus—as corn-mills, kneading-

troughs, flour-bins, &c.—remain *in situ*, the smaller and the more perishable objects—as the measures, the weights, the loaves, the corn, &c.—being placed in the temporary museum which has been formed at Pompeii. The attractions of this house, however, have been eclipsed by those of a similar establishment, immediately adjoining it, which had been discovered, but not fully excavated, before the disinterment of the oven. The second bakery is much larger, and the appointments on a much more extensive scale and in greater variety. The dwelling-house of the owner, too, is much more luxurious. Although connected with the bakehouse, it has a separate entrance, and a double atrium and peristyle, both of which are of more than ordinary extent, and in their size, as well as their decorations, bear witness to the wealth and luxurious tastes of the occupant. Among the relics of this house preserved in the local museum is one which throws a curious light on the domestic arrangements of the Pompeian baker, being no other than one of the dishes which were actually in process of preparation for dinner on the very day of the catastrophe! Upon the cooking-stove in the kitchen was found a stew-pan, half filled with ashes, and in the bottom appeared an indurated mass, which Signor Fiorelli rightly conjectured to have been produced by some of the viands which lay within the pan, and which, although long since decomposed, had left their impress on the now consolidated ashes. Acting upon this happy thought, he applied in this instance the same ingenious process which was so successfully adopted in reproducing that painfully life-like group of human figures, described with such terrible fidelity in one of your former numbers; and the result has fully justified his anticipations, being an exact fac-simile in bronze of a young pig which was being stewed for the family dinner at the very moment when they were surprised by the stroke of doom.

In connexion with this curious relic, I may mention the discovery of the skeleton of a horse, which, together with two other skeletons of horses found many years ago, has, through the anatomical skill of one of the members of the Academy, been carefully put together, and placed in one of the rooms. I have had the curiosity to examine the "tooth-marks" of the most recent of these skeletons, and find that the animal was just five years old at the time of the destruction of the city. All these horses were small-sized, but of good shape, and of a type still common in Southern Italy.

You have already recorded the discovery of more than one valuable specimen of ancient art, and especially of the exquisite bronze Narcissus now in the Naples Museum; but I do not think your readers have been informed of a still more recent acquisition—a small but highly characteristic Silenus, which, as I have already said, was found in the same house in the cellar of which was the well described above. The figure is about fifteen inches high, and stands upon a circular pedestal of bronze, not unlike an inverted platter, inlaid with arabesques in silver. This admirable Silenus was evidently a stand, either for a lamp or, more probably, for a glass vase, fragments of which were found close by. He is represented with the legs extended to the utmost, for greater firmness of attitude, and holds high above his head, grasped firmly in his left hand, the bronze ring, in which the vase was intended to rest. The vase may have been meant to hold flowers; or, if one could argue from the air of drunken gravity, and of ludicrous anxiety to guard against the spilling of its contents, which the artist has thrown into the features of Silenus, it might more probably be supposed to be intended, like Mrs. Gilpin's stone bottles,

To hold the liquor which he loved,  
And keep it safe and sound.

Taken as a whole, this Pompeian Silenus, although it substantially preserves all his traditional characteristics—the squat punchy figure, the prominent paunch, the snub nose and distended nostrils, the shaggy hair and beard, the maudlin stare of the eye, and the jolly but stupid good humour—is of a higher type than the ordinary Silenus of Grecian art. This may be due in part to the action which the artist has here assigned him, and which necessitates a different rendering. Instead of his traditional occupation of leading the goat, nursing or toying with the infant Bacchus, or sprawling on a half-emptied wine-bag, he is here represented with the unwonted responsibility of maintaining a perpendicular attitude. The figure, although coarse and massive, is full of a lazy muscularity; and the look of preternatural solemnity with which he struggles to preserve his balance is indescribably amusing. Above all, the action of the legs and feet, as they seem literally to feel for a firm hold, is admirably rendered. But great part, also, must be referred to the artist's individual conception of the character, which is evidently higher than the popular one—at least so far as regards the merely animal representation; for I cannot help thinking that, in studying this remarkable work, it will be felt, that while the artist has elevated the physical type of drunkenness,

he has, at the same time, fully maintained its moral grossness and its intellectual shame.

The continuation of the "*Herculanensia Volumina*" still slowly progresses. The third *fasciculus* of the third volume of the new series has just been issued. Like the preceding volume, it contains merely the facsimile engraving of the papyri, without translation, commentary, preface, or even transcript in ordinary Greek characters. Probably the editors have done wisely in thus proceeding at once with the publication, without the long delay which the labour of translation and commentary would have induced; but the meagreness of the work (which, however, in this respect only follows our own Oxford editors of 1826) contrasts very unfavourably with the elaborate and exhaustive scholarship of the older editors of the "*Volumina*."

The contents of the new volumes are a further instalment of the interminable Philodemus, and his almost equally interminable treatise "*De Rhetoricâ*," with a few further fragments of his "*Περὶ Ποιήτων*."—C. W. RUSSELL in *Athenæum*.

#### LECTURES ON SANITARY SCIENCE.

GREAT truths dawn upon our incredulous world very slowly, and they who teach them may well be weary and faint-hearted at times, when they find how their message falls upon dull, listless ears. Impressed with the vital—oftentimes more than vital import of the truths which they proclaim, and the dissemination of which has given earnestness to their lives, it is to be wondered at if they sometimes halt wearily when they find that they are outstripped in the race by some ancient, well-established, ill-concealed lie—that it is ten times a greater task to give vitality to an important truth indisputably deduced from science than a death blow to an old wife's fable or a contemptible superstition. This is, of course, true in its highest sense of the science of religion, but is not less so of that science which, among those so called, approaches to our views, nearest to this great one, bears the closest analogy to it, and is its most serviceable handmaid. We unhesitatingly claim for sanitary science this nearest place, for its duties and struggles do not cease when disease and death are vanquished, but would reach farther and cope with moral and social iniquity where it may be most effectively attacked. Like the professors of the higher one, they who preach this science must not weary in their crying aloud, if they see no fruit for their labours, or, inasmuch as the things which they proclaim have been said a thousand times before, it may be they think far better—repetition of them alone, a ceaseless dinning of them in the ears of the world, is the only means by which they will come to be established as household words, and take the place of the apathy, carelessness, and slovenliness, dangerous quack nostrums and useless superstitions, which have had their "innings" for quite long enough.

Foremost among those whose precept has been best and wisest, whose practice has been the brightest example of self-sacrifice, is one name before which every head in Great Britain will bow with respect—FLORENCE NIGHTINGALE—sinking slowly, we are told, to a premature grave, with a constitution shattered by her unparalleled devotion in the cause of humanity, but ceasing not in the days of her weakness to utter warnings, earnest and eloquent, and to leave behind her, as her last legacy, we fear, instructions and suggestions not less practical and concise than they are of incalculable value to the progress of the cause she has at heart.

Everyone, therefore, who will repeat these teachings, adding new facts or varying the aspect in which they are presented, so as to make the subject—not an attractive one to many minds—more acceptable, will receive some share of the lustre of this great name, and better still, will reap in his own conscience a reward proportionate to the earnestness he has devoted to his work.

The subject is one which comes scarcely less within the province of the architect and engineer than of the physician, and among the first we would be doing an injustice to the profession which this journal more particularly represents if we were to omit a passing mention of the name of George Godwin, a name which will never be forgotten in connection with sanitary progress so long as the *Builder* continues to flourish.

But to come to the narrower aspect of the question which we have at this present moment in hand, we think our readers will agree with us that Dr. Mapother, whose interesting papers have been an acquisition to the *DUBLIN BUILDER* for some time past, deserves somewhat of his country and a great deal from us; we feel that these lectures, which have appeared simultaneously with our issue in the *Medical Press*, are worthy of a still wider audience, and we trust that they may yet be presented to the world in some other form. Meantime we embrace this opportunity of acknowledging our obligations to Dr. Mapother for the honor he has done us in permitting us thus to present his lectures among the first to our

readers—for we feel it an obligation—and to express our sense of courtesy and unspared trouble in the way in which the papers and illustrations have been placed in our hands.

To enter here on any lengthened criticism of them we feel would be uncalled for on our part—consisting, as they do for the most part, of facts which we are not disposed to gainsay, and which would derive no additional force from our feeble echo. We would have desired to have supplemented them with some extracts from Miss Nightingale's late work,\* but, turning over the pages, confess that we shrink appalled from such a task; so systematic and comprehensive is it in its arrangement, so unfemininely brief in its instructions, so trenchant and terse in its language that it will bear no epitomizing, and we must refer the architectural reader to the book itself if we would not do it a gross injustice. We will answer for the deep interest it will excite in those who make a study of such matters.

While upon the subject we must regret that that which has been latest done in Dublin in hospital extension has, from want of funds, we believe, not been up to the mark of our present state of knowledge (the architect in all cases, we may mention, is clear of any responsibility in the matter). A wing of the Hardwicke Fever Hospital has been extended without affording sufficient cubic space (about 800 ft. we understand) per bed—we scarcely think the governors in the face of modern science are justified in perpetuating such a state of things; but we are disposed to think the new ward of the Richmond Surgical Hospital still more open to objection. It is not that the cubic space is very insufficient, or that an attempt has not been made to carry out the pavilion system, or that the architect has not done the very best thing in his power in his restricted circumstances, but we feel that any extension of this Hospital is "throwing good money after bad." The building is old, in different repair, and inconvenient in arrangement, and the new ward, extending out from the rear of the building, being completely shut off by it from North Brunswick-street, and flanked by buildings on either side, will enjoy a very imperfect circulation of pure air, and accordingly fail in one most essential condition of a healthy hospital. Something might certainly be done to better it were the Governors to acquire the adjoining house and pull it down, as was done at St. Vincent's Hospital, thus affording at least a free passage of air along one side of the building; but we would much prefer to see the building on a more desirable site altogether. We are disposed to think that of the subjects treated by Dr. Mapother those remarks relating to convalescent hospitals call most immediately for the attention of a charitable public. This point has been much neglected, and, pending any general steps being inaugurated, we commend the plan of the Wilts Herbert Memorial to the consideration of architects. As architects or members of other professions, we can do but little in our individual capacity to help forward the cause of health in the fearfully neglected lanes and alleys of our city, except by urging on the Corporation, as citizens, the work which they have to do, and the responsibility which they incur. After all it is hard to draw the line where our responsibility as individuals ends, and as a community begins. We all shrink somewhat unworthily from the stern logic of Registrar-Generals' reports, and from looking for ourselves into the fearfully neglected state of our poor. The unnecessary deaths of many little ones and the shipwreck of many a poor wanderer is at our doors. Criminal we may not be while we are ignorant of these things, but how is it when we see them and "pass by on the other side."

Some remarks on this subject, not unworthy of reflection, extracted from our contemporary the *Irish Times*, will be found in our columns.

#### SAINT PATRICK'S CATHEDRAL—A SUGGESTION.

THROUGHOUT the long progress of the works at St. Patrick's, and amid the storms of criticism which have raged over it, it has been the anxious desire of this journal to hold the balance evenly, to abstain often from what would have been honest and well-intentioned criticism which might bear in the least degree the aspect of cavilling; feeling that what was done was being done for the best, and that Mr. Guinness's princely gift deserved this treatment at our hands. We therefore venture to hope that a suggestion, urged upon us by more than one architect of eminence, and the great importance of which is impressed on our own mind, will be received in the friendly spirit in which it is offered.

On entering the nave at the west end one is startled

to find that the noble church, now open throughout seems considerably shorter than it did when that desirable end was first accomplished: and it is not long before the practised eye detects the cause of this optical effect, in the new window which has been erected in the eastern gable over the arch between the choir and the Lady Chapel. It is here that the eye most looks for lingering sweetness longest drawn out, and the large masses of brilliant color, particularly of "advancing" reds, have had directly the contrary effect, the choir seems dwarfed by it, and the church robbed, we had almost said of half its noble dimensions. We desire to say not one word in disparagement of the window as a work of art, but only of the unexpected metamorphosis which it has effected in the building by the accident of its position. Is it too much to hope that when so much has been done, and well done, and no indisposition shown to remedy a mistake so soon as it appeared to be such, that this alteration, comparatively trifling as a question of cost, may meet with the attention it deserves from those engaged in the work?

The windows in the western end and south transept are pleasing in tone and lights of their cooler hues, and smaller treatment would effect a marvellous improvement in the eastern end, and also harmonise more agreeably with what we yet hope to see the roof of the Lady Chapel, decorated in color, as has been done, and well done, at Chester and other places.

There are points of minor importance of which we would gladly speak, but fear lest we may have exceeded already a privilege which perhaps we should never have assumed.

#### NEW CHURCH AT JONESBORO', CO. LOUTH.

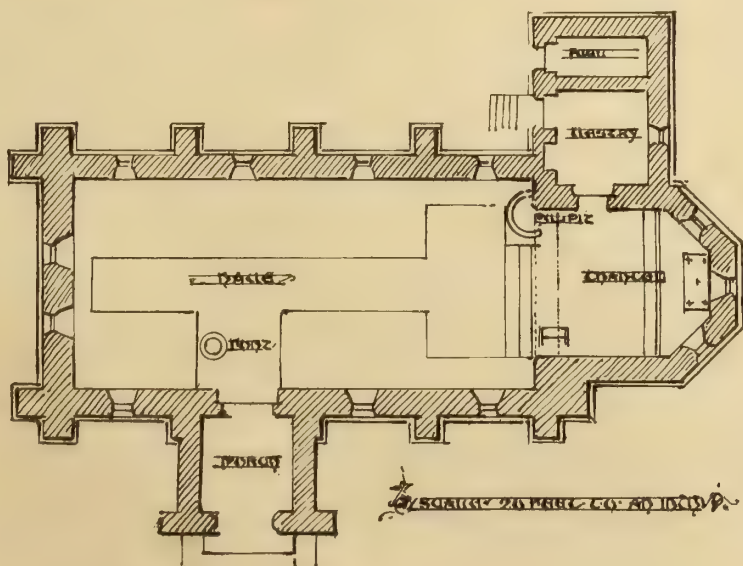
THIS church a sketch of which appears in this number, is not presented as possessing any remarkable features of design, but as a model of a church in which the requirements of the service of the Protestant Church are fairly provided for in an inexpensive manner. The church will accommodate 130 persons—the material is the granite of the locality. Mr. Matthews of Dundalk, builder. Cost, we understand, £800 to £900.

#### A GREAT ENGINEERING FEAT.

CALLED by my duties the other day to this small but active seaport I was fortunate in having the opportunity of seeing the first experiments in Mr. Brunlees' daring scheme to lift a railway over the great Serra do Mar, which at this part of Brazil separates the seaboard from the interior of the country. The San Paulo Railway, a line in the hands of English capitalists and English directors, runs from the port of Santos into the country to the village of Jundiáhy, a distance of 88 miles, touching on its course the capital city of San Paulo. Eight miles from Santos commences the vast mountain chain which runs along the coast for hundreds of miles, and is known as the Serra do Mar. It seems to assume its grandest proportions at the only point where the province of San Paulo can be entered from the sea, and it is at this point that science has been called upon to grapple with the tremendous difficulty of crossing the dividing ridge by a railway which attains in the course of five miles of mountain steep an elevation of 2,600 ft. The conquest of this enormous difficulty by the skill of the engineer opens up the most important province in Brazil to easy access from without, and will give a rapid and cheap means of exit to the boundless products of a coffee-growing country, fertile beyond example. These facts give a special importance to the railway and its wonderful passage over the Cordelheira. In the province, the undertaking is a much engrossing topic, and the Imperial Government of Brazil, pledged to a guarantee of 7 per cent. on the capital outlay, watches with interest these important works as they approach completion, an event now happily not far distant.

It was notified in Santos that his Excellency the President of the province had received Imperial commands to visit the works on the incline over the Serra, about which scientific speculation had been so active, in order to observe and report to the Government as to the experiments about to be made for ascending the first "lift" by motive power. The town became very animated, and on the morning when the ascent was to be made the President and his staff were joined by about 300 inhabitants of the place, and were received at the station by the chief resident engineer and the company's agent, and conveyed by train to the foot of the Cordelheira.

\* Notes on Hospitals. London: Longman, Green, Roberts, and Green. Third edition. 1863.



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From Santos to the commencement of the ascent the railway runs over a swampy country, wretchedly rotten, and reeking with miasma, till, crossing the Cutatao River, eight miles from the sea, it approaches, by a woody defile in the rocks, the gorge up which it has to climb, till, 2,600 ft. above, it passes out through an opening in the heights on to the "campos," over which it runs on into the interior of the province. It is this enormous ascent which gives to the undertaking its emphatic character. Passing the Mugy River, and at each step becoming more and more confined, the black defiant ravine is suggestive of anything rather than an outlet for a railway course, which goes winding and ascending, crossing mountain torrents, leaping gloomy chasms, cutting through solid rocks, still working upwards, till at length after five miles of such Titanic effort it passes out on to the "open."

Your readers will gather from this some idea of this daring scheme,—so daring indeed, and so hopeless has it looked, as to be laughed and voted a thing among engineering impossibilities. The Brazilian could not realize the constancy of human effort tearing a railway from the sides of the rocks and carrying it away up into the clouds. The thing has, however, been done, and hence the interest shown by the good folks of Santos, who were naturally enough curious to accompany the President to the slopes of the Serra that they might see the process by which henceforth they are to be carried over the Cordelheira into the smiling province beyond. Permit me to explain briefly how this transit is to be accomplished.

The entire ascent is divided into four "lifts," or inclines, of a mile and a quarter each, running at a gradient of 1 in 10. A level platform, or "bank-head," marks the summit of each incline, and at the upper end of the platform is a stationary engine. This engine has double cylinders of 26 in. diameter, with a 5 ft. stroke, and has been calculated to haul up 50 tons at the rate of 10 miles per hour. Five boilers of the Cornish description are placed with each engine. On the upper half of each incline there is a double line of rails, with arrangements for passing places on the middle of each of these "lifts." A single line of rails then runs on from the centre to the foot of each of the four divisions into which the ascent is divided. A steel wire rope,  $1\frac{1}{2}$  in. diameter, is made for pulling up the ascending trains. This rope, tested to a weight far exceeding the requirements that will be made upon it, passes over friction wheels, and is attached to the fly wheel shaft. The inclines are therefore partially self-acting, at the same time passing one train down to the foot of the Serra, and drawing up another to the higher levels on its way out to the province beyond.

The above description of one of these inclines will serve for the whole. The mechanical contrivance is in each case substantially the same, and the nature of the steep over which the line passes varies very little. Everywhere, a wild, defiant, frowning majesty marks the scenery through which these wonderful inclines wind their serpentine way. On the third division, however, there is a ravine, more gloomy than any other. This "Bocca do Inferno," for so it is called, is 900 ft. in span on the level of the railway, and is crossed by a viaduct, resting upon clusters of iron columns, which spring up from enormous stone piers 200 ft. below the centre of the line which passes over them. The "Bocca do Inferno" is now alive with human activity, which loads the air with music; men are swarming in the clefts of the rocks at every available point, and great efforts are being made to connect the two sides of the ravine, so that trains may pass over it, and the whole ascent may be made ready for the public. The completion of the four divisions of the incline is therefore not very far distant. The first division is in operation, and it was to witness the inaugural experiments that the Brazilian Government had commanded the presence of the President and his official staff on the day when I passed by permission over the inclines with the rest of the company.

Passing the Mugy river and reaching the foot of the Serra, there was a little delay while the locomotive was uncoupled, and the train was attached to the rope by which we were to be hauled up into the cloudy levels above us. You can well imagine the restless curiosity of the company, and the desire manifest on all hands to know about the process going on around us. When information can be had by asking for, the Brazilian commences the pursuit of knowledge with a very becoming zest, and here the company's agents, the contractors, and all the officials, showed a ready willingness to meet their friends half way. Soon, however, the train was got into motion, and by slow hesitating paces we commenced our ascent. Presently the speed improved and the motion became smoother, and in eight minutes we were on the level platform which forms the "bankhead" of the first lift of the inclines, having passed at the centre point the down train,

which was running on to the level below. Once or twice on our ascent the train came to a stand still, and the ascending and descending carriages were suspended and held fast midway on their courses, by way of demonstrating the absolute safety and control in which all the operations were held by those who had charge of the machinery on the levels above us.

Arriving at the summit, the President proceeded to examine in a very minute manner the machinery and all the details by which the inclines will have to be worked, taking note of the accommodation for receiving and despatching ascending and descending trains, and making searching inquiries into the bearings of all he saw passing before him. The entire party seemed to participate in this desire to know as much as possible, and officials everywhere were fully employed in meeting the demands made upon them. The ascent had been in the highest degree satisfactory, and at the conclusion of the trials and examinations made by the President, his Excellency expressed his sincere pleasure at what he had seen, and his conviction that an immense, almost an insuperable difficulty, had been completely vanquished by the daring skill and persistent efforts of engineering science. In the evening the party returned to Santos, and seemed in a very emphatic spirit to endorse the opinion of the President as to the results of the experiments they had witnessed on the Cordelheira. Some eighteen months will yet be required, however, to complete the line on its entire length of 88 miles to Jundiaby. In the meantime its immediate extension to the city of Campinas is occupying the attention of the province, and is, I am told, under the consideration of the Imperial Government. Mr. Brunlees, the chief engineer, having already submitted plans for the inspection of competent authority. Campinas is the legitimate terminus of this line. Jundiaby is but a small and unimportant village, while Campinas is the centre of the finest coffee-producing district in Brazil. The importance, therefore, of this city as a terminus is evident, and indeed till it has been reached, shareholders will not know the value of their investments, and managers will not have sounded the resources of the country into which the line runs. Meanwhile in Europe the success of the engineer in his attempt to cross the Serra do Mar will be read with satisfaction, as a conquest won by science in a district yet new to commercial enterprise.—*Correspondent of the Times.*

#### MONUMENTS, STATUES, ETC.

The statue of his Royal Highness the late Prince Consort at Perth was inaugurated by her Majesty on the 30th inst. The statue, which stands on the Inch or Green, at Perth, was executed by Mr. Brodie, of Edinburgh. The material is Redhall freestone. The figure is 9 ft. in height, and the robe is that worn by the Prince when attired as a Knight of the Order of the Thistle. The dress is the doublet and trunk hose of the old Scottish Court, and the figure bears not only the insignia of the Scottish, but also of the great English Order of Knighthood, the garter being worn below the left knee. The right hand rests on a square column or pedestal, and holds an open scroll, on which the outlines of the Exhibition building of 1851 may be traced. The figure is set upon a pedestal 13 ft. high, making the whole height 22 ft. The statue is surrounded by a malleable iron railing, consisting of stars and crosses with floral balustrades.

The Hereford statue, by Baron Marochetti, of the late Sir G. C. Lewis, is now raised in front of the Shire-hall at Hereford. The base consists of a block of unpolished Penrhyn granite, on which rests a moulded polished pedestal, surmounted by the statue. The figure of Sir George is cast in bronze, and is 7 ft. 6 in. high. He is represented as standing with his arms folded upon his breast, and the likeness is said to be admirable. The total height of the memorial is 14 ft. The pedestal bears the following inscription:—"Sir George Cornewall Lewis, a wise and honest statesman, a profound scholar, a kind and firm friend; M.P. for the county of Hereford from 1847 to 1852; chief steward of the city; Chancellor of the Exchequer from 1855 to 1858; Home Secretary from 1859 to 1860; Secretary for War from 1860 to 1863. Born, 1806; died, 1863." The statue was erected under the supervision of Mr. Chick, county surveyor for Herefordshire, and Baron Marochetti superintended the raising of the figure on the pedestal.

The statue of the late Prince Consort erected by voluntary contributions on the grounds of the Licensed Victuallers' Asylum, Kent-road was designed and executed by Mr. Thomas Earle, of Vincent-street, Brompton, at a cost of between 600 and 700 guineas.

A memorial statue which has been erected in the Abbey-yard, Tavistock, to the late Duke of Bedford is of bronze, 7 ft. in height, and represents his Grace in the robes of a peer. It stands on a circular pedestal of granite, which was raised upon the Duke's

estate. The pedestal bears the words:—"In honour of Francis, seventh Duke of Bedford, erected by public subscription."

A correspondent writing to the *Guardian* objects to the course taken by the friends of the late Mr. Thackeray, in having obtained permission to erect a monument in Westminster Abbey as a memorial of that writer. The opinion of a writer even so long as fifty years ago is quoted, likening Westminster Abbey to a statutory yard, and regretting that those statues erected since Canning, Peel, Campbell, and others, had not been placed elsewhere, as being more advantageous for their effect and examination, and less calculated "to obscure the beauties of that glorious pile." St Paul's Cathedral is suggested as a suitable place, which satisfied the friends of Mr. Hallam and Lord Lyons, and where Bishop Bloomfield's recumbent statue is placed.

A Royal decree issued at Madrid appoints a committee of directors to erect a statue in honour of Christopher Columbus.

Nuremberg promises a monument to Stonewall Jackson. The way in which Nuremberg has come to promise it is rather curious. A young man from Nuremberg, named Volk, emigrated to America as journeyman cooper. After arriving there his early passion for art grew stronger; he made sketches for illustrated papers, and gradually became a self-taught artist. The war found him at Baltimore, whence he wandered south, and was engaged as a draughtsman on the staff of one of the Southern generals. He had made a bust of Stonewall Jackson from a mask which he took from the dead face; and when the monument was put up to competition by the Southern Government the young German artist won the prize. But even then he had to find means for executing his work, and for this he ran a ship laden with cotton through the blockade and brought it to Europe, where the sale of the cotton gave him the funds required. He is now at work on the monument, which represents the General on horseback, a fine Arabian steed from Stuttgart serving as a model for the horse; Jackson's left hand holding the reins, his right resting calmly on his hip, and his whole bearing characterised by native boldness and energy.

It appears that the Federal States of America are about to commemorate their victory at Gettysburg by a monument designed by Mr. J. C. Batterson, of Hartford, Conn. A shaft of marble rises from a base and is surmounted by a statue of "Liberty." Statues of "History," "War," "Peace," and "Plenty," are to be placed at the angles of the base.

Several monumental brasses have recently been placed in Westminster Abbey, and show by their unobstructive propriety and fitness of such memorials for interiors which, as at Westminster, are already overfilled with sculptures of a character strangely and offensively in contrast with the architecture. The best of these brasses is that of Bishop Monk, of Gloucester; we prefer it not because it displays all the accessories characteristic of ancient brasses, but because the designer has studied the architectonic propriety of such works. No such consideration was given to the figure of Robert Stephenson, which, by having no support to the head and feet, suggests the act of floating on its back. We trust some accessories will be added to this monument; the diaper incised on the slab is a welcome addition to its decorative character, but it actually increases the look of suspension the effigy has, and will do so until accessories are added. Fanatical mediævalism is displayed in the brass of Sir Robert and Lady Wilson; therein the good soldier appears in all the trappings of a fifteenth century knight, with basinet, coif de mailles, hauberk, surcoat, cuisses, genouillères, dog at foot, and what not. We see no objection to the dog, that being as good an emblem now-a-days as of old, but the costume is preposterous, and its execution inexcusable: see the ignorant manner in which the dagger belt has been represented. The most recent of these monuments is that to Sir C. Barry; comprising a crocketed cross inlaid at the ends of the limbs, and the intersection with the Evangelistic emblems in enamel, two shields of arms, brilliantly enamelled, as placed by the side of the stern, and, below them, an elevation of that not very fortunate mass of building, the Victoria Tower, and a ground plan of the Houses of Parliament. The departure from the character of the erected tower which is marked in the elevation in question with regard to the entrance, is, we presume, a sort of protest on behalf of the deceased that his design was meddled with. So far as they afford portraits of the deceased, we prefer the Stephenson and Monk brasses to the elaborately architectural memorial of Sir C. Barry. The last might well have been elegant in its form.—*Athenæum.*

It is understood that the Prince of Wales is about to erect a new palace at Abergeldie, Scotland. Mr. Smith, of Aberdeen, the architect for Balmoral Castle, is engaged in the design.

## THE SLIGO CATTLE SHOW.

ONE of the principal objects of interest presented to us this month is the annual show of the Royal Agricultural Society held this year at Sligo. Short horns and shearlings scarcely come immediately within our province, but everything, which bears directly or indirectly on the development of our national resources, does in some measure, and in this department the show appears to have been fairly successful,—the prizes well deserved and fairly adjudged. The department in which we take a more especial interest—that devoted to machinery—seems to have been generally considered as a failure to a certain extent. The remoteness of Sligo may have deterred English firms from exhibiting,—although in similar circumstances it has not hitherto done so—but whatever may have been the reason, this branch of the show was almost exclusively confined to the productions of native firms. It is to be hoped that the additional interest thus concentrated on these exhibitions may stimulate them to renewed exertions to deserve the attention which we believe was bestowed on them. It was the subject of universal remark that the appearance of the implement department contrasted strangely with the splendid display to which the society was accustomed. In the whole yard there were only two steam-engines at work, one of which, manufactured by Barrett and Exall, of Reading, was upon the stand of Mr. M'Kenzie, and the other was brought by the Messrs. Ashby. Instead of the clatter of thrashing machines, the perpetual whirr and motion of smaller wheels, and the air of activity which used to fill the sheds occupied by eminent English manufacturers, there was almost complete silence, and though the exhibitors who attended deserve considerable credit for the fine collections of implements they brought, there was a noticeable absence of competition, and a pervading sense of dulness. Even the trial of flax-scutching machines, which had been looked forward to as the great feature of the show, does not give satisfaction. Those who know how important it is to the interests of the country that the machine which obtained the special prize of the society (£30) should be thoroughly suited to its purpose, and that the profits derived from flax cultivation should not be exclusively confined to one province, will at once pronounce it necessary that a full and complete trial should have been made of the merits of different inventions, and that none should be sent out without the sanction of a great institution like this, whose efficiency had not been fairly proved. Even those who do not question the award which gave the prize to Mr. Gray of Uddingston admit that the trial was not decisive. The conditions are—simplicity in construction, moderation in price, adaptability to the horse gear of a thrashing machine, &c. The flax, it is clear, should have been weighed before scutched, and weighed after, so that there could have been no dispute about the quantity of waste or the quality of the work. Mr. Friedlaender's machine obtained almost universal approval by practical men. The principle upon which it is constructed is as novel as it is intelligible; it consists of a series of blades fastened to the circumference of a large wheel; these are composed of three factors, a wooden blade which stulles the flax, then scrapers which tear and hackle it in imitation of the working of the human fingers, and lastly a strong knife. The flax is supplied upon a moveable face board, which at once prevents injury and waste. Mr. Gray, on the contrary, adopts the familiar principle of the fan, and those who favour Mr. Friedlaender object to this, that efficient working is made to depend too largely upon skilled labour. The machine patented by Mr. Nevin consists of a series of intersecting fans, and that of Mr. Graham, of Dublin, who did not compete, but who, as usual, is a leading exhibitor in the implement department, adopts the use of blades, which scrape and hackle the material. On the trial day, the engine upon Mr. M'Kenzie's stand was lent for the purpose of working the scutchers, and an indefinite quantity of flax having been supplied to each, the competition proceeded. The quality of the flax scutched by Mr. Friedlaender was generally admitted to have been best, but the quantity of waste is alleged to have been greater. Mr. Friedlaender denies this, and those who objected to the award of the judges, allege that the waste which proceeds from his machine is almost, if not quite, as valuable as the flax scutched by others. One reason, it is thought, which influenced the decision of the judges in favour of Mr. Gray was the cheapness of his machine, which, with rollers, only costs £30, while Mr. Friedlaender's, without rollers, costs £35. Yet this fact did not seem to affect the sale of the latter machine, of which several were sold, and many ordered during the show.

Mr. M'Kenzie exhibited a most remarkable and certainly most novel implement, a rotary reaping machine. A large wooden barrel is placed upon a circular table, and fitted with apparatus, which, as

the machine moves forward, causes the barrel to revolve, carrying with it half a dozen large blades which, crossing a system of knives adjusted to the circumference of the stationary table, cuts the wheat in swathes with an action closely resembling that of scissors. The machine is quite as simple as it is ingenious, and is very light in draught. Many of the most eminent English firms are represented upon his stand. Another Irish firm which deserves to be spoken of with cordial commendation is that of Messrs. Kennan and Sons, of Fishamble-street, Dublin, who exhibited an unusually large assortment of iron and wire fences, amongst which might be noticed their improved straining and intermediate posts, a rather novel fence for tops of sunk fences and ditches, having curved standards to prevent the possibility of mountain sheep getting over. They also showed specimens of the fence to be erected round the pond in the Phoenix Park, Dublin, for which they have been the successful competitors. It is gratifying to find an Irish, and especially a Dublin firm, able to compete in this important branch. The trade which Messrs. Kennan & Sons are now doing in the manufacture of lawn-mowing machines is very encouraging. The tilt-action mower exhibited is the newest machine of the kind, while the garden seat, designed and manufactured by them, shows that the horticultural branch of their business is as energetically followed up as the agricultural and mechanical.

Some very fine implements were to be seen upon the stand of Messrs. Richmond and Norton, of Liverpool, who represented many of the most eminent English manufacturers, whilst they also illustrated their own mechanical ingenuity. Chaff-cutters, corn-crushers, horse-rakes, ploughs of all kinds, were exhibited by them. It is scarcely necessary to refer to the ingenious washing machines of Mr. Bradford which have now found their way into every large laundry; the vulcanized india-rubber bands and hose made by Mr. G. Dodge, of London; the patent haymakers of Messrs. Ashby and Co., of Stamford; and the well-known American reaping machines of Wood, exhibited by Messrs. Toole and Co., of Westmoreland-street, Dublin. Some of the more successful forms of the popular sowing machine were exhibited here, as at every annual show.

## Railway Intelligence.

NEWRY AND ARMAGH.—The half-yearly meeting of the Newry and Armagh Railway Company was held on the 31st ult., in Newry. There was a very strong expression of opinion against the Ulster Railway Board for refusing the Newry and Armagh Company access to the Armagh Station, as had been agreed upon. The station of the Newry and Armagh line is now one mile from the city of Armagh, and passengers have to be conveyed to it by omnibus. The revenue account exhibits the working of the short section between Newry and the Dublin and Belfast Junction Railway at Goragh Wood—a distance of about three and a-half miles. The gross receipts do not quite equal those of the corresponding period of 1863, but this is to be chiefly attributed to the dismissal of the heavy staff employed by the contractors consequent upon the completion of the works. The following is a comparative statement of the traffic for the past three years:—

	June, 1862.	June, 1863.	June, 1864.
Coaching ..	£756 9 6 ..	£307 17 0 ..	£747 7 11
Merchandise ..	962 6 4 ..	892 17 11 ..	859 19 9

£1,718 15 10    £1,700 14 11    £1,607 7 8

Tonnage .. 16,400 tons; 15,854 tons; 16,371 tons.

The receipts from all sources amounted to £1,805 10s. 9d., the working expenses to £1,299 19s. 8d., leaving a balance of £505 13s. 1d.

NEWRY AND GREENORE.—There were laid on the table of the Board of Guardians, on the 31st ult., maps of the proposed line of railway between Newry and Greenore.

BELFAST, HOLYWOOD, AND BANGOR.—The accounts show an expenditure upon the permanent way and works of the sum of £79,734 18s. 3d.; upon land and compensation, £27,799 1s. 7d.; upon parliamentary expenses, law costs, and engineering, £12,533 15s. 7d.; and upon interest on mortgages, arbitration, management, &c., £2,184 13s. 11d.—making a total expenditure upon the undertaking of £122,252 9s. 4d.

BELFAST AND COUNTY DOWN.—The receipts for half-year ending 31st ult. amount to £18,969 17s. 10d., and for corresponding half-year to £17,313 15s. 10d., showing an increase of £1,656 2s. This satisfactory result has been realised without any increase in that portion of working expenses chargeable to traffic account.

PORTADOWN, DUNGANNON, AND OMAGH JUNCTION.—The steady increase in the traffic receipts, since the opening of the extension to Omagh, continues satisfactory. Since the 30th June last, the

average gross receipts have reached £400 weekly, being at the rate of £21,000 per annum, or double the rent which the Ulster Co. pays to this company.

WEST COCK.—The annual meeting of the proprietors was held on the 31st ult., at the company's offices Gracechurch-street, London. The works on this line have made good progress during the last six months. From Bandon to Dunmanway, a length of 17½ miles (with the exception of 1½ miles still under progress), is completed. Of the remaining portion of the line from Dunmanway to Skibbereen, a length of 15½ miles, 4 miles have been already made, and ready to receive the permanent way. A few months more it is hoped will see this line of railway open for general traffic. The attention of the board is still directed to the desirability of making Crookhaven a port of call for American steamers, now that the subsidy has been withdrawn from the Galway route, and of continuing their line to Crookhaven.

CORK AND YOUGHAL.—The thirty-sixth half-yearly meeting of this company was held on the 31st ult., at the offices, in Gresham House, Old Broad-street, London, Sir Cusack Roney, the chairman of the board, presiding. The receipts for the half-year ending 30th of June last, from traffic have been £12,328, showing an increase of £2,449 over the receipts for the corresponding period of 1863, when they amounted to £9,876. The average increase per week has been £94. During the first eight weeks of the current half-year the receipts have averaged £110 per week more than the corresponding eight weeks of 1863. Whilst the traffic receipts have thus increased, the working expenses have been considerably diminished. In 1862 they amounted to 88 per cent. of the receipts; in 1863 to 69 per cent.; whilst for the last half-year they have not exceeded 50 per cent.

RAILWAY ACCIDENTS AND THEIR CAUSES.—In the year 1861, 79 passengers were killed and 789 injured by railway accidents in the United Kingdom; in the year 1862, on an increased number of lines, 35 passengers were killed and 536 injured; and in the year 1863, on a still increasing length of line, 35 passengers were killed and 401 injured. The number of passengers in 1863 was 204,635,075, without including 64,391 season and periodical ticket-holders. Estimating even that these last travelled on an average only 100 times each, the number of passengers killed in 1863 was less than one in 6,000,000, and of passengers injured, less than one in 500,000. Of every five passengers killed three lost their lives through their own misconduct or want of caution, so that the number of passengers killed from causes beyond their own control was less than one passenger in 15,000,000. Of the passengers killed last year, twelve met their death by getting out of or attempting to get into trains when in motion, five by incautiously crossing or standing on the line at a station, one by leaning out of the carriage window on approaching a bridge (since widened), one by getting out on the wrong side of a carriage, one (in Ireland) by getting on the roof of a carriage and walking along the train. Of the 13 passengers killed in 1863 from accidents to trains, three lost their lives through collisions between trains, and ten from the trains getting off the line, seven of the ten in the accident on the Hunstanton line caused by a heifer being on the rails. Of the whole number of accidents to passenger trains in the United Kingdom reported to the Board of Trade in 1863—fifty-two in all, exactly one a week, and precisely the same number as were reported to the Board in 1862—thirty-two were caused by collisions with other trains, ten by the trains getting off the rails, six by their running off the proper line through the points being wrong, and only four from anything breaking or getting out of order. A large proportion of these accidents must have been preventable by careful management.

The *Daily Telegraph* of March 31st, in its description of Benson's Great Clock, says: "It is a triumph of ingenuity." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bedroom, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of watch and clock making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34 Ludgate Hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## Archæological.

DR. VON HAHN, Austrian consul at Athens, according to reports from Vienna, has been recently engaged on a series of excavations in the Balidag, supposed to be the spot where Troy stood. He was assisted by a band of thirty-six labourers in this work, and is announced to have succeeded in laying bare the Acropolis in its entire extent. The surface consists of masonry of the Cyclopean character common in the earliest edifices discovered in the countries inhabited by the ancient Greeks. No sculpture of any kind has yet been found, but numerous Hellenic coins, lamps, fragments of clay figures, &c., have been met with. The remains of the Acropolis lay imbedded under a layer of vegetable soil 13 feet in depth.

A discovery of antiquarian remains has been made at Largo, in Fife. A tumulus named Norries Law has long been an object of curiosity to antiquaries, and has now been thoroughly explored by order of Mrs. Dundas Durham, to whom the property of Largo belongs. The result was that an outer and inner circle of stones were disclosed, upon which a cairn had been raised. Many of the stones bore traces of the action of fire. Near the foundation of one of the circles a triangular cist was found, containing calcined human bones, and near it an urn, surrounded by pieces of charred wood. Silver relics of great interest had before been found in some sandhills close by. All the articles discovered have been presented by Mrs. Durham to the Scottish Museum of Antiquities.

The precinct of the Savoy, notwithstanding the decline and fall of the hospital, its chief structure, contained many commodious houses, and held a busy population. The king's presses were maintained here, and here all proclamations, Acts of Parliament, and gazettes were issued. Here, too, the books of the Royal Society and other contributions to popular and scientific literature were produced, as we learn from the title-page of the *Anglia Notitia*, now lying before us, which informs us that the work was printed in the Savoy by T. N. for John Martin, printer to the Royal Society, at the Bell in St. Paul's churchyard, in the year 1671. Besides the royal chapel of the Savoy, which was assigned to the parish of St. Mary-le-Strand on the destruction of the old church by the Protector Somerset, there were churches, or congregations, established for the Dutch, High Germans, French, and Lutherans, and also Protestant Dissenters. But the chapel of the Savoy alone possessed the privilege of sanctuary, and this circumstance drew into the place the worst characters, and often led to serious consequences. Whenever an attempt was made to follow a debtor or other offender into the precinct the mob assembled and executed summary vengeance, in accordance with the wild customs of the locality. In 1696, a creditor went into the Savoy to demand a debt of one who had taken sanctuary. The population immediately poured out from every nook and corner, seized the unfortunate creditor, tarred and feathered him, and in that condition conveyed him in a wheelbarrow into the Strand, and bound him to the may-pole, where they left him.—*Once a Week*.

DISCOVERY OF AN ANCIENT BUILDING AT TORWOOD.—A curious and interesting antiquarian discovery has just been made on Tappook-hill in Torwood Forest, in the parish of Dumfriesshire. The discovery includes a large circular building, intombed in a mound, a subterranean passage leading therefrom; the upper portion of a Scottish *quern*; a small iron hammer of ancient make; with other historical and monumental remains. Tappook, the scene of these discoveries, is located on the west side of the old Roman road, and about half a mile north-west from Torwood Castle. The proprietor is Lieut.-Colonel Dundas, of Carronhall, near Larbert; and it is at his instance that the excavations which have led to the present discoveries are being made. The building which has been disclosed is circular in shape, and the diameter is 32ft. 6in., with a depth of 10ft. What may be termed the main entrance is situated on the south-west side, and the descent into the chamber is accomplished by a stair consisting of ten steps. The staircase is elbow-shaped, and at the bottom it measures 4ft. 8in. wide; at the top 2ft. 10in. Adjoining it is the entrance to a subterranean passage, which is supposed to communicate with Torwood Castle. The hypothesis is partly confirmed by the direction taken by the passage, which is traced to a considerable distance from the building by interstices, or what possibly may have been auxiliary openings. The sides of the entrances to the chamber and subterranean passage are surmounted by compound lintels, and the whole building indicates a regular principle of construction. The stones have evidently undergone a rubbing down and dressing, so as to form tolerably regular blocks. In the bottom of the chamber the upper stone of a *quern* was found, together with a small hammer of peculiar make. The head is round like a bullet, with a point or spike projecting from one side. A "bing" of stones, weighing from 1lb. to 2lb. each, and nearly

all of one shape, was discovered in a part of the chamber. It is quite apparent that these have been selected for some object, possibly for using with the sling. Among them is one of rather a peculiar form. It is oblong in shape, and the centre on either side is hollowed out so as to admit of the insertion of a watch glass. One of the large stones with which the chamber was filled up is ornamented in two corners by a character or figure resembling a ram's horn. The bottom of the chamber is covered to a depth of two inches with what appears to be ashes or charred wood; and at intervals round the walls are cavities measuring six by nine inches. The theory of several gentlemen who have examined the building is, that it has been used as a watch-tower probably during Roman or Pictish times, or perhaps more recently. Another theory is, that it has been one of the dwellings of the aborigines of ancient Caledonia at the time of the Roman invasion. The chamber in some of its details corresponds very closely with those ancient habitations which have been found elsewhere in Scotland. The excavations, however, are not nearly completed. Possibly some additional light may be thrown on the subject in the course of a day or two.—*Scotsman*.

A correspondence has been going on in the papers, apropos of the restoring of the cross in front of the great Hotel, on the subject of the derivation of the word Charing-cross. It has generally been derived from *chere reine*, that is, Eleanor, the dear queen of Edward I. Mr. G. J. Wilde has, however, exhumed the following passage from the *Liber de Antiquis Legibus*:—"Quibus literis impetratis, ecce, rumores quod predicti prisiones fuerunt apud Cherringe juxta Westmonasterium," &c. The occurrence referred to in this passage took place in 1260, whereas Queen Eleanor died in 1291. The place was therefore called Cherringe long before the *chere reine* reposed there.

THE CAVERN OF BRUNQUEL (in the department of the Tarn and Garonne) and its organic contents have been described by Professor Owen, in the state in which he found it at his visit in January last, in a paper read to the Royal Society. From his abstract we select a few particulars. The contemporaneity of the human remains with those of the extinct and other animals with which they are associated, together with the flint and bone implements, Professor Owen said, was shown by the evidences of the plastic condition of the calcified mud of the breccia at the time of interment, by the chemical constitution of the human bones corresponding with that of the other animal remains, and by the similarity of their position and relations in the surrounding breccia. Among the principal remains of the men of the flint period described are the following:—1st, the hinder portion of the cranium, with several other parts of the same skeleton, which were so situated in their matrix as to indicate that the body had been interred in a crouching posture, and that, after decomposition and dissolution of the soft parts, the skeleton had yielded to the superincumbent weight; 2nd, an almost entire calvarium, which is described and compared with different types of the human skull, shown to be superior in form and capacity to the Australian type, and more closely to correspond with the Celtic type, though proportionally shorter than the modern Celtic and the form exhibited by the Celtic cranium from Engis, Switzerland; 3rd, jaws and teeth of individuals of different ages. After noticing other small portions of human cranium, Professor Owen described the lower jaw and teeth of an adult, and the upper and lower jaws of immature individuals, showing the characters of certain deciduous teeth. The proportions of the molars are not those of the Australian, but of other races, and especially those of ancient and modern Europeans. As in most primitive or early races, in which mastication was little helped by the art of cookery or by various and refined kinds of food, the crowns of the molars were worn down beyond the enamel, flat and smooth to the stumps, exposing their central tract of osteodentine without any sign of decay. The Professor reserved his notice of the remains of animals killed for food and the flint and bone implements for a future communication.

Mr. Henry Dunn, foreman of the works which are proceeding on the site of Milton's house in Barbican, writes to the papers to say that collectors of relics may find some there to gratify their taste. The schoolroom and study where the poet wielded the ferule are not yet quite demolished, and the oak panelling of the rooms is still on the ground. There are also some panes of glass belonging to the old house. Why is it that people flock to the house where Shakespeare was born, while scarcely any care about that in which Milton kept school?

As the navigators working on the Llanelly and Swansea Extension Railway were excavating at Pontardulais, for the purpose of forming a culvert, and when at the depth of 10 ft., a large birch tree, a hazel tree with nuts on it, and, extraordinary as it may appear, a large basinful of nuts were picked up. All these articles were in excellent preservation, although they must have been there thousands of years.

## SCIENTIFIC.

The Meteorite of Orgueil has been further analysed by M. Cloez, who has reported to the Academy of Sciences that its density is equal to 2.56 when determined in a liquid which penetrates it, and to 1.85 in the contrary case—*e.g.*, in olive oil. Its composition is analogous to the organic part of several species of lignites (carbon, 63.50; hydrogen, 5.98; oxygen, 30.52). Iron is generally found in meteorites in the state of protoxide; in this meteorite it is partly in the form of magnetic oxide. No metallic iron or nickel was found, and only traces of phosphorus and a weak proportion of chromium. Peroxide of iron, 13.324; protoxide of iron, 17.924; silica, 24.475; hygroscopic water, 5.975; and small quantities of sulphuric acid, sulphur, alumina, magnesia, lime, soda, potash, ammonia, earthy matters, and combined water.

The preservation of copper and iron in the sea has been made the subject of long research by M. Becquerel, who has submitted a memoir to the Academy of Sciences at Paris. The causes of the injury (mechanical, physical, or chemical) influence all the chemical actions, and tend to the production of electricity by means of isolated voltaic pairs. After considering the important experiments of Davy and others in regard to copper sheathing, M. Becquerel describes the careful method which he adopted in order to determine the amount of electric action required to decompose a milligramme of water, and to ascertain the electric state of all the parts of a protected metal, and thus to find the laws on which a system of protection might be based. In order to conduct these experiments on a large scale, the Imperial Minister of the Marine placed at M. Becquerel's disposal all the means desired, with the assistance of the most eminent naval engineers in the port of Toulon. The result of these experiments show, with regard to copper, that, as on every metallic surface there circulates by the intermediate liquid which wets it currents producing electro-chemical decomposition, if we wish to preserve a surface so as to avoid these deposits, we must arm the surface with an electro-motive power equal to that point at which these deposits become insensible. For this purpose laminæ of iron and zinc have been employed. Laminæ of copper, armed with iron, and laminæ of iron protected by zinc, present similar effects, with the difference that the sphere of electric activity is less, when the extent depends on the difference between the electro-motive forces of the protecting and protected metal. Whenever the iron is covered with several coats of white lead it is preserved so long as the paint remains; but when it is once removed, either by friction or by the slow dissolving action of the sea, the metal is attacked in various parts: those which have lost the paint become negative, and the local alterations are gradually disseminated. For further details we must refer to the *Comptes Rendus*, vol. lix., No. 1. M. Becquerel trusts that the means proposed will be found to be successful in preserving vessels from the action of sea water and from the attachment of marine animals.

It will be an interesting fact for the scientific world to learn, from a recent account of the doings of the French artillery in Mexico, that all the calculations which hold good in Europe with regard to the range of projectiles, in comparison with the quantity of powder used and weight of ball, were completely in error, owing to the rarity of the air and consequent diminution of pressure.

The "*Mechanics' Magazine*," Sept. 5, speaking of Benson's watches, says:—"The number of watches produced at Ludgate-hill is something enormous, touching 15,000 yearly, manufactured on the most approved principle of division of labour, under the personal superintendence of the principal. The firm, as we understand, does not profess to make watches at the lowest price, but the best watches at the price; and from the magnitude of their business, and the necessity for more extensive premises, we may fairly judge that they have received the impress of public approval." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medalist, Class 33, honourable mention, Class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## NOTES FROM GLASGOW.

(FROM OUR CORRESPONDENT.)

Ranges of cut-stone houses of considerable importance, which in Dublin would be thought worthy of special remark, rise up here in a quiet way, unnoticed and unreported in any building periodical. As an instance, I may mention a range of shops with flats, over (in cut stone) which has been recently erected in Sauchie Hall-street. The building is 16 bays in width, and 4 stories in height, clever and even novel in design, albeit in the Greek style! I may mention, as an example for the imitation of our brethren, that there is here an architect of eminence, or more correctly speaking, a firm composed of two architectural brethren, the Messrs. Thompson, who have made this style their own; and Pugin-like decline to gratify what they believe to be the degraded taste of their clients, by working in any other; the hint is suggestive to architects "set in authority." An important building, erected by, and the property of the same architects, in Gordon-street, has been recently destroyed by fire—internally totally destroyed, and externally to a considerable extent—it is a very handsome and elaborately designed structure, and is now about to be restored.

Several churches have been erected by the same architects; one completed some four years ago in St. Vincent-street, at a cost of £20,000.

An extensive range of shops and warehouses—also by the Messrs. Thompson, and in their peculiar style, has been erected at the corner of Dunlop-street and Argyle-street, in which there is an abundance of cast iron employed, and an important feature of the exterior is a continuous balcony of that material, of a more than ordinarily elaborate design. The building stands on the site of the old Buck Hotel, and the angle or splayed part at the corner of Dunlop-street is surmounted by a huge buck quite too large for the limited demesne it enjoys; in fact this building is by no means so happy in its design and conception as many others by the same authors.

A Presbyterian church which I should think will cost £8,000 or £9,000 is approaching completion at Partick, one of the suburbs of Glasgow. Mr. Hamilton, whom your readers will know as architect of the Ulster Bank, Belfast, is the architect.

An English Episcopal Voluntary Church is in course of erection by the seceders from St. Jude's congregation, on a site adjacent to the river Kelvin, and close to the gate to West End Park. The church will consist of a nave and gabled side aisles; will cost from £8,000 to £9,000, and is by Mr. Honeyman. Another church, by Salmon, is nearly completed on the south side of the City. Several other churches are also in progress; one, at the corner of Dumbarton-road and St. Vincent-street, will cost from £5,000 to £6,000. Two others in the same neighbourhood do not call at present for special mention; one promises to be of a description that perhaps the less is said of it the better; the other is less objectionable, but is not yet sufficiently developed to afford food for criticism.

From these slight notices of a few of the works in progress it will be seen that the architectural world of Glasgow is not idle, and that there are many works in progress, further particulars of which would not be without interest to the readers of the DUBLIN BUILDER.

## CHURCH BUILDING, IRELAND.

A new Presbyterian church is about to be erected in Naas, Co. Kildare. The cost of the new erection is estimated at £800, and already a sum of £130 has been subscribed.

The Ecclesiastical Commissioners are about to remove the old flagged roof of St. Mary's Chapel of Ease, and to replace it with the best slating, &c. This heavy and expensive work will be carried out at the sole expense of the board. The interior of the chapel is about being painted. One-half of the expense will be defrayed by the commissioners, the other by the parishioners.

Messrs. Lanyon, Lynn, and Lanyon, Mr. J. Rawson Carroll, and Mr. Alfred G. Jones, have been invited to send in plans for a church, in a limited competition, by the trustees nominated under the will of the late Miss Shannon, of Belfast, who left a considerable sum of money in trust to be applied to the building of churches. This church is to be built at Sandycove, and the sum named, £3,000, for a church to accommodate 1,000, seems ridiculously inadequate. However, we await the result of the competition, to see if there is any solution of such a problem.

## CHURCH BUILDING, ENGLAND.

All lovers of art and church restoration must rejoice that some one both willing and able has been found to take up the great work of painting the roof of Ely Cathedral, left unfinished by the death of the late lamented Mr. Styleman L'Estrange. Mr. T.

Gambier Parry, whose own church of Hynam in Gloucestershire is so well known, has undertaken the work. His late essays on glass painting in our contemporary, the *London Builder*, have justly called forth the admiration of all interested in this important branch of art.

All Saints Church, Margaret-street, London, is for the present closed, for the purpose of being cleaned. Had the frescoes not been attended to this year, the delay of another twelve months would have made it too late to save them.

The foundation stone of a new church has been laid at Boston. Its probable cost will be £3,000. Architect, Mr. G. Hackford.

St. Benedict's church, Norwich, has just been re-opened, after undergoing alterations.

The beautiful church of St. Leonard, Newland, near Great Malvern, in connection with the almshouses for decayed agriculturists founded by the munificent charity of the late Lord Beauchamp, has been consecrated by the Bishop of Worcester, and the new buildings for the pensioners at the same time formally inaugurated. The buildings, church, and warden's house, with a connecting cloister, form three sides of a noble quadrangle, and seated in the midst of lovely scenery facing the Malvern Hills at about two miles distance, present a very striking object in the landscape. The church is surmounted by a light and elegant campanile. The whole group was designed and carried out under the superintendence of Philip C. Hardwick, Esq., architect. The interior of the church, though small and comparatively plain, contains some rich material and very fine work. It consists of nave and chancel, with an aisle to the latter, connected by a singularly beautiful arcade of marble piers capped with alabaster; a handsome low stone screen separating it from the nave. At the east end there is a sculptured reredos of the Crucifixion; and above it a painted window with our Lord in glory. The side windows of the chancel are also painted. There are at present only temporary stalls for the male pensioners, chorists, and clergy in the chancel, and for the female pensioners in the side chapel or aisle. The organ is also placed in the latter position. The nave, which serves the purpose of a parish church, is filled with chairs; and in the west wall there is a large aperture, opening into a dormitory or sick ward, for the convenience of pensioners.

The *Preston Guardian* states that the Rev. S. J. C. Adamson, late incumbent of Padstow, has offered to give £4,000 towards the erection of four churches, one to be built in each of the following places:—Padstow, Symonstone, Hapton, and Higham.

The Temple Church has been thoroughly cleaned, and the exterior on the north restored, under the superintendence of Mr. St. Aubyn and Mr. Smirke. It will be re-opened for divine service on the 2nd of October.

The Bishop of London has consecrated the new district church of St. Michael's, Binglefield-street, Caledonian-road, Islington. It will accommodate 850 persons, and has cost about £3,000.

The new chapel of St. John's College, which is being erected from the designs of Mr. G. G. Scott, is to receive an important alteration, from the munificent liberality of Mr. Henry Hoare, of Fleet-street, formerly a distinguished student of the college. Soon after the work was begun it was suggested to Mr. Scott that a massive stone tower, as a substitute for the *fleche*, or wooden spire, would be a great improvement in the design of the building. Mr. Scott warmly espoused this idea, and prepared a design for a tower upwards of 160 ft. high, and open within the building to the height of the second set of windows. The authorities of the college, however, finding that the proposed change would involve an additional expenditure of between £5,000 and £6,000, decided that they could not in prudence adopt it, and resolved to proceed with the work according to the original design. Mr. Hoare has recently proposed to the College, in a spirit of princely munificence, to erect the tower at his own expense. The offer has been accepted by the College, and the requisite changes in the plan of the building have been already commenced.

The sculpture over the gateway in St. Giles-in-the-Fields, supposed to represent St. Giles healing the sick, and which had an imposing appearance at the principal entrance to the church, has disappeared, and the whole is being superseded by a modern iron railing.

A brass, indicating that it was restored in memory of the late Bishop Denison, has been placed on the floor at the entrance of the Chapter-house of Salisbury Cathedral.

On Thursday, the 18th ult., a new church was consecrated in the large parish of Chesham, in the archdeaconry of Buckingham, by the Lord Bishop of Oxford. This new church, called Christ Church, has been erected in a populous suburb of the town called Waterside, and is designed as a chapel-of-ease to the mother church.

On the 11th ult. the Bishop of Winchester consecrated the church of Wootton St. Lawrence, Basingstoke, which has been rebuilt by Mr. Colson, architect (the old materials being preserved as much as possible), and a new aisle added. During the progress of the work some interesting memorials of a former age were discovered:—Carefully built into the walls, and fixed in their places with cement, were three boxes, each about 3 ft. 6 in. long, and about 4 in. deep. One of these was in the north wall, one in the south wall, and one in the tower; within two of these nothing remained but dust; in the third, charcoal or some charred remnants were left. No parchment or anything else which could yield a clue to the date was discovered. The Norman pillars when their footings were laid bare were found to be standing upon the foundations of a still more ancient north wall of some former church, and within the interior of these pillars were some remains of older columns, with fragments of floor tiles, and, singular to relate (built into the masonry in the easternmost pillar), a wooden trowel. Two coffin-shaped slabs without inscription, but wrought with ornamental crosses in low relief, were embedded in the ancient floor, one beneath a window on the north side of the chancel, and the other below the church floor where the pulpit at present stands.

St. Mary's Church, Plaistow, has lately undergone important alterations. Pews have been removed, and open benches have been placed throughout the church. An unwieldy pulpit, a reading-desk, &c., have been taken away; an oak pulpit on a stone pedestal, a lectern, and stalls for a surpliced choir procured. The organ has been removed from a western gallery to a position near the choir. The chancel has been ornamented with encaustic tiles, new altar-rails provided, gas standards of appropriate form put up, the vestry altered for the better ingress and egress of the choir, &c.

Lady Rokewood Gage has lately executed with her own hand an east window for Albury Church, Surrey, in memory of Mr. Henry Drummond, M.P., and Lady Harriet Drummond—two medallions containing the Crucifixion and the Resurrection, with a ruby background. In and below the former the passion-flower is freely introduced, while in the latter the lily is substituted; the windows are filled up with foliage, in which the vine bears a prominent part. The glass was prepared and burnt by Mr. A. Gibbs, of London.

The furniture of the Priory Church at Malvern has just received an addition in a new pulpit, prayer-desk, lectern, and a pair of chairs for the sanctuary, designed by Mr. Scott. The whole are constructed of oak, and the cost will not fall far short of £500. The pulpit is in plan a semi-quadrangle, with the three sides of an octagon jutting from the whole side or front. It is moulded and panelled, each panel having a carved centre on a diaper ground, terminating at the upper end with a carved foliage.

A memorial window of eight lights to Dr. Luxmore, formerly Dean of Gloucester, and subsequently Bishop of the Sees of Bristol, Hereford, and St. Asaph, has been erected in the east cloister of Gloucester Cathedral by his surviving daughters. There is a proposal to place a memorial window in the same cathedral to the memory of the late Sir W. Codrington.

Tewkesbury Abbey, erected in the 13th century, is to undergo restoration in accordance with the suggestions of Mr. Gilbert Scott.

## Public and Private Works.

A workshop of a temporary character has been erected at the rear of the establishment of Messrs. Kennan and Sons, Fishamble-street. It is principally deserving of notice as being a very successful application of the "bow-string" principle. If we are not mistaken, the span exceeds 35 ft., and the heaviest timber used in its construction does not exceed 3 in. by 1 in.; those in the lattice-work of the principals being 3 in. by 3 in. The top and bottom flanges are each in one piece—an important condition in the construction—and the weight of each principal does not exceed 1½ cwt. The outside covering is composed of rough ¾-in. sheeting covered with oiled canvas, and the shed is lighted by a kind of lantern light, and has been erected by Mr. Thomas Millard, builder.

Extensive additions are being made to the mansion of Major Irwin at Killadens, on the banks of Lough Erne, about six miles from Enniskillen; they principally consist of a handsome entrance-hall and reception-rooms, &c., and a new front to the mansion, in which a local marble is freely employed. The cost is about £9,000. Mr. Armstrong, of Beleek, architect; Mr. Thomas H. Carroll, of Dublin, builder.

Additional wards, to accommodate 40 patients, are about to be added to the Richmond Hospital, North Brunswick-street. Mr. Wm. G. Murray, R.H.A., architect. Mr. James Freeman, contractor.

## General Items.

About 6,400 silver coins of the reigns of Henry III., John, and William I. of Scotland, were discovered lately in an earthenware urn at Eccles, near Manchester. They have been claimed by government as *treasure trove*.

Public experiments are being made at Lyons at the present moment to satisfy all the world with a locomotive which ascends and descends inclines with facility. The point of support of the wheel is flung in advance of the movement. It will be some time before people trust themselves, even after the best scientific explanation and proof, to the mercy of a train gamboling o'er hill and dale.

It is said that the municipality of Paris proposes to build in the neighbourhood of the Hotel des Invalides fifteen large mansions, destined to be presented to French marshals and admirals.

The *San Francisco Bulletin* says that Sir Macdonald Stephenson, who projected the great railway scheme in India, has visited China for the same purpose. He proposes that Hankow should be made a common railway centre, from which should radiate trunk lines, to Shanghai, 650 miles; to Canton, 850 miles; and to British India, 1,600 miles. From Shanghai there should be a line to Peking, 850 miles. Sir Macdonald Stephenson proposes, however, that a short railway should first be made between Tien-Tsin and Peking, and between Shanghai and Soochow, to accustom the Chinese to the value of railway communication.

An Act of Parliament has been printed to amend the law respecting compensation to families for railway accidents. By Lord Campbell's Act, as it is generally called, an action must be brought for a death by an accident within six months in the name of the executor or administrator of the deceased. It may happen that a default occurs, or that the executor is unwilling to bring the action. Such action may now, however, be brought in the name of the parties entitled to receive compensation. By the same Act the jury had to apportion the money to be awarded, and a company could not pay an amount into court. It is now provided that one sum in the matter be sufficient to be paid into court; and if the jury consider the same sufficient, then the verdict on the issue to be for the defendants. The alterations now made are of an important character in railway and other accidents.

The famous cathedral of Notre Dame, Montreal, is one of the largest structures in North America. It is built of wrought limestone in the Gothic style of architecture. It is 300 ft. long by 150 wide, and has two towers on the east end, each 220 ft. high. This is just the height of Bunker Hill monument. A bell hangs in the north tower which cost £5,000; it weighs 20,000 lbs., and is rung by a tongue weighing 800 lbs. It is only rung once a month, and can then be heard for twenty miles around. The church will hold 20,000 people, and has already cost 5,000,000 dollars, though it is not yet finished.

Dr. Dethier has just concluded an investigation into MSS. of the once famous, but long lost library of Matthias Corvinus, King of Hungary, portions of which were in the Seraglio library at Constantinople. From a report that he has just issued it appears that the total number of Greek and Latin MSS. in the Sultan's library is 96. Of these only 16 can with certainty be pronounced, from intrinsic evidence, to be Corvinian. Of the remaining 80, some (although without any external marks of the Corvinian library) may possibly have belonged to it. But the larger proportion appears certainly not to be Corvinian, and may fairly be believed to have come from the spoil of Trebizonde, or even of the late Turkish forays in Italy and elsewhere. One MS. bears the name and arms of the celebrated Lodovico Sforza, Duke of Milan. Of the 16 Corvinian MSS. not one contains anything hitherto unedited. There is a dispute pending between the Turkish municipal authorities and the Fathers of the Dominican convent at Pera, as to a church, a wall of which forms part of a wall given by the Sultan for municipal purposes. The Dominicans are under French protection.

We understand that government has given Mr. James Mackay, of Liverpool, an order for one of his windage adaptation guns, the weight to be 10 tons, and the bore the same diameter as the ordinary 68-pounder. A 12-pounder gun on the same principle as the heavy gun recently tried will shortly be publicly tested. We are informed that the range already attained is much in excess of that of any other weapon.—*Times*.

Two freehold houses in Old Broad-street, London, near Gresham House, were sold by auction for £23,500, being at the rate of £300,000 per acre, or £560 per foot frontage.

The old system of signalling in the army and navy is virtually superseded by the magneto-electric and lime lights invented by Captain Bolton. The Lords of the Admiralty have finished some very successful experiments. The lime light will receive and trans-

mit signals with certainty to a distance of 23 miles. The range of the magneto-electric is greater. The lime light is now supplied to every ship in the Channel Fleet for night signalling, having superseded all other signal lights, and especially those with coloured glasses. The entire system of transmitting the signals by day and by night is available under all circumstances, and is expressed by jets of steam, revolving shutters, a collapsing cone or disc by day; by one bright light by night, and by a fog horn or steam whistle in a fog. The War Department and the Admiralty will name a commission to report on the advisability of establishing a conjoint set of signals for the army and navy.

The flax trade is exceedingly prosperous; every spindle and loom working full time. There have been 300,000 acres sown in Ireland. This trade carries agriculture along with it, and both flourish together. In Ireland there are in 1864 14 per cent. more spindles at work than in 1859, and five new mills are in course of erection. By a return recently made to the Belfast Linen Trade Committee it appears that: "with respect to linen power-loom weaving, in 1859 there were only 28 weaving factories, containing 3,633 looms, whilst in 1864 there are 40 factories, containing 8,187 looms, or an increase in five years of upwards of 125 per cent." This is a proof of Irish industrial energy. If we look to England we are presented with a very different picture. There the flax spindles have decreased 28 per cent. between the years 1856 and 1862.

A return, showing the annual value of all real property (including railways and canals) in all parliamentary cities and boroughs rated under Schedule A, to the Income and Property Tax in 1857 and 1862 respectively, has been issued. In 1857 the total value of real property assessed to income tax under Schedule A, in Irish boroughs, was £2,089,191; while in 1862 it was £2,443,195, showing the total increase within the five years to be £354,004. From the return in question we take the following figures:—Belfast, in 1857, £284,576; in 1862, £338,550. Dublin, in 1857, £989,231; in 1862, £1,175,402. Cork, in 1857, £183,202; in 1862, £210,408. Limerick, in 1857, £89,268; in 1862, £110,588. Waterford, in 1857, £65,419; in 1862, £94,023. Londonderry, in 1857, £57,772; in 1862, £72,847. Dundalk, during the interval, has doubled. The only boroughs in which a slight decline is set down are Armagh, Bandon, Youghal, Galway, Drogheda, Sligo, New Ross, and Wexford. In the counties the total value, as above, for 1857, is £9,826,095; for 1862, £10,957,351, or in the five years an increase of £1,131,256. It is somewhat remarkable that Mayo and Galway are found in the category of the largest increases. The total annual value of real property assessed in cities and counties in the United Kingdom in 1862 was £148,599,047, of which £120,059,963 represented England, £15,128,538 Scotland, and £13,400,549 Ireland.

The contract for the drainage works in the Athboy district has been given to Mr. Wardropp, builder, Conyngham-road, Dublin, under the able superintendence of R. A. Gray, Esq., whose engineering skill as developed on the Shannon and Boyne works leaves no doubt of the satisfactory completion of the Meath drainage improvements.

Sir Charles Trevelyan recommends the introduction of the sovereign into India as a legal tender for ten rupees.

In 1831, the town of Bradford, in Yorkshire, had a population of 43,527, and 8,193 houses. In 1861 the population had increased to 106,000, and the number of houses to 24,800.

The freshly erected cupola crowning the Church of the Transfiguration at St. Petersburg fell on the 18th ult. The loss of life would have been comparatively limited had not crowds of townspeople forced an entrance into the edifice beyond the control of the police or military in immediate attendance. The concussion created by the falling dome in a short time brought down the whole structure, overwhelming hundreds in the ruin.

The results of the examination in the Science and Art Department have just been published, and show the usual steady rate of increase in the number of artisans and others under instruction in the various branches of science which this department encourages. In 1863 the total number examined was 2,671, while in 1864 it was 3,264, being an increase of 593, or more than 22 per cent. Inorganic chemistry remains the most popular subject, there being 851 candidates against 679 last year. Animal physiology is second, 479 having presented themselves this year against 343 last. In nearly all the other subjects there is a steady advance. The actual numbers are as follow:—In geometrical drawing, 312 candidates; in mechanical drawing, 185; in building construction, 55; in theoretical mechanics, 43; in applied mechanics, 26; in acoustics, light and heat, 253; in magnetism and electricity, 269; in inorganic chemistry, 851; in organic chemistry, 142; in geology, 164; in mineralogy, 26; in animal physiology, 479; in zoology,

174; in vegetable physiology, 121; in systematic botany, 70; in mining, 22; and in metallurgy, 70. In the following five subjects taught in navigation schools which have this year been added—viz., Mathematics, navigation, nautical astronomy, steam and physical geography, there were 380 candidates.

A deputation of managers and masters of art schools has waited on Lord Granville, at the Privy Council Office. It was headed by Mr. Beresford Hope, who very ably dwelt upon the points which the schools desired the Committee of Council on Education to take into consideration before any new minutes founded on the recommendation of the late select committee of inquiry were issued. These were mainly that there should be an extension of the meaning of the term "artisan," so as to include small tradespeople, clerks, apprentices, &c., and that the schools throughout the country might be cheaply and efficiently worked, with an amount of direct state aid equal to all the fees and subscriptions raised by the schools themselves, viz., £20,000, as against £46,636, claimed by the Department of Science and Art to have been spent upon the schools during the past year.

The new Associates of the Royal Academy are Mr. Edward B. Stephens, Mr. Philip H. Calderon, and Mr. Frederick Leighton.

A remarkable new proof of the strength and solidity of English engineering work was given the other day in the case of the famous iron railing bridge of Langaa, in Jutland, which was blown up by the Prussians during the late campaign. The bridge was a costly one. 200,000 Danish thalers, or upwards of £22,000, was said to have been expended on it, and consisted of a single span across the river Guden, a few miles south-west of Randers, on the line to Viborg. The first explosion but partially succeeded, then one of the buttresses was blown up, and finally a charge of 60 lbs. of powder destroyed one of the tubular girders. This wanton act on the part of the Prussians has been universally condemned as an act of unnecessary barbarism and malicious destructiveness.

Mr. Edward Taylor is at present engaged on miniature portraits of their Royal Highnesses the Princess of Wales and Prince Albert Victor of Wales, Prince and Princess Louis of Hesse, Princess Victoria of Hesse, Princess Beatrice, and Princess Alberta of Leiningen.

A picture of no ordinary interest has just been secured by the directors of the National Portrait Gallery. It is the portrait of S. T. Coleridge, painted by the American artist, Washington Allston, considered by Wordsworth and other friends of the poet the most satisfactory likeness that ever was painted of him.

At Mechlin was opened, on the 26th ult., an exhibition of works of art lent by convents, corporations, guilds, and private collectors.

The coloured decoration of the new Assize Court at Manchester (an illustration and description of which appeared in our journal of April 1st, 1862) is by Grace of London. The gas pendants by Skidmore of Coventry. Architect, Mr. Waterhouse.

Sir Wm. Gibson Craig, the Lord-Clerk Registrar of Scotland, is about to publish calendars of the records and state papers of Scotland, from the beginning of the reign of James IV., in the year 1488, to the union; a series of chronicles from the earliest Scottish annals to the end of James V., in 1542; and finally, facsimiles in photozincography of the most interesting and important documents preserved in the archives of Scotland.

Towards the close of the year, the Society of Arts will offer prizes of nearly £200 for the best carvings in wood, which will be either exhibited at the Adelphi or Kensington.

A museum of fine arts and antiquities of the Middle Ages is to be formed at Florence. The whole will be gathered in a splendid palace of the 14th century, and will be a sight for tourists.

The works of the Thames Embankment are making extraordinary progress, and the deposits of earth between Westminster and Blackfriars Bridge are already beginning to have an effect on the tide-way. When old London Bridge (which served as a sort of dam) was removed, the water between these points fell five feet, and this, it is believed, will be more than counterbalanced by the new works. A portion of the earth now being carried to the embankment in front of the Temple Gardens is, curiously enough, dug from the foundations of new London Bridge, and was deposited on the bank of the Thames, eastward of St. Magnus Church. It is now, after a lapse of three-quarters of a century, again disturbed and deposited in the bed of the river a mile and a-quarter westward. In consequence of the number of public and private works now in progress in the metropolis, the contractors for the embankment are no longer compelled to pay for the *debris* brought to them; on the contrary, they charge a shilling per double load and eightpence per single load for receiving the rubbish. This will make a difference in their favour of several thousand pounds.

## Miscellaneous.

**TREASURES OF PRIMIERO.**—Approaching Primiero from the south, the first object is the church, which stands outside the town in this direction, with two or three other buildings of importance—the Canonica, the Furst Amt, &c. Accustomed in all these parts to Italian architecture, one is surprised to find in the Primiero church a grave Gothic building of the thirteenth century, lofty and imposing in its interior. The tall windows filled with small round panes of dull glass, and guarded outside by ornamental ironwork, cast a solemn light within, and on the walls of the chancel are faded frescoes, the arms of the chief families of the district, said, indeed, to be those of the workers of the mines, to whom the election of the church was due, and who, being German, adopted for it a German style. A curious crucifix, in dark walnut wood, over one of the altars was found, with a bell, among the ruins of the buried village; and the great boast of the church and the valley is a *monstranz*, or hand-shrine, for exhibiting the Host. It is of solid silver, two feet high, in shape like a Gothic spire, sheltering three fingers in gilt of St. Peter, St. Paul, and St. John. The centre, of Bohemian glass, forms a sort of lantern, and the whole weighs eleven pounds. It is accounted to be 650 years old, having been presented by the silver workers at the time the church was built, and became an object of such notoriety that the Venetian Republic, we are assured, desired to make it their own, by purchase, or even otherwise, if the Signori are not belied. They seem to fear no thieves now; remarking upon the insecurity of the sacristy, we were told that no robbery had been known in the valley within the memory of man. The priest of this church is the ecclesiastical superior of all others in the valley.—*The Dolomite Mountains.*

**ARTIFICIAL NITRE BEDS IN ALGERIA.**—In a paper addressed to the Academy of Sciences, M. Millon treats of the causes which tend to render saltpetre so abundant in Algeria. The natural formation of nitre generally depends upon the abundance of organic mould, which it is easy to replace by a pure principle, such as humic acid, extracted from charcoal or sugar. The simultaneous combustion of the humic principle and ammonia produces nitre, and M. Millon endeavours to point out the means by which the organic refuse of towns, so injurious to their sanitary condition, may be turned to account by the artificial production of nitre. But this organic refuse does not promote nitrification until it is transformed into mould of humus, when it may be applied to the purpose as M. Millon describes. He caused several rectangular basins to be dug in Algeria, half a metre long, and 35 centimetres broad by 22 in depth. Each of them was filled with from 15 to 18 kilos of nitrifiable mould; the basins were all rendered water-tight by a kind of mastic, and, in order to make water penetrate to the bottom before it touches the surface, three earthenware pipes were inserted perpendicularly into the mould, so that the water poured through them first reached the bottom of the basin, and then, gradually spreading, was sucked up by the mould, which at length became damp at the surface. The water thus supplied was slowly carried off by spontaneous evaporation, and in the course of a few days M. Millon, perceiving the upper surface to get dry, examined the contents of each basin, when he found that the superficial stratum of mould contained much more nitre than the lower strata, the difference in some cases being as 100 to 1. Even the tops of the earthenware pipes were in some cases covered with crystals of nitre. As ammonia is contained in mould together with the humic principle, if the former should become exhausted sal ammoniac ought to be added. M. Millon concludes with observing that the conditions of nitrification stated by him are everywhere to be found, and are often neglected. At Algiers they used to throw the best mould into the sea, and but a few years ago dung used to be burnt at the very gates of Constantia.

**SODA IN COAL GAS.**—On examining the flame of the gas employed in Munich, Professor Vogel remarked a pale soda line (double line of yellow light), which was not observed when the gas was passed through sulphuric acid. On analysing afterwards the deposit on the surface of a copper burner which had been in use a year, the Professor found a considerable proportion of sulphate of soda.

**WHAT IS LAW LIKE?**—Law is like a country dance; people are led up and down till they are fairly tired out. Law is like surgery; there are a great many uncommon cases in it. It is like physic too; those who take least of it are best off. Law is like a new fashion; people are bewitched to get into it; and like bad weather, most people are glad to get out of it.

**NEW PROCESS FOR PRESERVING TIMBER.**—A scientific gentleman, a native of Russia, has discovered a process by which timber, though newly felled, may become so hard as to resist the influences of the most trying climate for an almost indefinite period. The

most curious part of the invention is that it does not involve the use of chemicals of any sort, such as steeping in creosote, &c., and that the process is applied to the tree while growing. The inventor is now making arrangements for the supply of timber to railway company contractors in England, &c., and will not require any remuneration further than the amount which may be paid for ordinary timber until the period shall have elapsed beyond which the ordinary railway sleepers, telegraph poles, &c., require to be replaced. The best railway sleepers require renewing at intervals of from four to six years; but the inventor of the new process of preparing timber asserts that he will supply an article which need not be disturbed for fifty years.

**FINE-ART GOSSIP.**—The Council of the Architectural Museum, South Kensington, have offered the following prizes for competition to all Art-workmen—namely, two prizes of £20 and £10 for the two best wood-carvings of a pulpit-panel in oak, the subject being "The Good Samaritan;" two prizes of £10 and five guineas are offered for the two best reproductions in silver, on a reduced scale, of a cast in the Architectural Museum collection, representing a group of leaves. There are also two prizes for enamels. One of £10 for a rosette, executed in transparent enamels on silver, the colours to be of not less than nine separate tints; and a prize of £10, given by Mr. Ruskin, for a rosette, executed in opaque enamels on a ground of copper, the colours to be of not less than nine separate tints. *Bona fide* Art-workmen only can receive prizes. Prize certificates of merit will be given in deserving cases, and the Council will, at their discretion, award the sum of £1 1s., or upwards, or a book, for objects showing particular merit, although it be not sufficient to secure a prize.—*Athenæum.*

**VITAL FORCE AND CONTRACTILITY.**—Dr. Lionel Beale, eminent for his researches on the nervous system, thus concludes an article in the *Quarterly Journal of Microscopical Science*:—"I think that every tissue or organism consists of matter that lives and matter that is formed. The first is the seat of peculiar change, *sui generis*, which never occurs in things inanimate. The second manifests phenomena which are, properly considered, physical and chemical. The movements—the decomposing and the formative, the analytical and synthetical power of the living matter—are due to the operation of a power, or force, or energy, which is not to be measured by the work achieved, nor to be altered or converted into other forms of force. It is a power that may be transmitted from particle to particle, or that may cease its manifestation for ever. How it originated we have not the slightest knowledge. We only know now that it is always propagated from particle to particle, and that it cannot be transferred to particles at a distance. Heat is but one of the conditions under which this wonderful power manifests itself, not the power itself. Contractility is a property of muscle; contraction and elasticity are properties of fibrin, just as hardness is a property of horn, or nail, or bone, &c.; but motion, increase, formation, as manifested in germinal matter, are transmitted from particles of matter that possess them to particles of matter that do not. Muscle does not transmit its contractile property, nor yellow elastic tissue its elasticity, to matter which is devoid of these characteristics. Hence I distinguish the movements of germinal or living matter from the movements of muscular tissue; and surely I may correctly term them vital movements until some one proves that similar movements occur in matter which is not alive."

**PICTURES AT THE SYDENHAM PALACE.**—A special attraction is presented at the present time at the Crystal Palace, in the shape of a hundred high-class paintings, by the most eminent artists, the property of Mr. D. Price, of York-terrace, Regent's Park. In the gallery for works of art on sale there are no less than 1,600 paintings and drawings exhibited, many of high character.

**THE PROPOSED SCHLESWIG-HOLSTEIN CANAL.**—Pending the decision as to the government of the Duchies, the Prussians are pushing on the surveys for the Schleswig-Holstein Canal, which is to connect the Elbe directly with the Baltic. It is calculated that if this canal can be cut the Sound will cease to be of any importance, that the route to the Baltic will be through German possessions, and that Copenhagen, now the *entrepôt* of the trade which passes the Sound, will be entirely ruined. These considerations have secured to the project enthusiastic support in Germany, but the practicability of the canal is not yet settled. All things are possible to engineers, but a ship canal capable of carrying men-of-war, forty miles long, and with an harbour at each end, is an enterprise which has not yet been undertaken in the world.—*Spectator.*

**THE COST OF IRON-CLADS.**—A return just issued by the Admiralty shows the cost incurred by the construction of the new iron-plated ships. The cost of the conversion of the Royal Sovereign from her former condition of a wooden three-decker to that in which she now is has been £120,764, but the amount pro-

posed to be expended for the additional teak girdling which is to be fitted on is not stated. The Achilles has cost £381,025; the Black Prince, built by contract, £330,114; the Hector, £256,369; the Minotaur, £352,075; the Prince Consort, £211,083; and the Royal Oak, £215,868. Mr. Reed's two ships also figure in these lists—the Research for £63,773, and the Enterprise for £59,079. The total amount expended in the year ending 31st March, 1864, was—on ships and vessels building in the Royal Dockyard, £1,117,713; on those building by contract or purchased, £2,088,499; on ships commenced as wooden ships and converted while on the stocks, £1,332,982. The Royal Sovereign and the Constance figure in separate tables, the first as a wooden ship converted into an iron-cased cupola ship, and the second as a sailing ship converted into a screw steamer at a cost of £78,366. The grand total of the amounts expended, therefore, during the year ending 31st March, 1864, is £4,744,324.

**THE REPTILIFEROUS ROCKS AND FOOTPRINT STRATA OF SCOTLAND.**—Professor Halkness, in a paper on this interesting subject read at a recent meeting of the Geological Society, asserts that the footprint sandstones of Ross-shire constitute the upper portion of the old red sandstone formation, and that the strata embraced in a line of section from the Nigg to Cambus Shandwick, from above the gneiss to the footprint sandstones of Tarbetness inclusive, are conformable throughout, and are referable to each of the three divisions of the Old Red Sandstone—namely, the conglomerates and yellow sandstones (of a thickness of 1,500 ft.) belonging to the Lower Old Red Sandstone; the grey, flaggy sandstones and shales of Geanies—the equivalent of the Caithness flags—containing Osteolepis, Coccoleus, and Acanthodes, and thus referable to the Middle Old Red; thirdly, conformable strata, consisting of conglomerates, and foot-bearing and other sandstones appertaining to the higher members of the system. The foot-bearing sandstones have a thickness of 400 ft., and represent the reptiliferous sandstones of the Elgin area, though not overlain by conistones as in that district.

**THE TELEGRAPH IN FRANCE.**—It is estimated that the telegraphic lines in France (exclusive of those used by railways for their own purpose) stretch over 61,528½ miles; the average annual number of private telegrams is one million and a-half.

The *Standard* October 23, 1862, speaking of Benson's Argentine in the Exhibition, says,—"Perfect in point of form, and good as a piece of workmanship." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skillful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candlebrass, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps; and an illustrated catalogue containing 300 engravings and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine, and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch Establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## TO CORRESPONDENTS.

J. M'C. (your letter is under consideration; should it appear in our next impression it must do so in a somewhat modified form).

*We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.*

*Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.*

*All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.*

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# The Dublin Builder.

VOL. VI.—No. 115.

## ANOTHER BLOW FOR LIFE.\*

“THE interests of society often render it expedient not to utter the whole truth—the interests of science, never; for in this field we have much more to fear from the deficiency of truth than from its abundance.” So wrote a famous English writer somewhat sententiously some forty years ago—and like many sententious platitudes in which some writers of that era were wont to indulge, while it contains some slight superficial sparkles of truth, it grapples but feebly with the great thing of which it would speak. It may be fairly classed with the remarkable maxim of the celebrated statesman who considered that “language was given to man to conceal his thoughts.”

There are interests of society of a higher and holier purpose than the author, whom we have quoted, in his shallowness ever dreamt of, so intimately and closely wrapped up with the progress of science and the cause of truth that we cannot sever them. There is a cause in which the interests of society cry aloud, and yet this is the most selfish and material point of view in which it presents itself to us, for in visiting the poor in their deadly lanes and alleys, and fighting a hand-to-hand battle with disease, misery, and crime, earnestly working to better the condition of our poorer brethren, there is some higher, better purpose than in doing so merely that danger may be further from our dwellings, the cost and care of our criminal population be less, and our poor and parish rates lighter, for these are the points in which this cause of which we write most affects “society” as we are pleased to understand the word.

We have before us a volume of attractive exterior, the title of which will be found at the head of this article—a fanciful one some may say, but if they have read but a few pages of it, and glanced at its illustrations, we will answer for it they will cease to smile at the title, and find it justified by the sad realities of which it treats. The vivid sketches and details of a phase of life with which the reader has never before been familiar, however painful they may be, will be found to exercise a strange fascination for him—thus graphically and attractively placed before him.

To those right-minded persons who are habitual readers of their *Builder*, the substance of the articles which compose this book will not be unfamiliar—should they not even have met them before they will have little difficulty in recognizing the familiar pen of Mr. George Godwin, the editor of the *Builder*,—they will not need the assistance of the title-page to do this, but from it they will learn that they are indebted to Mr. John Brown for at least the most part of the graphic sketches by which they are illustrated, and which assist so forcibly in bringing its moral pictures vividly before the reader. There are others, however, of our audience into whose hands the *Builder* rarely comes, and, at the risk of wearying our more orthodox professional readers, we have to inform them that this is not the first work on this subject by Mr. Godwin, but is only a following up of his previous works—“London Shadows” and

“Town Swamps and Social Bridges,” by what he quaintly and justly calls “Another Blow for Life.”

Mr. Godwin is no sentimental book maker, no preacher ascending his pulpit full of all-edifying precept, dealing out to us dreary platitudes, and who, descending, forgets to add the example of goodly practice which gives life and weight to the sermon. The sad real story which he has to tell, and which he does simply, attractively, with much genuine feeling and not a little grim humour, has not been arrived at second hand from others, but has been sought out patiently and laboriously by him in person in such haunts of poverty, disease, vice, crime, and danger as cause a shudder in the, at first, almost incredulous reader.

In picturing to ourselves those scenes we must remember that there are revolting parts of the picture which Mr. Brown's sketches fail to convey—that there are unwritten phases of squalid poverty, famine, infamy, what not, that Mr. Godwin shrinks from giving, lest he should so pain and harass his readers as to defeat the object he has in view,—to enlist their sympathy in the cause for which he labours. As we lay down the book we will say with one of old truly—“The destruction of the poor is their poverty,” remembering duly why it was said, as Thackeray would have put it,

“For you and me to heart to take  
(O dear beloved brother readers)  
To-day, as when the good king spake,  
Beneath the solemn Syrian cedars.”

were it not that there was some practical teaching for us all in this, we would hesitate to bring a book which only treats of the poor of the City of London so strongly before our readers, but is there no lesson suggested by it? Are there no poor in the City of Dublin? no filthy festering lanes where disease broods, and crime walks boldly abroad? no plague spots unvisited and uncared for? We will be answered, yes, but nothing so dreadful and horrible as this book tells of London. We say let the objector go into the Earl of Meath's Liberties or many other localities we could name: he need not even travel thirty yards from the centre of gay Sackville-street to find such scenes as he never dreamt of, and if he prides himself on our superiority in the absence of crime and vice, let him read the following passages from the *Judicial Statistics of Ireland* for the year 1863, now published for the first time; let him note particularly those at the end of the extract which relate to the city of Dublin:—

“The criminal classes at large—the known thieves, receivers of stolen goods, prostitutes, suspected persons, vagrants and tramps—are returned by the police at 22,220; in England and Wales the return was 126,136. As the population of Ireland is to that of England and Wales as 1 to 3·7, these numbers imply that in equal populations there are above 34,000 of the criminal classes in England to 22,290 in Ireland; the criminal classes are 1 in 260 of the population of Ireland, but 1 in 159 in England. The number of known thieves in Ireland is returned at 3,254, being less than half the number in an equal population in England; and the number under 16 years of age at less than a third of the English return. The suspected persons in Ireland, also,—4,438—are little more than half the number found among as many people in England. The return of the number of prostitutes is less than half the number in an equal population of England, and the number under 16 is only one-eighth of the English return; the number of brothels—657—is little more than a third of the corresponding English return. On the other hand, the receivers of stolen goods in Ireland—1,233—are more numerous than in a like amount of population in England; and the number of vagrants and tramps is very great—9,900 to 8,968 in an equal English population. The young vagrants are especially in excess in Ireland—3,399 to every 1,975 in England; but there are no industrial schools to receive them in Ireland, and to some extent the number of vagrants and

tramps is overstated in Ireland, owing to a less exact method of enumeration than in England. The greater number of large towns in England is, however, to be considered. It is remarkable that in Dublin the criminal class is returned as 1 in 137, and in London as only 1 in 243; and the prostitutes are returned as 1 in 341 in Dublin, and only 1 in 576 in London. In order to ascertain the entire number of the criminal classes, it is necessary to add to those who are at large at any time those also who are in confinement; this will give a total of 27,452 for Ireland in the year 1863, and for an equal portion of the population of England 41,995. The total number of houses of bad character in an equal number of population is rather greater in Ireland than in England; the number of tramps' lodging-houses approaching double the number for a like population in England. But, while the number of the criminal classes appears to be so much less in Ireland than in England, the number of offences committed is greater, and in some respects the year 1863 contrasts unfavourably with 1862. More than twice as many charges were determined summarily in Ireland as in an equal population in England. More than 60,000 of these were charges of drunkenness or being drunk and disorderly; there were little more than 25,000 of such charges in an equal population in England.”

Mr. Godwin first gives us the result of his visits among the decaying remnant of the once prosperous Spitalfields weavers, and pays, after a patient investigation, an honest testimony to their miserable state and their privations bravely borne. Their case is unhappily no peculiar one—its parallel may be found wherever the inroad of machinery bursting too suddenly on a generation of prosperous handicraftsmen has ruined their trade at a blow, without giving them time to accommodate themselves to the circumstances. This is inevitable, and while we pity the sufferings of a mass of people reduced to poverty undeservedly, we cannot look on the cause as an evil to be deprecated. It is a fact of our day, beyond our control, and all we can do is to alleviate the misery of the sufferers. Such and a like misfortune we can find for ourselves at our doors among the hand-loom linen weavers of the north of Ireland, and among many other handicrafts overthrown by the advance of machinery. Next we rest upon the evils resulting from overcrowding and want of a supply of that great necessary, water; and some startling facts as to the mortality of children in these pestilential places. Here is a pleasant description of a spot in which wretched people make a struggle for life—the locality is not our immediate concern. Our inspector of nuisances says of one house:—

“Each room contained a man and his wife and six or seven children. The whole were filthy and dilapidated. The party wall between Nos. 20 and 21 bulged at the basement to the extent of at least two feet, and the whole brickwork throughout was so fractured that it might fall at any moment. In the basement of No. 20, a great quantity of the dust and house refuse had not been removed for fourteen years, and formed a mound, through which a pathway had been made by constant treading. The water for drinking purposes was derived from a small tub, without a lid, in the midst of this heap; but a very scanty supply was furnished, it not being ‘on’ more than twenty minutes at a time. There was no efficient drainage to take off the waste water, so that the basements were saturated with it, and pools of it collected in the yards, which were unpaved, and contained a quantity of putrid vegetables that had been in that position for a long time!”

While we are quite aware that the occupation of such underground dens as these is clearly illegal under the “Local Management Act,” we are utterly amazed to find how signally that astute statute fails to provide any practicable efficient remedy. Here is a good practical observation:—

“It is no answer to say, the inhabitants prefer to live, or (more truly) to die, in such rooms rather than meet the difficulty of finding a better room elsewhere. They must not be allowed to do so. Suicide is not permitted, still less suicide that leads to the death of others not desiring to die, and to the pauperizing of a still larger number, who must be maintained by the more sensible and provident.”

\* “Another Blow for Life” By George Godwin, F.R.S., &c. London: W. H. Allen and Co. 1864.

Here is one example of an underground dwelling. It is sufficiently remarkable to deserve a chronicle of its name—59 Nicholas-street—the apartment described is one entirely below the surface:—

"The window of the apartment is a little over three feet in width, and about the same in height; the area is even with the breadth and depth of the window; it extends from the wall about two feet, and was originally closed with an iron grating; but this having become broken, the entire top of the area has been covered with wood, so that the only means of light and ventilation is a chink three feet wide by four and a-half inches in height. Passing through the passage to the back, the dilapidated condition of the premises is startling (Mr. Brown's sketch gives a better idea of this than mere words can do). The plaster within has fallen from the walls and ceilings; the narrow staircase is rotten and shaky, the general colour is of a dingy and smoky black, with peeps of indifferent brickwork and broken laths. At the back there is a large open space in a most filthy condition; damp refuse of all kinds is piled up against the wall; there is no supply of water; the people have 'to hunt for it;' nor is there any distinct closet accommodation for this house. When looking at the wet and poisonous mound, at the ill-built wall through which the damp and unwholesome matter must weep, and seeing in all directions similar neglect of proper scavenging, we cannot but insist that this state of things is disgraceful to the parish.

"But as regards the cellar, in all our experience of London destitution and its awful conditions, we have seen nothing more harrowing than what there met the view. Through the narrow space of the window left open there came a glimmering light, which fell upon two figures on a broken truckle, seemingly naked, with the exception of some black rags passed across the middle of their bodies; but the greater part of the room, small as it is, was in total darkness. In the profound depth our sagacious guide, Mr. Price, thought that there were more figures visible, and on asking if any were there, a female voice replied, 'Yes, here are two of us; mother is out.' And gradually, as the eye became accustomed to the gloom, two other figures were to be seen lying in a corner upon rags. We were not disposed to look further into their misery, but it was evident that one of the unfortunates was resting close to the damp and poisonous wall.

"Neither words or drawing can convey an idea of this den and its thick and polluted atmosphere; instead of its being filled with pure, life-giving air, which is needful for human existence, it seemed occupied by something that might be moved and weighed. The height of the room, which is all below the surface, is not quite six feet. The window would not open; the ceiling was ready to fall; and the walls, so far as the light showed, were damp and mildewed. The lodgers here were a widow and her four children—one a girl 20 years of age, another girl 18, and a boy of 12."

Do we wonder that after this and other such sights the visitors returned home "saddened and ill?"

A word as regards "blood poisoning." There may be even yet some who know little of this deadly disorder, the sure result of impure air, bad water supply, and defective sanitary conditions—here is one fact:—

"At one inquest it was stated, that in twenty-two houses, forming Thorold-square, twenty children had been attacked with illness (of this type), and that twelve of these had died."

"The Roger family occupied one room, and were ten in number—eight children and the father and mother. Here, even without any other cause, the overcrowding was sufficient to produce pestilence; but George Stratford, a weaver, tells us that there had been no water supplied to any of the houses but three for eighteen months, except through a broken and unuseable pump. In the heat of the summer they never had a pailful of water at any time for three weeks, except what they begged from others as best they could. The closets had no pans, and were not trapped—in fact they might be called cesspools: sometimes they were empty, but he had seen them running over with soil. There were sixty families in the square, and about 350 children among them."

Is it to be expected then that in such places as this children can struggle into life? Mr. Godwin tells us that 40 or 45 out of every 100 die before they are five years old! Every thing is against them: want of air, need of cleanliness and proper food, but we must refer the reader to Mr. Godwin's book for the account of the nurseries where mothers leave their children while they are at work through

the day—dens in themselves sufficient to account for the frightful mortality.

On the subject of damp, some valuable remarks are made; too much attention cannot be paid to this point in the construction and inspection of houses.

"The danger of over-crowding" fills one chapter, and this evil seems to be on the increase in London in consequence of the removal of masses of houses to make room for new improvements, driving the ejected inhabitants to take refuge in localities already overcrowded.

"Lord Derby, when he recently made a step towards remedying this in the House of Peers, pointed out that while the population of the city parishes had remained stationary, the number of houses since 1801 had not only not increased, but had actually diminished to the extent of about 3,000; and, therefore, that the same population which, in 1801, inhabited 17,000 houses, were, in 1851, crowded into 14,000 houses. In the parishes within the walls there had been the greatest decrease in the number of houses—2,776; but then there had been a corresponding diminution of population in these parishes to the extent of 19,000 souls. The result was, that the average number of inhabitants of each house within the walls was the same in 1851 as it was in 1801, namely,  $7\frac{1}{2}$  to each house; but in the city parishes without the walls, to which the poor have been driven by improvements effected in the metropolis, it appears that the houses have decreased in number about 300, while the population has increased by 19,000.

In the Fleet Valley, in the neighbourhood of Field-lane, about 1000 houses were pulled down. These in the most miserable manner sheltered 4,000 families, comprising 12,000 persons.

"In single rooms in this neighbourhood we have found more than twenty persons—men, women, and children, packed together: in others, large families sleeping on a miserable pallet; and although a considerable time has passed, we have not yet forgotten, nor are we likely to forget, the scenes which were met with on this now open spot. Close to the crowded dwellings along the banks of the pestilent Fleet were slaughter-parks, and unhealthy trades were carried on; in the dark and dingy streets were training places and homes for thieves of the worst description: large groups of tenements swarming with people were undrained: dust-yards and other receptacles of filth were allowed to remain untouched for years, offending the air; the water supply was neglected; the majority of the houses were dilapidated, and without means of ventilation."

From the overcrowding of dwelling houses we come to the overcrowding of workrooms:—

"Artificial flower making, formerly practised mainly by individuals at their own homes, is now a great trade carried on by persons who employ large numbers of women and children, for the most part crammed into small rooms where healthful existence is impossible. In an upper room in Oxford-street, not ten feet square, twenty delicate young women may be seen closely shut up, pursuing this occupation; and there, when business is pressing, they remain at times from eight o'clock in the morning till twelve at night. Many of the workrooms of fashionable milliners are similarly overcrowded, as are those where young girls are engaged in book stitching. Take as an example a house in Fleet-street, looked at not long ago: the passage is narrow; a door in it shuts with a spring; the staircase is confined, and without ventilation; the atmosphere is steamy, and smells of glue. Ascending, it is seen that all the doors shut with springs. In the first room looked into, forty young women and girls were sorting and stitching books. There was a stove, but no ventilation. Without going further into details, there were more than 200 persons in that house, pent up without provision of the first necessity of life—pure air."

We have unfortunately not leisure and space at our disposal to follow our author through the remainder and pleasanter parts of his very interesting book; we must content ourselves with a brief reference to one or two more passages. Here is a graceful and not undeserved tribute paid incidentally, while on the subject of fire-proof staircases, to an act of heroism fresh in all our memories:—

"Who that has seen the pale figure of a human being at the window of a house on fire, wildly exploring rescue,—who that read the harrowing details of the burning of the Kildare-street Club house in Dublin, when James Wilson Hughes, the bookkeeper, showed us what heroes live amongst us unknown,—

can have a doubt about the propriety of building all tall houses with fire-proof staircases, with proper arrangements for fire escape?"

This passage is also worth noting:—

"In connexion with fatal cases of disease which have occurred in overcrowded dwellings,—the numerous forms of death produced by impure air,—we have made some inquiries respecting the obvious effects produced by overcrowding and the polluted air upon the inhabitants of these places; and it may not be without useful results to mention some of the statements which have been made by the people themselves. In many of those small interiors, where seven, eight, nine, ten, or even more persons, sleep in a small room, we hear of a heavy drowsiness, which renders old and young stupid and weak in the morning: children lie like dead things, until they are roused by the opening of doors and windows."

And they further complain of their faces and bodies being covered with an unwholesome clammy perspiration.

We could multiply such passages from this book; we have confined ourselves to this part of it as having the chiefest lesson for ourselves. We fear we could unhappily match Mr. Godwin's worst cases with ones quite as bad and worse from the dens of our own city. It would have given us much more pleasure to have followed him through that portion of his book which gossips pleasantly of old London and departed notabilities, and of flower gardens and flowers with which pleasant odour in our nostrils, he leaves us, we presume, as an antidote to the unsavoury smells to which he has so liberally introduced us.

We have only desired to do so much and no more, as would have induced the reader to take up the book for himself. In the largeness of our heart we would desire to share our pleasures with all the world, and one of them has been the perusal of Mr. Godwin's

"ANOTHER BLOW FOR LIFE."

#### COMPETITIONS.

THE Committee of Advice nominated by her Majesty to decide upon the Scottish National Memorial to H.R.H. the Prince Consort have advertised for designs, to be submitted to her Majesty, for a national memorial to be erected in Edinburgh or its immediate neighbourhood. The committee state that, of the sites which have been suggested for the memorial, the most eligible appear to be—

1. A knoll on the spur or ridge running N.N.E. from Arthur's Seat, and about 540 feet above the sea.
2. West Prince's-street-gardens, at the foot of Frederick-street or Castle-street.
3. East side of Charlotte-square-garden, facing George-street.
4. The Queen's Park, in the immediate neighbourhood of Holyrood Palace.

The following notice is appended to the advertisement:—

"The committee, however, desire especially to direct the attention of artists to the first named of these sites, which offers many advantages. A National Memorial in that commanding position would be seen by persons approaching Edinburgh at a greater distance, and from a wider circle, both of the city and the country, than any other available situation. At the same time it is not desired absolutely to preclude the suggestion of any other site which an artist may consider specially suitable for his design. The amount of funds at the disposal of the committee for the erection of the memorial is £12,000; and the committee regret that they are therefore unable to offer premiums, or to remunerate any unsuccessful competitor for his design."

"It is requested that all models and drawings, not already prepared, may be furnished on a scale of one inch to the foot."

"No design can be received after the 10th day of December."

We are at a loss to comprehend the motives which induced the committee to fix upon such an inconvenient scale. Every architect is aware of the impracticability of preparing competition drawings of such gigantic dimensions. Assuming, for the sake of illustration, that the monument was to be 200 feet in height—no very extravagant altitude—a drawing of it would thus measure about 20 feet in length. We wonder if the committee purpose to exhibit these stupendous works of art, and where, as we should like to see them. We would suggest that, wind and weather permitting, they should hang them on the sides of the Calton Hill, or hire for the purpose the frontage of a whole row of the lofty houses of the many-storied city.—ED. D. B.

## GLASS PAINTING, ANCIENT AND MODERN.\*

A PRUDENT device is very commonly practised by writers of modern history—stopping short at the chapter in which their own contemporaries would come upon the scene. I must beg to be allowed to hedge myself within the borders of a similar prudence. I have been asked to give a critical lecture on the exhibition which is now open within these walls; but it would be so very much like having gentlemen glass-painters up one by one to say their catechisms, or to answer to the charges brought against them, that I could not be guilty either of such impertinence or such presumption on the part of an amateur. I must, therefore, content myself, and you, if possible, by a general review of the past and present of the art of the glass-painter.

We appear to be at the beginning of a great revival of this art. The demand for painted windows is enough to satisfy the most commercial manufacturers of them, and to drive into a fever those few *real artists* (and to their honour, be it said, that there are *such*) who have devoted their talents to this beautiful form of art. This demand is made by people of all ranks, and for every conceivable purpose. Its application, too, is as various as good or bad taste can suggest, from the windows recalling the deeds of charity of saints and martyrs, *fit* memorials to the good and benevolent of our own days, down to the *unfit and unseemly* use of a fine Early English window in one of the stateliest abbeys in England, filled with the most elaborate thirteenth century ornamentation, as a framework to nineteenth century medallions of railway trains and railway bridges, &c. &c., and a perfect galaxy of life-size portraits of great engineers, Sir Christopher Wren, Telford, Stephenson, and others, in no way to the honour of God or reverence for the associations of the place, but to the honour and glory of the march of modern intellect.

This demand for painted glass amounts at present to a sort of public passion. There is, unhappily, very little method in this madness. Glass is wanted, and glass is supplied; but the buyer has very little judgment, the producer very little money; so the balance is rapidly struck between them, though, perhaps, not always so rapidly settled. Time, too, is made an element in the bargain; and the work which professes to be one of fine art is valued less by its merit than by its measurement. Such has been the indiscriminate demand and supply of this beautiful material up to the present time; but the more cultivated taste and knowledge of our day is, however, beginning to act upon it. People are beginning to recognise the fact that the eye must be educated to judge of beauty as much as the mind to appreciate its excellence; that individual *fancy* is *not* the test of art; that genius in the artist, no less than judgment in his critic, can only be perfected by care, by study, and by work.

It was but half a century ago that painted glass seemed to have been consigned to the tender mercies of respectable plumbers! Church architecture had reached that pure and perfect chastity which ignores all ornament. The windows, which were the eyes of the buildings, were just allowed a line of label over them by way of architectural eyebrows. Those windows admitted the light of heaven, to the satisfaction of the blindest inhabitant, and to agony of all the rest. If the respectable plumber who had supplied the glass had happened to be of an imaginative turn of mind, he would probably have fringed his work with a border of pale lilac-coloured quarries, alternating with equally pale orange, with all the severe purity of that classical age. There was little edification to be got out of them, but some amusement. The landscape was clearly seen through them, and at moments of wandering thoughts, the congregation occupied themselves with lilac, oak trees, and orange elms. The storied pane and dim religious light existed in poetry alone, and not in churches. But indeed there was a very dim religious light everywhere at that time; and as for storied panes, the Puritans had taken them to destroy all that they could reach of what was worth seeing or having in the material fabric of the church. The troubles on the Continent at the beginning of this century were the cause of many works of various arts being brought into England. The feeling of the time was little in harmony with matters of that kind. A few amateurs collected what was brought to England, and became the centres of little coteries, where art subjects made the bond of union. The painted glass which, with many other things, became the objects of a novel interest, was principally of a late style. Its gemlike beauty and bold design gave the cue to those who had a heart to get rid of plumbers. The first difficulty was to get the materials. The only glass to be got was that violet and yellow stuff at the plumber's, some ruby glass very like sealing-wax, and some very deep blue, principally used for the old fashioned finger-glasses on dessert-tables, all equally hopeless

and impossible for any art purposes. However, a beginning was made with these. The grandly coloured bits of old picture glass which had been brought from the Continent were very much to the revivers of the art what Sir J. Reynolds's lectures were to the students of the Academy. The effects of a full-blown art were put before their eyes, but the lessons of first schooling were not to be got from them. They were put to mathematics before they had begun arithmetic.

The art deducible from those late specimens was a kind of liberty-of-conscience art. There was no principle whatever to be got out of them. The wretched glass-painters of those days began to find that it was a worthless liberty to do merely what was right in their own eyes. The public was beginning to open their—uninstructed eyes they were; but here and there over the country, in byways and outlying village churches, where the sacrilegious hand of the fanatic had not found its way, and in some more important buildings—cathedrals, abbeys, where the very quantity of beautiful works had tired out the hand of the de-royer—in such places and by such occasions as these, there was just enough left here and there about the country to leave an effect upon people's eyes, which they used in destructive comparison with the weak and washy productions of their own time. Up to those days there had been for long time past a perfect stagnation of public taste. As for drawing and knowledge of the human figure, people had even lost the knowledge of their own drawing; and ladies tied their waists where no waists ever were created; and gentlemen, blind to what good points they possessed, powdered their hair, and loaded their throats with yards of cloth, and finished themselves off behind and below with tails and continuations of the most unnatural construction. Those were the halcyon days of glorious independence of all taste. But what was to be done? Painted windows were to be produced. How? Things were growing serious. There was nothing to be got out of the external appearance of the men and women of the period, and the grand old bits of foreign glass and of what still remained in England could not be followed, because the materials used in one could not be got for money, and the technical refinement of the other had long ago been forgotten.

But there was a decided stir beginning in that great stagnation. The art of painting glass had never entirely died out. A few men, unknown to fame, but in whom the fire of the old arts still smouldered had persisted in making scraps of fine coloured glass for their own use; but the only art for them to follow which the public was then admiring, was of the late Flemish and northern schools, and could give them no good grounding in their art, such as the glass in King's College Chapel, Cambridge, which is a grand specimen of the art at a stage in its overgrown development that could offer him no model to begin from; and such, too, as the glass in Fairford Church, in Gloucestershire, which is magnificent in the sensuous element of colours, but coarse and vulgar in the extreme in the higher artistic qualities of drawing and composition.

The early glass-painters of our days had small chance. They were themselves untutored in art. They were anxious to gain the public favour. The public—that bignearer of all genius—was the son of the public of the eighteenth century, and the grandson of the public of the seventeenth century—a vigorous public, but born of a stolid parentage, with material tastes and blunt manners, and little or no time or care for the finer arts of peace. Early in this century the world was in a perfect turmoil all round the equator. A few quiet spirits, finer than the rest, were the sparks which wandered about the dying embers of our national arts. Architecture, that centre and nucleus of them all, was in abeyance. Birmingham was in the ascendant. To judge from the decorative works of that day, the ideal of beauty must have been an egg. Everything was either ovate or oval. Nothing was tolerated but what savoured of Greece or Rome, or eggs. All responsibility for beauty was thrown upon the shoulders of the Classics; and they were very broad, for classical designs were mainly a matter of measurement. There needed to be no invention with them, because all their proportions were fixed by rule. Exceedingly beautiful those proportions were—most pure and refined. The result of those rules had been devised by men of wondrous genius in ages long gone by, and under a climate and circumstances the perfect opposite of our own. Our people felt safe in copying them with the utmost complacency. But people are troubled with hearts as well as eyes. They soon began to feel the dreariness of an art which had been thrust upon them, foreign in its origin, foreign in its character, and foreign both in place and purpose to which it had been brought. They were bound to admire it, but they could not care for it. There was nothing in a Greek temple that could meet the requirements of a northern people. True Classic art is most beautiful; but there is some other quality required in art besides that. Our people became

conscious of that want. All that was thrust upon them at every corner neither attracted their sense nor engaged their sympathy. It might be unanswerably correct, but was most desperately uninteresting. There was *nothing of home* in it. Do what they might with it, let the basement be of British granite, the superstructure of British marble, the carving of British stone, the beams of British oak; nothing to bring it to a British heart. It might command intellectual love; heart love—none.

With peace restored at home, and leisure to return to the arts of peace, the relics of old days and old things at home, of home history, home romance, home devotion, soon began to touch people to the quick, and to engage a warmth of cordial affection which all the elevations from Athens and the copies from Spalato and Corinth could never command.

Among the relics of our national arts, none engaged a more general attention than those associated with our national architecture, and pre-eminently that of painted glass. It was valuable for its heraldry, its costume, its legends; but some loved it for its beauty, and caught the first glimpse of the refinement of its art, which for centuries had shared in the contempt of all things Gothic.

People had been taught to look at everything through Palladian spectacles. All avenues to really national taste had long been closed. This country had been overwhelmed by three centuries of invasions—religious invasion of the old form of faith; democratic invasion of the old forms of government; invasion of Dutch arts and notions, with a Dutch king and Dutch nobility; union with Scotland, royalty from Hanover, and all the foreign influence which refugees for religion, refugees for politics, and all that the novel interests of our growing foreign connexions—commerce, colonies, and conquests could produce on the manners and habits of our people;—till we had well nigh lost the recollections of our old nationality, and worked at things with new notions, and looked at them with new eyes.

This was the spirit in which the nineteenth century began. But things began to settle down. People began to yearn for something of their own. The old national arts were revived with all the interest of novelty. Their very principles had been forgotten. Italian fiddlers, French cooks, Flemish painters, and Dutch architects, had put out all memory of them. But they were to live and flourish again. We are to-day engaged upon one of them. The first glass-painters of this modern Renaissance were unbaptized no artists. They floundered about in a perfect mosaic of difficulties. They were staggered by multiplicity of styles; they had no good art in themselves, no good materials in their workshops. There seemed to be no standard of excellence: there was no standard of public taste. The contrast between the vigour of the old work and the poverty of the new grew more and more painful; the old savoured of art, the new only savoured of the shop. The glass was thin, the colour poor. Smearing it, varnishing it, would not make it deep and rich; it only made it bilious. What was to be done? To imitate? Yes, to imitate—and to the necessity which drove them to it will be hereafter traced the cause of the pre-eminence which I firmly believe our artists will attain. Imitation the most laborious is the very foundation for all hope of ultimate success in the education of all art. The processes, the theory, the *rationale* of art need to be analyzed before the mind can digest them. Imitation is *not* base, except in this, that it is the *very* base of all success. The most heaven-born genius must first have learnt to spell. England did not stand alone in difficulty. In Germany the art was taken up with spirit; but the old examples were too soon cast aside. The reasons of their beauty, the nature of their materials, the very alphabet of the future language was neglected. Their only real success has been in an art unsuited to the large scale of windows, in the beautiful cabinet examples of enamel-painted glass, principally of copies of old pictures of their own school. Their merit is in technical dexterity, no more. For the high purposes of an independent art such works are but hindrances, influential only for bad. I know nothing more futile, more unhappy, in matters of taste, than the attempts to mimic the productions of one art by the processes of another. The attempt to reproduce in glass the works of the oil or fresco painter might be made in a modest admiration of the great works of other men; but, as such, could only be allowed as an honourable plea in the pursuits to which an amateur might consecrate his intellectual leisure—but no further. Glass-painting is no mere supplement to any other art. It has an individuality all its own, it will stand or fall on its own merits, and for them it need not fear. The Germans have been among its most unfaithful followers. In other styles of art, their painters are not strong colourists. It is strange that this should be so, for as a nation they are the greatest of musicians, and music is essentially the art of colour; but their painters, with rare exception, do not share in this great gift. It was, therefore, not unnatural that in an art of which colour is

\* By Mr. T. Gambler Parry. Read at the South Kensington Museum, on Monday, July 4th.

the great characteristic, they should fail to seize the true ideal: they failed even to perceive the true properties of their material. Regardless of the principles of old art, on which the whole excellence of their masterpieces depends, they formed a dull ideal of their own,—they went to work on glass as if it were canvas,—they worked as if they were afraid of it: they coated it with enamel, they did all that was possible to get rid of it, they reduced it to the condition of transparent calico, and then painted upon it, but with the veriest abuse of glass. Brilliant glancing jewelry of glass, such as in the days of Gothic art filled their cathedral windows with a glory as yet unrivalled, and in those wondrous days of Italy, now 300 years ago, blazed and sparkled with a reckless brilliancy,—with such as this, this genuine use of glass, our modern Germans have no sympathy,—at least, if we are to judge them by their works.

It is hard and thankless work to try to make people see what they cannot see. In matters of this kind they are in general satisfied if only they find things what Irish people call “pretty.” There is little or no perception of aptitude and inaptitude in works of art. If glass be made to look like calico, or calico made to look like glass, who cares?

In modern Italian glass there is very much the same error. But then the Italian is essentially a colourist. In glass, however, he, like the German, has begun at the wrong end. The Italians never had much sympathy with northern art. They rather affected to despise their Gothic neighbours; they ignored those schools of art which had covered walls with paintings and windows with storied glass,—schools marked with all the individuality of national character well nigh a hundred years before Giotto dipped his first brush in colour. And now, too, in their attempt to revive glass-painting, they ignore those schools again from which the first lessons of true art in glass can best be learnt. They have missed, too, those identical principles even when displayed in their own glorious Cinque-cento windows, the principles of translucent colour. They have rather gone in for a style of art more suited to paper than to glass. They have produced some designs tempered with great refinement, and they have transferred these designs to glass. But why to glass? Why to great sheets of fragile glass, toned down with dense enamel, worked and laboured at till all glass was lost sight of, changed, got rid of, treated just as oiled cardboard might have been treated, and with precisely the same result? Again, we look in vain for the glancing jewelry of glass: instead of it we find pictures which, in treatment, texture, and effect, resemble precisely large coloured lithographs varnished into transparency—labour misapplied and misplaced—one, indeed, in which I admire the frequent beauty and merit of design, and delicate execution; but it is not the art of glass. Refinement and tenderness are merits indeed; but they become morbid and vicious when they occupy exclusively the heart and hand of an artist, leaving no room for other qualities, such as vigour and decision, which, even by mere contrast, would have added to their charms. Why are the glories of old glass at Florence and Venice, at Chartres and Bourges, passed by, rich as they are with every lesson which a glass-painter need learn, examples which illustrate the entire powers of the art, and its scale complete from gorgeousness to solemnity? Let those old works be equalled first before they are improved upon.

In France and in Belgium the revival of this art has been carried on in much the same feeling as in England. The principle that has appeared to be a guide to the best men in these countries has been to keep one hand stretched out behind with firm grasp upon the past, while the other was stretched out toward the future. They took no heed of the taunts about copying—they knew that they were but working out great secrets of past excellence for the ground-work of their own. There has been, indeed, a most mean and miserable copyism carried on by men who could do no better, and through their ill doing the reproach has been misapplied to all. But better men knew all the while what they were about—they knew well what was good, what bad, in the works they studied—what was the matrix, what was the gem. If in the Gothic art of France and England figures were painted in ignorance of anatomy, and architecture in ignorance of perspective, what matter? You might as well look for “photography” in a Johnson’s Dictionary as for the rules of the Academy in a Gothic window. No, the grand old fellows of those times did their best. They felt with poetry, and they worked with earnestness; but, what is more to our purpose now, they had a most thorough knowledge of the use of glass—that is the lesson we have to learn from them. We may draw better; our technicality and science may be greater. How could it be otherwise, when each generation does but light its lamp from the one that has gone before? But they unluckily let the lamp of glass go out. So we, to light our own, must reach still farther back to the old lamp of our forefathers, which is bright and glowing still.

The revival of this art on such right principle as this, gives not hopes only, but confidence in ultimate success. One may grieve at the atrocities which have filled cathedral and other windows with disgrace; but there have been some grand things done. Nothing but a sense that it would be invidious prevents me from naming them.

If there has been one fault more prominent than another, it has been that both the artists and the public have thought too much about the painting, too little about the glass. And the result has been in too many cases that glass-painters have consecrated works to the genius of the arts which ought rather to have been consigned to the simpler genius of the pestle and mortar.

Of the early history of the art very little is known. There appears no reason for supposing that coloured glass was used in windows before the Christian era. The early Egyptian and Greek coloured glass, so far as we can acquaint ourselves, was but semi-transparent, commonly used for coating earthenware, and in making small ornamental vessels. Somebody has lately taken out in England a patent for glass coffins. He must have a very high opinion of his friends. The Egyptians had already made glass coffins between 200 and 300 B.C. There are some in the British Museum. There were very few colours made in glass in those times, but a good many varieties of their tints. A good red is not to be found. There are tints of deep and pale blue, ochre and straw colour, browns and greens. About Greek glass windows before our era little or nothing is known: what is described has no analogy to our system of flat sheets set in frames. That glass was used in windows at about the beginning of our era, we know from Pompeii. But we have no trace of coloured glass used for the purpose. This is all the more strange, because of Pliny’s expression about glass, that “*nulla est materia sequatur aut picture accommodatur*” (Nat. Hist., lib. xxxvi. § 67), which sounds like a reference to pictures on glass. I conceive that in reality it refers only to what we find in the bottles and vases of glass of his time, namely, the use of many coloured pieces twisted or drawn out, and worked into all kinds of forms by means of their extreme ductility. Many materials are described as used in Roman windows, such as talc and alabaster, as well as glass. The Japanese used the same expedients, and in addition to their large transparent shells. St. Wilfred of York describes church windows in his time (seventh century) as filled with transparent stones. The rareness of glass in windows would be inferred from the very few notices of it by two such writers as Philo and Lactantius, who refer so intimately to the habits and usages of their times.

The earliest pictorial use of coloured glass was in the tesserae of the mosaics; and it is by no means improbable that glass-coated materials, and glass itself, in flat sheets, were used in the polychrome decoration of walls. The earliest examples of any designs on perfectly transparent glass that I can find are those of figures of the Early Byzantine school, made in gold coated upon glass.

There appears no good reason to believe, as is common by writers of the history of the art, that the great church of St. Sophia, of the sixth century, in Constantinople, had coloured glass in its windows. Procopius’s description, from which it has been rather willfully deduced that they were so, would rather lead to the opposite conclusion. He says that “such was the amount of light poured into the temple, that the light of day itself seemed to take its very origin within it;” the pith of the text being in the words “*tanta est effusa lucis copia*,”—words which he would hardly have applied to the mellowing, modifying influence of the coloured glass of that period. But a contemporary writer seems to explain this magnificent effect by saying that “the walls sparkled with golden vitreous tesserae,”—“*tesselis vitreis inauratis fulgent*,”—than which it would be impossible to conceive a more gorgeous effect.

That the glass early used in windows was of a soft refractive kind, rather than perfectly imperceptible, as our transparent glass is, may be inferred from Procopius’s description, “*vitreis oculata fenestris vaga lux lagueariis sine sole micat*,” that the way was being fast prepared for coloured glass in windows. The use of tesserae in mosaics on walls and floors was the natural suggestion for a similar use of coloured glass in windows, from the first moment that a perfectly translucent quality of it was made. Figure subjects had been common in mosaics, why not, then, in coloured window glass? Thus it may naturally have begun; but the earliest positive information I can find of coloured glass being used in windows is of Prudentius’s notice of it in the basilica of St. Paul, at Rome, in the fourth century. We next hear of it at a church at Lyons, in the fifth century, and that the coloured glass there was arranged in patterns. The next in point of time distinctly spoken of are the windows of St. Fortunat, Bishop of Poitiers, in the sixth century; and, in the same century, the introduction of it in a church at Tours by St. Gregory; so

that, by that time, the use of it had spread commonly, and to a great distance. But in England we had not been so fortunate. St. Wilfred, in the seventh century, laments that makers of coloured glass were not then found in England, so he went to France in search of them. In the next century, the eighth, we find Pope Leo III. filling the apse windows of the Lateran church with coloured glass, in the year 795 (“*Fenestras de apside in vitro diversis coloribus conclusit*,”—Anastasius, History of Leo III.); but up to this time we hear nothing definitely of painting upon glass.

After all the pains which antiquarians have bestowed on the research, it does not appear that any account of figure subjects can be traced with any reliable authority earlier than the middle of the eleventh century, and the example cited is the subject of the “Mystery of St. Paschasius,” in a window of a church at Dijon, mentioned by the historian of the monastery of St. Benigne, A.D. 1052. The French king Charles le Chauve was the first great patron of glass-painters. Soon after his time the art became universal. The treatise of Theophilus, of about that period, describes almost every process necessary for a complete window, with the whole detail of its design, and colouring of patterns, figures, and draperies, so that it is impossible not to infer that an art so complete as he describes it must, to have attained such completeness, have been practised long before, although we may find no written account of it, and all that actually remains to us is in pieces coloured separately and inlaid, as in vitreous enamels, mosaics, and incrustated ornaments, or bits of glass, in imitation of gems on bookbinding, church vessels, rings, and so forth. At about this time glass-painting became a very distinguished profession. It was honoured by privileges and dignities at Venice, and in Normandy by the semi-noble distinction of a title, that of “Gentlemen Glaziers.” In those “dark ages,” those benighted Gothic times when Christian art first sprang forth in all its freshness and beauty, schools of art were founded in religious establishments; and the artists of those times, trained in the whole range of education then open to them, appear to have practised all the arts of design connected with architecture,—that wall-painting, designs for sculpture, illumination, and glass were followed equally by the same persons—rather a broad hint to those modern “gentlemen glaziers” who go on turning out painted windows, and do not appear to possess so much knowledge of drawing, nor of the principle of ornamentation, as many a poor mechanic who has been for a couple of years a pupil in a good government school of design.

(To be continued.)

#### CHURCH ARCHITECTURE SPOILT AND MIMICKED.

THERE is, in the present transitional state of Church fabrics, great need of a body of men of taste and correct views in ecclesiastical architecture, who might bring to bear acknowledged and ascertained principles, with a view of checking the ignorance and carelessness with which repairs and so-called “restorations” are frequently conducted. It would be too much to expect that every parish should contain the requisite array of well-informed persons to control the jobbing of vestries, and the interested or purely incapable action of church wardens and even of incumbents. But there are few dioceses where the nucleus of such an association might not be formed in the cathedral city; and by dint of corresponding members and honorary associates judiciously adopted from a further radius, and, above all, by sustained communications with a metropolitan or otherwise central committee of distinguished amateurs and architects, an adequate machinery might be contrived for bringing matured experience and well-digested canons of taste to bear on abominations threatened to be “done in a corner.” The knowledge that such a body existed would often prevent the worst atrocities from being even contemplated. Above all, a weekly or monthly periodical with illustrations, ready to show up on the instant the grotesque aberrations of churchwardenism, and to fix at once the indignant eye of just criticism on the mutilation of a venerable edifice under specious pleas which may pass unchallenged on the spot, would in many places exercise a salutary terror on the minds which animate parochial bodies. Photography has placed a consummate resource within our reach for the purpose. Its happiest effects are undeniably to be found in rendering the hard fixed outlines of architectural design, far more than in reproducing the features of a landscape or of a human face. No nobler use can surely be found for it than to check barbarism by bringing down on its enormities the swinging rebuff of public criticism which follows detection and exposure. Wherever a church is being barbarized, let the camera direct its focus upon the ignorant wretch or ruthless monster who has the job in hand, until his abominations glare in the full blaze of publicity. Much havoc would be prevented by a modicum of exposure. Nor would the prevention of havoc be

more important than the direction of expediture, the promotion of economy, and the checking of waste. As ill-cut trousers and misconstrued boots are, in the long run, the most expensive, so it is with the ecclesiastical shoddy and slopwork with which we are too familiar. The fabric so dealt with doesn't stand. The want of proportion and symmetry prevents the due equilibrium of the masses; the parts, which should support, destroy each other; and patch-work wears rapidly into holes. The hapless tinkering which noble piles have undergone from the petty wiseacres who happened to have the control of the "situation" at the moment have, in many cases, irreparably marred the fruits of the wisdom and beneficence of previous ages. These are the occasions which we wish to see redeemed, felicitous results if duly seized, but if let slip or abused—

nitidis maculam hæsuram figentia rebus.

The isolation and independence of individual parishes are, moreover, so great that, where an incumbent and his parishioners are agreed on perpetrating any portentous mistake, the bishop, archdeacon, and rural dean put together can do little or nothing to stop it. Vestrymen may patch stone with brick, stop windows, turn arches into squares, and fonts into slop-basins, chip away rare mouldings, deface delicate features, break up effigies, tear out brasses, choke interiors with galleries, and, in fact, behave like so many bulls in a china-shop, without being more than croaked at by some tardy antiquary in the obscurest corner of a provincial newspaper when the deed is irremediably done. Not only, however, where a case for repair or restoration is agreed upon, but wherever disrepair yawns dismally and dilapidation is silently stealing on amidst the half measures of putty and stucco, such supervision as we propose would be invaluable. Do we never see the flagstones of the chancel blotched with verdant smears of damp and luxuriant ivy, after forcing its way through the yielding roof, waving greenly over the aisles as if the Christmas decorations had taken root and were vegetating, the mouldings clogged with whitewash in the interstices and veiled with cobwebs over the whitewash, mangy green baize, rusted metal, crazy window-fastenings, creaking pew-doors, and recumbent figures foul from the unseasonably familiarity of the sparrows? A travelling inspector, working a district might, by the aid of a photographic apparatus and a few lines of print, produce results that would more than repay the expenses of his circuit and the temporary irritation caused by his remarks.

To sum up this portion of the subject—there is, first, the honest ignorance which blunders on chaotically, from a total blindness as to the principles of construction unless in haystacks, or of those of decoration, save so far as applicable to a booth at a fair. There is the priggish "little knowledge" which, especially when combined with the huge conceit of it, is at once more mischievous and more offensive, and which, proverbially noted as "a dangerous thing," ought, if possible, to be made dangerous to its meddling possessors, instead of being so only to the churches on which they experimentalize. Again, there is the sordid votary of utilitarianism who sees in a church nothing but a means of preventing the rain from reaching a collection of "sittings," and places its highest structural virtue in the greatest accommodation of the greatest number. This last turn of mind would seem more naturally akin to a contemptuous disregard of æsthetic principles than to either the honest ignorance or the little knowledge aforesaid. Yet it is capable of allying itself with either, and, when combined with the latter, realizes the most malignant form of falsehood in church art, and develops a virulent heresy of bad taste, of which we mourn the ravages when it perpetrates a "restoration," even more than the outrages when it sets up an edifice *de novo*. Its tendency is to work out the grand utilitarian idea and then the minor decorative idea by two distinct processes. The one occupies the area of such a mind, and the other its margin, and the two are as distinct as meat and mustard. It would house the congregation first, and then see what can be done to ornament the shed or barn, or whatever crude form of clumsiness may have resulted from the first effort. It first sets to work to make things snug, and then to make them pretty; and claps upon the featureless shape of its first structural conception the afterthoughts of architectural trimming. If a sculptor, professing to produce a bust, were to take a barber's block and glue a mask upon it he would aptly illustrate the constructive process of which we speak. The church builder or church restorer in question has no notion of a compound form, the simple elements of which are elegant, and, being harmonious, result in the embodiment of truth; and his building is no more like what a church should be than a hair trunk on four posts resembles a horse. Such designers should perpetrate their abominations in iron only. They would find there a material worthy of their art, and no traditional associations to rebuke their audacity. Not that, of course, there is any necessary connexion between iron and ugliness, nor

that the conditions of structure and modifications of type which any material imposes are inconsistent with a beauty proper to itself; but that, in fact, iron has become the rough and ready way of throwing a shelter over a congregation. Thus it has become connected with the notion of churches "wholesale and for exportation," and suggests the embodiment of no idea in particular save that of boxing off so many head of Christians for a devotional purpose. It results practically in holy railway sheds and consecrated dog-kennels of an exaggerated size. The "cheap and nasty" among church styles has fixed upon corrugated iron as its exponent among materials. Even if crumpled sheets of iron pinned together are all that the architect has to deal with, there is no necessity for the resulting structure being more un-idea'd than the popular type of a Chinese joss-house, or than a child's house of cards. Still, these tabernacles of Tubal Cain fitly express the coarser and harsher tendencies of the age from which they spring; all that they want is a cast-iron parson to preach detonating sermons by steam.

In noticing the declensions or degradations to which church architecture is practically liable, it is hardly a digression to remark the vagaries of dissent in quest of a style in which to embody its proper characteristics. As you can tell a shopkeeper from a gentleman, although all the repositories of Bond-street and St. James's-street have lavished their material upon the outer man, so you can by an infallible diagnosis, detect the conventional Gothic. The feebleness of it lies in the fact that it has no idea to express, and, therefore, small blame to its defectiveness of expression. "My dear madam," said an artist once to a lady of faultless feature who sat to him, "do call up an expression!" But there was not beneath the simpering symmetry of her face, any more than in the glossy satin of her dress, the source from which expression springs, and so the canvas merely perpetuated the vacuity of the original. And so it is with the architectural features of "Little Bethel" and its brethren, whether in stucco or stone. Those features are in effect mean and dowdy. They labour under their exceeding negativeness. Their essence is *non-conformity*, and therefore their device of form is a thing of nought. We have in our eye, as we write, a would-be elegant compound structure of the congregational persuasion. The main pile is the place of worship, attached to which by an isthmus of school building is a peninsula of quasi-parsonage. No expense has been spared. The materials are good, or even fine, and the workmanship finished. There is no shoddy in it, and nothing slipshod about it, neither is there anything slipshod in or about a well-to-do green grocer in his Sunday clothes; and this is just the point of excellence which the conventional Gothic has managed to reach. It now has superseded the stone façade with hinder continuations of brick, which, since front and wings only were meant to be visible, may be termed the "cherubic" style of architecture. It has perhaps ceased to utilize its spires by making them the chimneys of the heating apparatus although we have lately seen such an use of them in a provincial town of "first-water" celebrity. But there is something about its style which affects us like a dropped aspirate. The best of its practical results, however, is that, just as our well-to-do green-grocer is unconscious of the difference between himself and that which he seeks to imitate, so the pastor and his congregation at Jericho can only see that their new windows are "more pointed" than the "pointedest" in the neighbouring cathedral, and feel sure that they have secured the genuine style.—*Saturday Review*.

#### CONNORREE MINING COMPANY.

At the ordinary general half-yearly meeting of the proprietors of this company, held on Saturday, the 8th ult., John Francis Waller, Esq., LL.D., in the chair, the following report was read:—The directors, when meeting you last half-year, congratulated you on the improved condition and prospects of your property. They have now much more reason to do so, as you will see on reference to the balance sheet, that the sales of ore for the past half-year exceed the expenses. The mines are now actually yielding profits, with every prospect of future success. The following comparative returns of sales for the last three half-years show a steady improvement in this respect, viz:—Half-year ended 31st May, 1863, the sales amounted to £1,235 13s. 7d.; 30th November, 1863, £2,135 16s. 6d.; 31st May, 1864, £2,978 14s. 7d. It will, therefore, be seen that for the half-year ended 31st May last, they exceed those of the previous one by £843; while the value of the stock of ores on hands, instead of being diminished, has been increased by £44 in the same period. It will be further seen by a comparison of the preceding half-yearly account with that now submitted, that the available balance and stock of materials of this half-year exceed those of the former by a sum of £211 16s. The deep adit is now extended 160 fathoms, and has intersected Browne's lode at 130 fathoms, on which a drivage

is now being made, and good sulphur is found in the eastern end, with every appearance of improvement. A large deposit from the waste of the mines, accumulating for several years, and covering some acres of ground, has been found to contain a quantity of salts of copper. Steps have been taken to utilize this, so as to increase the quantity and percentage of the precipitate. In compliance with the wishes of the shareholders, expressed at the last half-yearly meeting that the mines should be inspected and reported on by a competent mining authority, your directors engaged the services of Mr. J. H. Hitchins, Consulting Engineer to the Devon Great Consols Mines, a gentleman recommended to them as of high professional reputation. His inspection occupied a period of three days; and has resulted in an elaborate and detailed report, which has already been submitted to you. It is to be regretted, no doubt, as Mr. Hitchins observes, that the mines could not in some places have been sufficiently cleared and opened out to enable him to report more extensively than he has done already. Time, however, did not permit of this; for the directors, constrained by the express wish of the shareholders at the last meeting, to institute an inspection before again meeting them, found considerable difficulty in the short interval afforded for such an important purpose in having the old workings and levels sufficiently cleared in the time, preparatory to such inspection. For the state, however, of those particular parts of the mines, adverted to by Mr. Hitchins, the present company or its directors are in no way responsible. It must be borne in mind that the workings described by him are of a very old date—some of them over half a century, if not more; and, further, it must be in the recollection of the shareholders that, in the directors' report of this period last year, it was distinctly stated "that about twenty years ago these mines yielded large quantities of black and grey copper ore, but on a market being then found for sulphur ore, the copper part of the mines was abandoned for the time, and allowed to close." These workings are being explored and recovered in the most judicious manner, and the directors feel confident that the results therefrom, as stated by Mr. Hitchins, will be fully realized. During the past half-year, the strictest economy has been observed in every department of the company's property, and the expenses, in consequence, as shown by the balance-sheet, have been considerably reduced. The same careful management, consistent with the efficient working and development of the mines, shall still be continued.

#### DEVELOPMENT OF THE MINES.

Driving deep adit level, 13fms. 2ft. 11in.; driving sundry cross-cuts and levels, 42fms. 2in.; shafts sunk and raised, 36fms. 4ft. 3in.; clearing and securing sundry shafts and levels, 20fms. 3ft.; stopping on great copper and other lodes, 284fms. 3ft. 7in. Total, 397fms. 1ft. 11in.

The *City Press*, June 7, 1862, speaking of Benson's argentine, says—"Beautifully finished works of art, well sustaining the deserved popularity of the producer." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full-price list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electroplate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. The Prince of Wales.

A HINT TO MUNICIPAL CORPORATIONS.—The Nuisance Committee of the Leeds Town Council has let the removal of the night soil from the whole of the drainage district to the Economic Sanitary Company for £1,050 per annum, for a period of three years. This business has hitherto cost the town between £2,000 and £3,000 per annum.

## THE STONECUTTERS' STRIKE.

It is with the deepest regret we notice the occurrence of a serious strike among the stonecutters of this city. Every such movement is to be regretted, inasmuch as it is disastrous to those who engage in it, creates unpleasant feeling between employer and employed that is not soon effaced, and entails much misery on many innocent sufferers, not to speak of a vast amount of valuable human labour lost to a community for ever. Not that we desire to condemn strongly all such movements, they are often excusable, occasionally commendable, in their objects; but this one in particular—while we sympathise with the spirit of emulation which prompts one body of tradesmen to surpass another in skilful handicraft, we regret sincerely that it appears to have blinded the rival bodies, in a great measure, to reason and common sense.

The case, as we understand it, is a simple one. The Stonecutters of the city have claimed as their right that they are entitled to "set" cut stone work, as well as work it; the Brick and Stonelayers equally claim it as their prerogative, and as the usage has for some time been to lean towards the latter arrangement, the stonecutters have struck work in some of the principal builders' employment, and assert, with every appearance of keeping their word for some time at least, that they will stay out until the question shall have been decided in their favor.

Now we put the question fairly and honestly to these two rival parties that it is quite possible that each of them may be somewhat right, and each of them may be somewhat wrong. We begin with the stonecutters, as they have the honor of beginning the battle; it is not to be supposed, however, from our doing so, that we lean unduly to the side of their adversaries. You (the stonecutters) claim as a right, that each member of your body shall be considered competent to set cut stone, as well as work it, and shall be employed in either or both capacities indifferently; that, at least, is the popular notion among the building public of your claim. Now we ask for an honest answer to an honest question; are you as a body, each and all of you, sufficiently practised in setting cut stone to do it efficiently? You will probably answer the question after the manner of our country, by asking another, "how are we ever to learn if we do not begin now?" and to this we would reply, is it reasonable, or is it common sense, that a builder should be expected to employ a man to execute any department of work for which he is not thoroughly fitted? We would say to the stonecutters then, if they cannot devise some means for themselves by which they can acquire the art of "setting" thoroughly and efficiently before they apply to master builders for employment in the double capacity, their demand is, at present at least, not a reasonable one. It is not to be expected that builders should suffer for a time from the well-meant, but rather experimental efforts of such men as have been trained at "the bench" only, and to whose hand the trowel is somewhat of a stranger.

We do not think there is much more to be said for the exclusive rights of the bricklayers either; we begin with them in a similar way. You claim an exclusive right to set all cut stone; well for the present we do not intend to contradict you, but we may be allowed to ask, do you as a matter of habit, or are you now prepared to do such "fitting" as may be found necessary to be done to a stone on the scaffold? We think you will answer that that is the stonecutters business, not yours; if you do, we put it to you, looking at the matter without prejudice, is it fair to expect that builders or the public can be expected to submit to two men doing the work of one? a stonecutter in attendance on a bricklayer, and *vice versa*, as is often the case. A trifling calculation will enable a child to form an estimate of how the cost of work can be increased by such an elaborate process. We can now assure both the stonecutters and bricklayers that neither custom, as they each put it, prevails in other parts of the country. The setting of cut stone is very generally, and reasonably we think, confided to the hands of "setters," men who are competent to set the work as well as a bricklayer and stonelayer, and do their own fitting, and who are paid an extra rate of wages. This, we contend, is a reasonable plan; it is less important whether the man has been originally educated as a bricklayer or stonecutter, so long

as he has found the means of qualifying himself in the branch in which he was originally deficient.

Builders cannot be expected to neglect their own interests for mere abstract questions of trade rights, fancied or real, and the competent man in every trade need never fear the want of employment so long as he suits himself to his employer's interests.

We further beg to assure the stonecutters, in the most friendly spirit possible, that among the builders with whom we have had an opportunity of conversing there does not exist so great a diversity of opinion as they suppose. We do not think, if trade jealousies did not interfere to prevent it, that any builder who now goes with the bricklayers would be unwilling, so far as his personal feelings go, to let any stonecutter "set" who was thoroughly competent to do so, and who fulfilled the two conditions of leaving good honest work after him without spending more time over it than made it "pay," which last, after all, is the point on which the question, like many others, must hang.

Were reasonable counsels to prevail, this unfortunate strike might be made the means of some permanent good. The distinction between trades working together for a common purpose may be carried too far, and such an exceptional case as this should be taken advantage of to form a link in binding these two together more closely.

We see in this unsettled question causes at work which the workmen may not have considered. We have had the privilege of examining the architects' original working drawings, from which our principal buildings were erected; we refer to the Post Office, Nelson's Pillar, the College of Surgeons, and a host of others. In these careful drawings every stone is set forth with its dimensions, to the  $\frac{1}{16}$ th of an inch, figured. Under such a system a whole building might be erected, in which accurately worked stones would require little or no fitting, and a bricklayer might, with little assistance, lay the whole of it; but this system no longer exists, or is a return to it impossible. Our fronts are now of a vastly different style from the ones of the past era. Façades, simple in the arrangement of their parts, with broad plain surfaces of regularly squared ashlar, and square window openings, have given place to a more varied and intricate style of treatment: and the exigencies of Gothic work, tracery, and so forth, will not admit of the "cut and dried" system of setting out work, on which departed architects and builders were wont to work. Now it is impossible but that some portion of the stonecutters' craft must be applied when the stone is being set. The times are changing in this as in many other things, and if we do not keep pace with them, we shall be made to do so by the law of progress, or else drop out of the race. We call on our friends of both trades then to adapt themselves to the times, and see if they cannot find some honourable compromise, by which this unfortunate question can be set at rest for ever. Let them meet each other in a conciliatory spirit, and discuss the question without any bitterness; or let a deputation similarly animated, meet the masters once more. If these methods are impracticable, arbitrators might be found who would deal fairly by both; only let an end be put to this miserable misunderstanding at once. We have been induced to go somewhat out of our beaten track to write thus, by an earnest desire for the welfare of the tradesmen. Those out on strike would perhaps find among the builders who are holding out less resentment towards them than pity for the privations to which they must subject themselves, their families, and their fellow-tradesmen, and, we answer for it, there is to be found among the body of architects, a considerable amount of sympathy for anything that affects the welfare of those workmen with which they, and we, and all of us, labour for one common end, to leave behind us monuments of beauty and skill, for which we will not fear the criticism of future generations. Let the stonecutters think kindly of these remarks, for so are they meant.

## THE DESIGNS FOR THE O'CONNELL NATIONAL MONUMENT.

We have inspected the plan prepared by Mr. Carmody, C.E., of Capel-street, by direction of the O'Connell Monument Committee, to supply the competing artists with the necessary information for their guidance in determining the magnitude and character of their designs with reference to surrounding objects. The plan is on a large scale, and shows the site of the monument at the south end of Sackville-street, adjoining Eden-quay, and the portion of that noble street as far as Nelson's Pillar, with Carlisle-bridge, the Liffey, and Aston and Burgh Quays, and the adjoining portions of Westmoreland and D'Olier Streets, in addition to the other streets and points of interest in the vicinity. There is also a map on a smaller scale embracing the Rotundo, Trinity College, the Bank, the Custom-house, and Conciliation-hall. And in addition, there is a perspective sketch of Sackville-street. A reference table gives heights and distances, which supply the place of a section, and descriptive particulars respecting the style of architecture of the

various public buildings within view of the site. Altogether the information furnished is very complete, and at present we are unable to suggest anything more that could be desired. At the meeting of the committee, on Wednesday, Mr. Carmody was highly complimented for the manner in which this indispensable preliminary has been executed, and architects and artists making use of the plan will concur in the approbation expressed by the members of the committee. The conditions on which the artists are to compete, bearing the signatures of the secretaries, are annexed to the plan.

The premiums are £100, £60, and £40, which, however, the committee reserve the right of withholding altogether in the event of none of the designs in their opinion being of sufficient merit. This, with all due deference to the good taste of the members of the committee individually, is not calculated to afford satisfaction to competitors. Had the committee held out a hope that they would ultimately call in, and be influenced by some unprejudiced professional adviser or advisers, it would exercise a marked effect upon the excellence and character of the designs which they would receive.

The 9th paragraph of the "particulars" is also, we think, not likely to add to the popularity of the competition: it is as follows:—

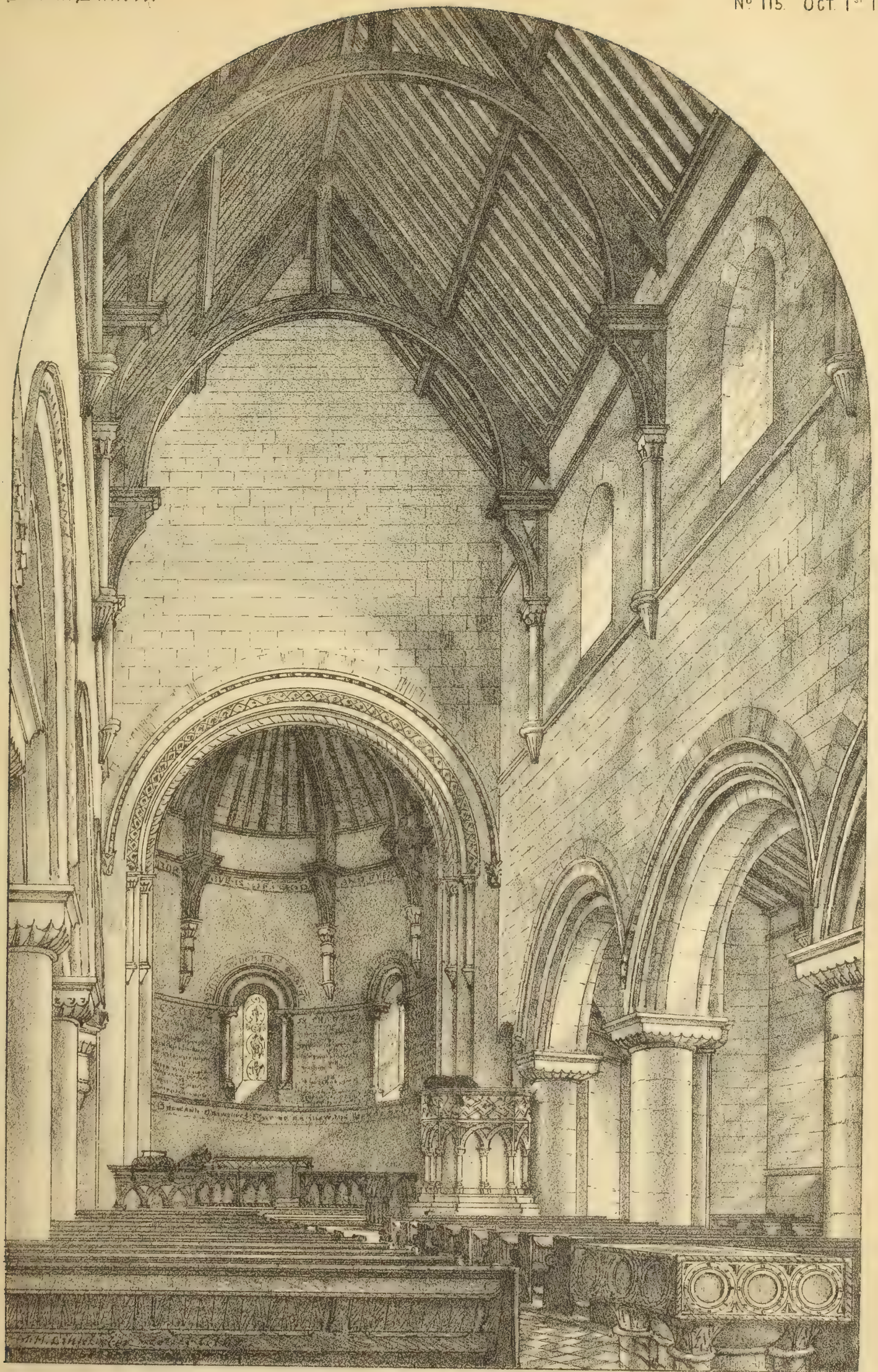
"Should the committee award a prize or prizes, there will be no obligation on the part of its members to adopt any particular design so approved, nor in any way will they be pledged to the designer, either to employ him or to carry out any portion of his plan."

It is the latter portion of the paragraph which will prove most unpalatable to artists and architects.

## THE O'CONNELL MONUMENT.

MR. JOHN M'CORRY, a working tradesman, has addressed to us a letter on the above subject, a portion of which we give below. We are most anxious to open our columns, at some inconvenience, to the class to which the writer belongs, knowing what a strong feeling is abroad among the Dublin tradesmen on this subject. So long as these opinions are temperately and properly expressed, we shall continue to do so, even should we not agree with the sentiments expressed, as we confess we do not with these ones in every respect. The disposal of so large a sum of money still requires more consideration, we think, as to the manner of doing it, and "native talent" should not be overlooked. Let the discussion, however, be maintained as much as possible in a friendly spirit, and let even those opposed to giving the commission to Mr. Foley, on the ground of his non-residence in Ireland, remember, when speaking of him, that they are speaking of their countryman, and the first of living sculptors. Mr. M'Corry observes:—"Yours being a journal representing that portion of the building and artistic class whose judgment and practical taste may be safely taken as the most reliable on questions of native art and workmanship, I beg to offer to you and the public the following facts in connection with the late sculptor, John Hogan, and the ostracising of resident genius: Firstly, I would refer to the committee of the Moore Monument formed at Charlemont House, composed of twenty subscribers of a pound each, without reference to competency. The late Earl of Charlemont invited specially, as the first of European sculptors, Hogan, when it was intimated to him by the secretary that a subscription was expected from him before entering the meeting. The man of genius spurned the request as an insult to his high profession and superior ability, vindicated nobly by Lord Cloncurry, who, in enclosing £50, said he would add £50 more provided the great Irish resident artist received the commission. Here there was no doubt as to the capacity, nevertheless the contract was jobbed away out of the country, and Cloncurry, one of the best and most patriotic of Irishmen, saved £50 for some other benevolent or charitable purpose. There are those to-day who hold a high place on the O'Connell Committee who, in the unworthy battle to decry resident talent, do not hesitate to strike at the fame and the production of Hogan's chisel as it stands in the Exchange, finding fault with the colossal development of a figure which the artist designed to be lifted to an elevation of twenty feet instead of four. Hence the defective outline. So much for the fair treatment in Dublin of the man who studied with Thorswalden, and was honoured by a medal gift expressive of the esteem in which the then greatest of living sculptors held our countryman. The O'Connell Committee may now afford to despise the feelings and interests of the Dublin trades, and hand over to Mr. Foley the statue, saying that they are bound in honour, forsooth. Where was honour or justice when subscriptions poured in, in the faith that the nationality identified with the actions of O'Connell's life was sufficient to guard against the introduction of foreign workmanship? The poet says—

"Honour and shame from no condition rise;  
Act well your part, there all the honour lies."



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### THE DUBLIN WATERWORKS—THE BRADFIELD RESERVOIR.

AFTER the occurrence of the fearful inundation caused by the bursting of the Bradfield reservoir, the subject for a time excited an almost universal sensation, and we Dublin folk in particular, being, as we are beginning to know to our cost, so deeply interested in the subject, felt that the lesson to be derived from it came particularly home to us in an unpleasant, uneasy manner. We read eagerly the scientific evidence given at the Sheffield inquests, and we made anxious enquiries as to the construction of our own waterworks. We received apparently satisfactory replies from those engaged in them; we were glad to be satisfied, and we paid compliments one to another in a very edifying fashion, and some of us, particularly those officially connected with the undertaking, in a very pleasant and convivial manner. In fact the shortcomings of Sheffield only made the virtues and wisdom of corporate Dublin shine with greater brightness, and we were all pleased. It is now, with the utmost regret, we observe that the whole question is reopened in a most unpleasant manner. An article in the *Irish Times* of September 20th, couched in no measured terms, has again awakened the uneasy feeling—we are not, we think, going too far in saying that it has created a profound sensation among the citizens. The writer characterises the works as being of a most improper character, and the “puddling,” on which all the security of the reservoir depends, of the most unsatisfactory description; he states that it is “carelessly made, hastily thrown into its place, and is formed of mere mud intermixed with coarse gravel.” If one half of this statement is true the question is too serious a one to be avoided. We regret that we are not in a position at present to affirm or deny these statements in the absence of reliable data on which to go. We sincerely hope, for the character of our city and the engineering profession, that they are erroneous, and have been penned without proper knowledge of the facts, or on a misrepresentation or a distortion of them. We withhold any opinion one way or the other for the present, and in the meantime the following opinions and facts as to the failure of the Bradfield reservoir, from the reports furnished to the Sheffield Corporation since the catastrophe by several eminent engineers, will be read with interest.

Most of these authorities, we gather from the *Times*, bear out the opinion generally prevalent that the giving way of the reservoir at Bradfield was caused by water having got under the outside slope of the embankment, which either induced the bank itself or the foundation on which it rested to slip. But it is satisfactory to learn on the same competent authority that the most capacious reservoir may be provided without the dangers of any such mishap. As a preliminary, however, a careful geological survey must be made. Whether this was done in the case of the Sheffield reservoirs we are not prepared to say. Sir John Rennie tells the corporation, “I consider the site of the Bradfield embankment to have been injudiciously selected—the strata consisting chiefly of millstone grit, but with loose friable shale in the deepest part, unequal in quality and dislocated, with old land slips in the vicinity, extensive faults in the strata, and with several strong springs of water which it was difficult to avoid.” Other engineers are equally decided in their objections to the site. But even supposing that the site had been a good one, those gentlemen state that the embankment was extremely faulty in its construction; and their remarks on this head have a universal application. Most people have seen the process of constructing a railway embankment. The “stuff” or material is deposited in “tips”—that is, it is tilted over from a waggon, and load after load is deposited until the required height and width are obtained. This appears to have been the method followed in the construction of the Bradfield reservoir. Mr. Conybeare says the material “was loosely thrown in by waggons, in tips of from five to nine feet; instead of being evenly spread and well consolidated (by the passage of one-horse carts all over it) in parallel layers of only a few inches thick.” Mr. Leslie observes that in tips of that character the material may continue to sink or subside for many years after the construction of the embankment; while Mr. Stevenson points out that by such a mode of construction clods or stones must invariably find their place of repose at

the bottom, and thus produce unsound layers or strata in the embankment, which layers will be full of interstices, and calculated to admit the free percolation of water. Some half-dozen engineers of great experience express similar opinions, and all concur in stating that the embankment of a reservoir should be laid in layers of only a few inches in depth, which should be well “pudded,” or rammed. The next point to which these gentlemen apply themselves is one of equally general importance—namely, the construction of the pipes and the manner in which they should be laid when passing out of the reservoir. The pipes of the Sheffield Company were only 18 inches in diameter; and as such conduits should be of such a calibre as to afford an opportunity for internal examination, most of the engineers whom the corporation have consulted hold that diameter to have been insufficient. A still greater defect was that the valves were on the outside of the embankment only. Thus there was no means of shutting off the water in the inside of the dam; whereas, if valves had been fixed on the inner end of the pipes, access could have been had to them when the reservoir was full. This arrangement is strongly commented on by the engineers. But perhaps the most important question touched upon in the professional reports is that of the manner in which pipes should be laid from the reservoir to beyond the embankment. In the case of the Bradfield reservoir they were laid in a trench under the dam. The engineers whose reports the Sheffield Town Council publish are nine in number—Mr. Leslie, Mr. Stevenson, Mr. J. Murray, Mr. Conybeare, Mr. Lee, Mr. Barlow, Sir John Rennie, Mr. C. Vignolles, and Mr. M. B. Jackson; and several of them in unequivocal terms condemn that plan. Mr. Leslie considers it a much better course, when practicable, to drive a tunnel in the solid at the end of the embankment, in which tunnel the pipes should be laid. Should there be no suitable ground for tunnelling, he would build a culvert of very substantial masonry, large enough to carry floods during the time the bank was in progress of construction, and in which the pipes could afterwards be inserted. Mr. Murray states unhesitatingly that the tunnel for the pipes ought to be laid in the solid ground, and others of the reporting engineers speak with equal confidence to the same effect. Mr. Barlow, though of opinion that no pipes should be laid under an embankment unless the embankment rests on a rock foundation, and the pipes are laid in excavations, so that they are well below the surface, does not think it important that they should be laid in a culvert or tunnel, as brickwork is more liable to fail than iron, and if it failed, the pipe would probably be destroyed at the same time. But Sir John Rennie states that the proper plan is to carry the pipes through the solid ground or strata in tunnels of masonry either on one side of the embankment or the other, but wholly independent of it; and Mr. Jackson goes the length of saying that the longer a storage reservoir has existed with pipes laid under or through an embankment, the nearer it is to inevitable destruction, unless preventive steps be taken. Cast iron, he says, is a treacherous material as well as a perishable one; and he advises that the pipes which run under the embankments of the Sheffield reservoirs should be permanently plugged up, and that fresh means should be provided for the discharge of the water. From this gentleman's report it would seem that there still exists a doubt as to whether the water got into the embankment by leakage through the pipes, or by a leakage under or through the puddle. With respect to the comparative merits of a constant water supply and an intermittent one, Mr. Lee remarks that in the case of the latter the water is less pure at the taps than in the reservoirs, because when the pipes are empty, oxide of iron is formed, and discharged with the water on the next delivery.

It is but fair to say that the reports from which we have been quoting formed part of a case prepared by the Sheffield Town Council against an application to Parliament by the Waterworks Company for additional powers. The battle between the two bodies has been fought and decided, and in its details the public, probably, would not take much interest; but there can be no doubt that in obtaining the opinions of so many eminent engineers on the construction of water reservoirs for the supply of towns, the corporation have done a service, not only to their own constituents, but to all the cities and towns in the empire.

### ARCHÆOLOGICAL.

Dr. Lioy has discovered the remains of lacustral habitations in the old bed of the Lake of Fimon, four miles from Vicenza. A number of flint implements, others made of bone, the remains of stags, and other animals which have now disappeared from those parts, show that these dwellings date from the “age of stone.”

The Rev. John Greenwell, one of the vice-presidents of the Surtees Society, has been intrusted by Lord Carlisle with the task of exploring the curious British tumuli at Castle Howard, in the North Riding. He proceeded accordingly to open two, but they showed evident signs of having been already ransacked. The first he opened was a large barrow at the base of the Slingsby Banks, and at the time of opening was fully 60 ft. in diameter, and 8 ft. high. In it he found several urns, ashes of human bones, some wrought flints, and a flint thumb-ring; in the other a very fine scalloped or pectinated urn, and a curiously constructed floor of concrete. All such remains were probably searched hundreds of years ago, under the supposition that they contained valuable ornaments, as they probably did, and there is not much left for the modern antiquary to find.

At Turin a highly finished antique statue, in gilt bronze, of somewhat colossal proportions, has turned up from a depth of five yards below the soil in the court-yard of the Palazzo Biscione, belonging to Prince Pio. This residence was known to have covered the old theatre, built by Pompey, which contained 30,000 seats, a magnificent porch, &c. Banker Righetti had lately purchased it, and in the progress of certain alterations this windfall has been found. The figure is 18 feet in height, but the greater portion has yet to be excavated, and every precaution is adopted to insure its safe deliverance from mother earth. It is already ascertained to be a first-class specimen of the best artistic period.

The old castle wall of Southampton is threatened with destruction. We earnestly trust the ancient relic may be preserved. The Rev. Mr. Kell has been energetically endeavouring to avert the evil, and well deserves the assistance and sympathy of all who love to preserve the memories of ancient service. These walls did their duty well in old times, and it seems to many an ungrateful thing to, remove them now that they are useless: it is not alleged that they are an obstruction to ventilation or traffic.

In sinking piles for the bridge of Port Galland which is being thrown over the river Ain, the navies employed discovered some armour of gilt bronze, swords, and poinards. These articles have been purchased by the conservator appointed by the Emperor to superintend the museum of Gallo-Roman antiquities which he is forming in the old castle of St. Germain-en-Laye. They are of great historical interest, as they may serve to indicate the course pursued by Julius Cæsar, when, having entered Briançon from Italy, he pursued the Helvetii, who were slowly moving towards the Aunis.

In Schimmert, near Aix-la-Chapelle, remains of a Roman camp have been discovered. Arms, needles, bones, a beautiful ruby ring, and various other objects have already been brought to light; and the excavations, which are being carried on vigorously, bid fair to prove more fruitful still. During the last few days there have been under somewhat singular circumstances a succession of finds at the same spot, in Eccles, of a very large number of silver pennies, chiefly of the reign of Henry III. The extent of the deposit may be gathered from the fact that the total quantity of these coins found numbers about 6,400 pieces, having an aggregate weight of about 21 lbs. avoirdupois. A new junction road is being made from Wellington-road, Eccles, past the boundary wall on the west side of the ancient residence known as Monk's-hall, where it is probable the monks of Whalley Abbey, who were formerly the lords of the greater part of Eccles, Monton, and Swinton, had a grange or farm residence, with tithe barns, &c.; and where they collected rents and tithes from their tenants and other inhabitants of the neighbourhood. Here the discovery was made by a young man named Britch, who about ten days ago picked up a few coins at the wall, and thought so little of the discovery that he gave some away to his companions. He afterwards found more, and was brought into communication with Mr. Allan Gibb, a local antiquary, under whose auspices a coarse earthenware pot containing the quantity above stated was disinterred on Friday morning last. The coins have since been claimed by the Crown as “treasure trove.”

### SCIENTIFIC.

PROBABLE REVOLUTION IN STEAM.—Mr. W. H. James, C.E., has, after devoting a whole life to scientific improvements, at length succeeded in producing a steam generator and engine of such extraordinary power, in proportion to its weight, the space it occupies, the fuel consumed, and the cost at which it can be manufactured, that not the slightest doubt is entertained by those who have seen the invention in operation, and in whose opinions and judgment confidence can be placed, that, when properly and fully understood, appreciated, and brought into use, it will by degrees effect a complete

revolution in all kinds of steam machinery, and become applicable to numerous purposes for which the powers of present steam engines are totally inadequate.—*Mining Journal*.

Mr. George Elliot proposes the adoption of a new species of props and supports for the roofs of mines. The props and cross-pieces used at present in maintaining the roof of coal and iron mines are made of timber or cast-iron; but Mr. Elliot advises the employment of wrought-iron. By this means greater strength will be attained, less expense incurred, and more room gained for the galleries of the mine. The wrought-iron props may be solid or hollow, and of any convenient shape; but it is preferred to form them with a section of three ribs, equidistant, springing from a centre, or with four ribs forming a cross. It is also proposed to employ shoes of metal or wood to support the props, and to interpose similar blocks between the top of the props and the horizontal cross-pieces.

We understand that an invention has just been patented in Paris, by means of which printing can be conducted without the employment of ink. The process consists in the introduction between the paper and the type of a sheet of some fabric on which is deposited lampblack and glycerine. It is thought, too, that by increasing the number of the latter intermediate sheets and enhancing the pressure, a great number of impressions may be obtained simultaneously. The process is merely a modification of an old method, and we very much doubt its value as a practical means of printing.

Government has just sent an order to Mr. Daholi, the American inventor of fog-whistles, for a fog-trumpet to be placed on the headland of Dungeness. It will consist, says the *New York Herald*, of two twenty-four inch caliber engines, placed side by side upon a platform or bedplate of cast-iron. Upon the same platform will be two air-tanks or receivers, into which will be condensed the air for blowing the trumpet. But one engine will be made use of at a time, the other being a reserve in case of accident, and either can be fired up in about half an hour. The automatic arrangement by which the trumpet is blown and operated can readily be changed from one engine to the other. The trumpet is intended to revolve half-way round and back in about a minute, and blow its blasts as it moves round.

**ESKERS OF THE CENTRAL PLAIN OF IRELAND.**  
—We select some notes on this subject from the new *Geological Magazine* (edited by Professor T. Rupert Jones and Mr. H. Woodward, from which much good work may be reasonably expected, and which well deserves support, if the first number may be taken as a specimen). An esker is defined as a ridge, or, rarely, a mound of sand or gravel, heaped up by the action of water, and derived from masses of the same material in close proximity to it. These masses, though they occur elsewhere, are most abundant in Ireland, where they have received the name of "esker;" they are analogous to the sand-banks, harbour-bars, shoals, &c., now in process of formation through the antagonistic action of tides and currents causing the accumulation of bottom material at particular points. In a paper read at a meeting of the Dublin Geological Society, Mr. G. B. Kinahan follows the example of Mr. Sorby, and attempts to determine the mode of formation of these eskers from intrinsic physical evidences. His paper is important chiefly on account of its containing a proposed nomenclature of eskers, which we cannot explain better than by saying that it is nearly parallel to that of the coral reef proposed many years ago by Mr. Darwin. We thus have fringe-eskers, barrier-eskers, and shoal-eskers as parallel terms to those of fringing-reefs, barrier-reefs, and atolls; but the relation of the last-named terms in each series is less evident than that of the others, and partakes more of the nature of antagonism than parallelism. Mr. Kinahan thus defines the three classes:—"The fringe-eskers occur fringing high ground; the barrier-eskers stretch from one high ground to another, or run out as a spit or bar from high ground; and the shoal-eskers have been so called as they seem to be similar to shoals and shifting banks of the present day.

The great work of boring a tunnel through Mount Cenis has been recently inspected by a commission specially charged with the duty, accompanied by several French engineers, and an interesting report has been made on the subject. It is calculated that ten years more of continuous labour is requisite before the communications by this route will be so far advanced as to unite the territories of France and Italy.

A minute of the Lords of Committee of Council on Education, drawn up in consequence of the report of the Select Committee of the House of Commons, promises an inquiry into the feasibility of establishing night classes at South Kensington to teach drawing to persons who cannot attend established schools of art.

## FINE ARTS.

The receipts of the Royal Academy have this year been enormous, amounting to £12,884, which is upwards of £2,000 more than has ever before been taken. The extraordinary number of 57,000 catalogues were sold at the door.—*The Flaneur*.

A London photographer has recently introduced a novelty in the mode of taking carte-de-visite photographs with the signatures of the sitters appended. This gives but little extra trouble. The sitter simply signs his name on a slip of paper, and finds its facsimile, diminished in size, transferred to the portraits when they come home.

One of the most important of the acquisitions of the British Museum, comprised in the recent purchase of the remains of the Farnese Collection of sculptures of the ex-King of Naples, is a figure of Mercury, much resembling the so-called statue in the Vatican, but which has not suffered mutilation of its hand.

The Report of the Liverpool Institute of the Fine Arts states that the first exhibition of that society had proved satisfactory, having been visited by 20,000 persons. There was a balance of profit on the accounts of £182, of which £71 was on the exhibition account. The committee hopes to receive, in future, the unanimous support of the painters of the Liverpool Academy. The chairman regretted the want of unanimity which had led to there being no less than three exhibitions in the town instead of one. He saw no reason to fear that, by proper management, an amalgamation might take place, and the exhibitions be united. One speaker, referring to a paragraph in the report as presented to the annual meeting, said that he trusted the project which had been so long in hand, of obtaining for the town a building worthy of Art, in which the annual exhibition might be held, and where there would be a permanent gallery, would soon be realized. The committee resolved to offer a prize of £50 for the best picture in the exhibition now open.

In the chapel of the Palazzo del Podesta at Florence there is an old portrait supposed to represent Dante, and to have been painted by Giotto, his contemporary. The Italian Minister of Public Instruction having appointed two distinguished literati, M.M. Milanese and Passerina, to select the most genuine portrait of Dante for the purpose of having it executed on the medal which is to be struck in honour of the poet, they, after mature examination, have declared the above-mentioned portrait to be the work of Taddeo Gaddi, Giotto's pupil, and therefore not a contemporary of Dante. They have likewise denied the authenticity of all the other portraits of Dante existing at Florence except two—one contained in an old MS. of the Riccardi Library, and the other in the cathedral of Florence.

The largest glass painting in existence is the one ordered by the Prince of Prussia for Cologne Cathedral. It is to be placed in the principal portal, between the two towers, at the completion of the building, and its subject is to be "The Last Judgment," after Cornelius's cartoon designed for the Berlin Camposanto.

The rich and rare collection of arms belonging to the late King Frederick VII. of Denmark has been removed to the Ancient Northern Museum and to the Artillery Museum, in compliance with the late king's wishes. All weapons of a date anterior to 1650-60 have been sent to the former museum.

The Princess Royal, the Crown Princess of Prussia, who, it will be remembered, as a pupil of Edward Corbould, painted a dead grenadier for the Crimean Patriotic Fund, will exhibit at Berlin four war pictures, illustrating the valour and prowess of the Prussian troops at the taking of Duppel and the slaughter of the brave but inefficiently-armed Danes.

It is the intention of the Emperor of the French to grant, every five years, out of the civil list, a grand prize for what a jury of thirty—ten of whom shall be nominated by the Fine Art Academy—shall adjudicate the best work, either in painting, sculpture, or architecture. This prize will be worth 100,000f. (£4,000).

## MONUMENTS, STATUES, ETC.

The busts of Her Majesty and the late Prince Consort, which were presented by the Lord Provost of Edinburgh to the city, have been placed in niches in the council chamber. They are of white marble, and brackets for them were prepared under the superintendence of Mr. Cousin. The bust of the Queen has been executed by Noble, and that of Prince Albert by Theed, and both have been copied from statues selected by Her Majesty.

The working-men of Birkenhead have subscribed for a bust of Mr. John Laird, M.P., to be placed in the Birkenhead Borough Hospital, which owes its foundation to the liberality of that gentleman. The bust is of Carrara marble, and has been executed by Mr. M'Bride.

The statue of Father Mathew, the great apostle of temperance, to be inaugurated in Cork on the 10th inst., has been most successfully cast, and its arrival may be looked for immediately.

It is proposed to raise funds by a penny subscription for a shrine and statue to Shakespeare on Primrose-hill, at a cost of £2,400. The Urban Club seems to give the plan its sanction, and Mr. Phelps is the Secretary.

A drinking-fountain has been erected at Black Gang, at the back of the Isle of Wight, dedicated in an inscription "to the memory of Shakespeare." The fountain has been erected by Mr. Letts.

A memorial window has been erected in St. Catherine's Church, Edge Hill, Liverpool, by the Liverpool Rifle Brigade, to the late Colonel Adam Gladstone, at whose expense the church had been built.

The following statement we give on the authority of the *Illustrated London News*, in whose "Columns for the Curious" it appeared some short time ago:—"Resting the other day upon one of the seats beneath the sycamores of the Tower Green, and reflecting upon the spoliation of the historic features of the old fortress, we missed the statue of the Duke of Wellington, which, in 1848, was appropriately erected facing the Wellington Barracks. This statue was presented by the sculptor, T. Milnes, and its removal is, at best, ungrateful treatment in more than one way. What could have become of the memorial next crossed our mind, when the inquiry was answered by the following apropos paragraph, which appeared on the last anniversary of the Battle of Waterloo:—"A fine Portland stone statue of the Duke of Wellington, 6ft. 6in. in height, which has lain for some years in the Tower, among the old stores, was yesterday raised on a pedestal in the principal thoroughfare leading from the Military Store Department offices to the pier in Woolwich Arsenal. The site selected by Captain Caffin, C.B., Royal Navy, Director General of Stores, is highly appropriate. The statue, which is a work of some merit, has been somewhat damaged, and the sword and one of the fingers have been broken off, which will be of course repaired." This memorial is no other than Mr. Milnes' statue, which was set up sixteen years since; when it was taken down we could not learn; but surely its consignment to the old stores' depository was ill-treatment of the memory of our great commander and disrespect to the sculptor who sought to do honour to the hero. Woolwich may not be an inappropriate site for the statue; but why should it be removed from its original location? By-the-way, we see that the forty-ton block of granite has been conveyed from Cornwall to Strathfieldsaye, for a portion of the monument which the present Duke of Wellington is erecting to his illustrious father. But where is the national memorial voted twelve years since to the hero? Such neglect is only exceeded by the indifference which, for lack of a few thousand pounds, has left for twenty years unfinished the Nelson Column in Trafalgar-square! Distance, in this case, lends indifference.

The memorial to the late Prince Consort at Abingdon is nearly finished. The design of the memorial is by Mr. Gibbs, of Oxford, and the colossal statue of the Prince in the robes of the Garter, which will surmount the pedestal, is by Mr. Bolton, of Worcester.

Mr. E. B. Stephens, the recently-elected A.R.A., sculptor, has completed a statue of the late Duke of Bedford, which is of bronze, and seven feet in height. This work has been placed in the Abbey Yard, Tavistock.

A memorial statue of the late Mr. Joseph Locke is to be erected at Barnsley; the work is by Baron Marochetti.

The *Illustrated London News*, November 8, speaking of Benson's Watches in the Exhibition, says—"Ranged around the base of the clock were the watches which Mr. Benson exhibited, and which have been universally admired for the beauty and elegance of the designs engraved upon them. The movements are of the finest quality which the art of horology is at present capable of producing." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63 Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## CHURCH BUILDING, IRELAND.

In our last issue we announced that Messrs. Lanyon, Lynn and Lanyon, Mr. J. Rawson Carroll, and Mr. Alfred G. Jones were invited to prepare designs (in competition) for the new church intended to be erected at Glenagary, Kingstown, out of the fund bequeathed by the late Miss Shannon for this purpose. The trustees, having carefully examined into the merits of the several plans and having obtained competent advice for their guidance, decided in favour of the designs submitted by Mr. Jones, and have appointed this gentleman to superintend the erection of the building. The church provides accommodation for 600 in sittings, at a cost of £3,500. The site has been well chosen, being convenient both to Sandycove and Glenagary, and in a rising locality.

**CARRICKFERGUS NEW GRAVEYARD AND MORTUARY CHAPEL.**—Within the past month or so considerable alterations and improvements have been made on this cemetery and chapel, which were provided by the munificent bequest of the late Captain Charles E. Kirk, of the 1st Royals, whose death, at the early age of twenty-six, was, it is believed, accelerated by the severity of the climate and the hardships he had to endure whilst nobly serving in the trenches before Sebastopol. With many others, he recognised the great necessity that had for some years existed for an additional cemetery in Carrickfergus, and by his will he generously made provision to supply the want. Accordingly the ground for the above-mentioned cemetery was purchased and laid out. Since then it has been kept in order by the Misses Kirk, of Thornfield, the sisters of the deceased. Recently the framework of the chapel, which before was open, has been glazed with stained glass, and the wood-work and gates painted, at a cost of upwards of £100. These improvements were executed at the sole expense of the Misses Kirk.

**THE CATHEDRAL OF ST. PATRICK, ARMAGH.**—This building, commenced in 1840, and which has already cost £40,000, is as yet little more than roofed, and the works are suspended for want of funds, a further sum of about £10,000, being required for its completion. (For illustration and description of this building we refer our readers to the Nos. of DUBLIN BUILDER for April, 1863.)

**NEW CHURCH AT QUEENSTOWN.**—The ceremony of laying the foundation-stone of a new church at Queenstown, was performed on Thursday, by the Lord Bishop of Cork, Cloyne, and Ross. The site—Rushbrooke—has been selected with great judgment. The church will be a simple structure, composed of local limestone, with a judicious introduction of Bath stone. Mr. Henry Hill is the architect. The Gothic style of the Early English period is that adopted, and the church will be cruciform, with a tower and spire at western end over entrance. It will have two transepts—one at the north, the other at the south side, but it is intended at present to complete only the latter. The entire length of the church will be 122ft., and its greatest breadth 63ft., proportions calculated to accommodate 500 people. The chancel will measure 29ft. by 22ft.; the nave, 80ft. by 33ft., and each transept, 14ft. by 20ft.; the tower at the base will be 15ft. 6in. square, and will be provided with massive buttresses; its height with the spire to the finial will be 130ft.

**MYROE CHAPEL OF EASE.**—This little structure was on Thursday consecrated by the Lord Bishop of Derry and Raphoe.

## CHURCH BUILDING, ENGLAND.

On Thursday the 25th of August, the central stone of the new parish church of Friday-bridge, near Wisbeach, Lincolnshire, to which Mr. James H. Owen, M.A., the respected architect of the Board of Public Works, Ireland, has generously devoted his gratuitous professional services in furnishing designs and carrying out the work, was laid by the Bishop of Ely. We learn from the *Guardian* that:—"The style of the church is Early Decorated, the materials used being brick and stone. The ground-plan forms a Latin cross, comprising chancel 24ft. long by 20 wide, with sacristy on the north and chantry chapel on the south side, nave 60ft. long by 25ft. wide, south-west porch, and north-west clock tower, to be surmounted by a spire."

The foundation-stone of a church, to be dedicated to St. Peter, has been laid at Anlaby, near Hull, by Mrs. Voase, of Anlaby House, and which will serve as a chapel-of-ease to Kirkella, the parish church being at that village. Sir Francis Legard gave the site for the building, which will cost about £1,000, and will contain a nave and chancel, with vestry, and a porch on the south side. The style will be Geometric Gothic, and the material, red and white brick, with stone dressings. The church is calculated to seat 230 people, and will be fitted up with open oak stalls. The design is by Mr. Wm. Keby.

The church of St. James, Bury St. Edmund's, which has been recently restored under the direction of Mr. Gilbert Scott, has been reopened. Total outlay nearly £5,000.

Tewkesbury Abbey Church, erected in the thirteenth century, is about undergoing restoration. It has been inspected by Mr. Gilbert Scott. He would make a clean sweep of the internal fittings, which, he said, were as uneccelesiastical and as bad as they could be. Instead of having the choir extend, as it does now, to the organ, Mr. Scott proposes that it should extend from the east end to the pulpit. Here he proposes to place a low screen, and also proposes to remove the organ to one of the transepts, to remove the whitewash from the walls, and to regild the bosses. Generally, the church is in a good state of repair, and requires little more to be done to it.

The restoration of the Dutch Church, Austinfriars, is being proceeded with. The cost is estimated at about £12,000; the architects are Mr. Edward P. Anson and Mr. William Lightly. Mr. Spaul, of Norwich, holds the contract for the screenwork and pewing, all of which will be of oak. The open timber roof, in place of the unsightly flat ceiling, is supported on twenty graceful columns, with arches springing from each pillar, and toward the end are six dormers to light the chancel. In addition, the church will have windows with flamboyant tracery, restored in Portland stone; the large west window, which is English Decorated, is next in size to that of Westminster Hall. Every admirer of ecclesiastical antiquities must rejoice at this efficient restoration of what Mr. Gilbert terms "a noble model of a preaching-nave."

The foundation-stone of a new church has been laid at Consett, by Mr. Fenwick, M.P. The church, of which Mr. Corry is the architect, will be built in the Early Norman style, and will accommodate about 600 worshippers, at an estimated cost of £1,825. Among the articles deposited on the occasion were two specimens of the raw material of the district, a piece of coal and of ironstone.

Mr. Henry Hoare, of Fleet-street, formerly student of St. John's College, Cambridge, has undertaken to present to his college a stone tower of 160 feet high, as designed by Mr. G. G. Scott, in place of the wooden spire formerly proposed to complete the reconstruction of the chapel which is in the hands of the architect named. The work in question will cost from £5,000 to £6,000, and had been, on account of the cost, declined by the college authorities.

The new church of St. Mary at Redditch, built on a site of land presented by Captain E. H. Greg, has been opened. The building, which holds 400 persons, is designed by Messrs. Shellard and Brown, in the Early Geometric style, and cost £2,500.

The new church of St. Peter, Arthington, has been consecrated by the Bishop of Ripon. The building is in the Early Decorated style, from designs by Messrs. Mallinson and Healy of Bradford, and has three stained glass windows, the east being by Hughes, the west by Clayton and Bell.

The fine old Norman church of Steyning, Sussex, has been re-opened, after undergoing extensive works of restoration and improvement. Both north and south aisles have been re-roofed, two buttresses erected, and the exterior walls repaired. The chancel has been much improved by a memorial window of stained glass by Hardman and Sons, erected by the widow and family of the late Hugh Ingram, Esq.; and the church throughout has been open-benched. A handsome lychgate, after the model of that of Beckenham, Kent, is in process of erection.

The venerable old church of St. Mary, Fordingbridge, has received another addition to its many attractions by the insertion of memorial stained glass, by O'Connor, in one of the Early Pointed lights on the south side.

A memorial window, by Ballantine of Edinburgh, to Dr. Luxmore, formerly Dean of Gloucester, and subsequently Bishop of the sees of Bristol, Hereford, and St. Asaph, has been erected in the east cloister of the cathedral.

The Rev. Canon McNeile has laid the foundation stone of a new church, to be called St. Silas, which is being erected at the expense of the congregation of St. Paul's, Prince's-park, in Highpark-street, Toxteth-park, Liverpool. The building is to hold 1,000 persons, and will be a structure in the Decorated Gothic style, with tower and spire at the south-west angle. The spire will be 125 feet high, and the whole of the external part of the building will be faced with Yorkshire stone barpoints and Stourton stone dressings. The cost, exclusive of land, will be £5000.

The parish church of Blandford, Dorset, has been re-opened after being painted and whitewashed throughout.

The first of the series of mosaic paintings which are to adorn the spandrels of the dome of St. Paul's is now completed and exposed to view.

A painted window has been erected in St. Ann's church, Burlington-street, Brighton. It is in the Decorated style.

## ENGLISH ITEMS.

**EXPEDITIOUS MODE OF CLEANSING THE EXTERIORS OF BUILDINGS.**—There is a means of economically cleansing the fronts of stone buildings, used in the case of the Bank, and which has been more than once applied to the Mansion House, the last occasion being prior to the entrance into London of the Princess Alexandra, when it was also used for the portico of the Royal Exchange. Of course, we mean by the fire-engine. We pointedly adverted to the method at the time—when the success of the operation was complete and we had spoken of it often before. Why the method is not in use for other buildings—as the Sun Fire Office—the beautiful detail of which is so obscured that it contributed nothing to the effect, and why not much more frequently for the Mansion House and the Exchange, it is beyond our power to discover, more than why it is not tried for St. Paul's Cathedral.—*Builder.*

[This simple expedient cannot claim the merit of originality, as it has been used on several occasions in Dublin long since. The contractor for the new national model schools, Mr. John Nolan, we believe, used the fire engine with effect on that building when finally cleaning down his work; it is a matter of surprise that it is not oftener employed for this purpose as well as for the one mentioned above.—Ed. D. B.]

**THE NEW EXCHANGE AT LIVERPOOL.**—On Saturday, the 17th ult., the foundation-stone of the west wing of the new Liverpool Exchange was laid by Mr. Charles Stuart Parkes, the chairman of the Exchange Company. The building when completed will be one of the most magnificent structures in Europe for commercial purposes. It has been designed by Mr. Thomas Henry Wyatt, of London, and will cover a space of about two acres. The existing Exchange will be adapted and rebuilt so as to form an integral part of the new edifice. The portion of the work at present in hand comprises the west wing, in which there will be a newsroom, containing 1,045 square yards, and with its accessories of conversation rooms, &c., it will cover an area of nearly 1,500 yards. The newsroom will be 82ft. high from the floor. It is expected that this wing will be completed in about two years. The cost of the whole building will be about £150,000. The Exchange Company have purchased the existing building, and the land required for the new edifice, from the old exchange proprietors for the sum of £400,000. The Mayor, Mr. Charles Mozley, and most of the leading local merchants were present on the occasion, and the trowel was presented to Mr. Parker by Mr. Ralph Brocklebank. There was afterwards a banquet at the Royal Hotel.

It is proposed to widen the end of Cursitor-street, (London) leading into Chancery-lane by giving a double carriage-way—the cost (£2,790) to be defrayed conjointly by the Metropolitan and Holborn Board of Works and the Public Chambers Company, the latter being established to build public offices adjacent.

Mr. John Lloyd, of Bronprys, proprietor of the Towyn Brick and Tilery Works, has offered to give 100,000 bricks towards the erection of a university for Wales, provided it is built at Towyn.

The Metropolitan Free Drinking Fountain Association have already opened in London eighty-seven fountains, three cattle-troughs, and more than fifty dog-troughs, and appeal to the public to enable them by subscriptions to increase the number of their fountains at least five-fold. Some liberal contributions have just been made to the fund of the association, including £60 from a lady in Brompton and £100 from a gentleman in Pimlico for the two fountains just opened by the society outside the Kensington Museum, and in the high road leading to Battersea Park. A gentleman in Fife-hire has offered to pay the cost of a fountain near the Kensington Potteries, where, by-the-way, water was always wanted; and a lady at St. John's-wood has sent the society a donation for the new cattle-trough just fixed in Finsbury-square.

## Railway Intelligence.

**MIDLAND GREAT WESTERN.**—The following report was submitted to the shareholders at the thirty-eighth half-yearly meeting, on Thursday the 22nd ult.:—"The half-yearly statement of accounts show a decrease of £2,372, as compared with the corresponding period last year. The directors sincerely regret such a result to the operations of the company during the half-year, but may truly ascribe it to the general depression of the country, arising from a succession of bad harvests. There are, however, symptoms of improvement, and they encourage the hope that, with returning prosperity, the revenue of the company will proportionably increase. The receipts from the Incorporated Railway and Canal are £108,366 18s. 11d.; disbursements £68,242 2s. 2d.; leaving £40,124 16s. 9d., which,

with the surplus from last half-year, £4,467 Os. 5d., leaves a disposable sum of £44,591 17s. 2d., from which the directors recommend that a dividend at the rate of 4 per cent. per annum, amounting to £43,113 10s., be declared on the paid-up capital of the company, and the balance, £1,478 7s. 2d. be carried to the credit of the next half-year's account. The accounts of the extension from Athlone to Galway have been examined by the government auditor, and show a deficiency of £1,820 Os. 4d. on the working of the half-year, being £1,226 17s. 8d. less than the charge against the baronies for the corresponding period in 1863. The bills promoted in Parliament by the Great Northern and Western Company during the late session, and which the shareholders decided upon opposing, have been passed by the Legislature, with certain important qualifications. They are such as, in the opinion of the directors, preserve to the Midland Company a preference of the traffic carried over the Great Northern and Western system; at the same time, it becomes the duty of all parties, to provide that no cause shall be given for the disturbance of those peaceful relations, which in all matters relating to the working of that line, continue to subsist between them. The inquiry before Parliament into the merits of the several projects for the extension of the railway communication in Dublin, has resulted in the passing of the bill of the Dublin Trunk Connecting Railway, which, of all the rival schemes, appears the best calculated to promote the interests of your company, as it connects the Midland line with all the Irish railways. The directors have received from their engineers satisfactory reports of the state of the line, rolling stock, and works; and the list thereto appended will show the particulars and extent of the rolling stock possessed by the company. The board announces with regret the retirement of one of their colleagues, Mr. Calwell, whose increased avocations elsewhere do not permit him to take any active part in your proceedings. In conformity with the usage in such cases, and in accordance with the authority vested in them, they have elected Mr. Ralph Smith Cusack to succeed to the vacancy, and trust that the selection of this gentleman will receive the entire sanction of the shareholders. The directors who go out of office by rotation are: George Augustus Boyd, Esq.; Joseph Boyce, Esq.; John Gaynor, Esq.; Anthony Lefroy, Esq., M.P.; and George Woods Maunsell, Esq., but are eligible for re-election.

**DUBLIN AND KINGSTOWN.**—The half-yearly meeting of this company was held on Monday last, the 26th ult. The following statement of accounts was presented:—Expenditure—Office expenses, including rent, taxes, salaries, stationery, advertising, &c., £158 17s. 7d.; miscellaneous charges, £17 4s. 5d.; parliamentary and law expenses, £244 3s. 5d.; direction for half-year to 31st August, 1864, £100; debenture interest, £1,400; income-tax, £476 Os. 9d.; balance, £17,751 18s. 11d.—Total, £20,148 5s. 1d. Income—Wicklow Company for half-year's rent to 1st July, 1864, £16,000; do. contingent rent for year from 1st July, 1863, to 1st July, 1864, being 30 per cent. of excess of gross receipts of Kingstown line, over £55,000, £2,542 1s.; do. diversion rent for half-year from 1st January, 1864, to 30th June last, in pursuance of agreement 1st October, 1859, £294 18s. 6d.; transfer fees, &c., £3 14s. 6d.; balance to credit of interest account, £504 12s. 10d.; balance of revenue from account to 29th February, 1864, £16,552 18s. 3d.; less by dividend of 4½ per cent. declared 26th March, 1864, on £350,000 paid up capital, £15,750—£802 18s. 3d.—Total, £20,148 5s. 1d. General statement, from the commencement of the undertaking to 31st August, 1864:—Dr: To net expenditure from capital, per account to 29th February, 1864, £418,841 18s. 9d.; to balance unexpended, £1,158 1s. 3d.—£420,000. Invested in railway preference stock and debentures, £17,013 10s. 2d.; cash at interest and bank balances, £20,161 18s.—£37,175 8s. 6d. Cr:—By general capital stock, £350,000; debenture loan at 4 per cent., £70,000—total capital, £420,000. Dublin and Wicklow Company, for half-year's rent paid in advance on execution of lease, £16,000; debenture interest unpaid, £1,951 1s. 8d.; dividends do. £23 12s. 6d.; balance on sundry accounts, £290 13s. 10d.; income and expenditure for balance to this date, £17,751 18s. 11d.; balance of capital unexpended, £1,158 1s. 3d.—£37,175 8s. 2d.

**DUBLIN AND MEATH.**—The directors of this line in their half-yearly report announce the satisfactory fact that arrangements have been made for the immediate withdrawal of all the "Lloyd's Bonds" in existence, and that creditors to the extent of nearly £200,000 have consented to accept stock in full satisfaction of their claims.

**ULSTER AND NEWRY AND ARMAGH.**—Meetings were held at the Board room at the Armagh station, on Thursday and Friday, for the purpose of settling the terms between these two companies, so

that the Newry and Armagh may use the station as the terminus of their line—Captain Rich attended on behalf of the Board of Trade. There were also present—William Coates, Esq., Chairman of the Ulster; William Kirk, Esq., Chairman of the Irish Directory of the Newry and Armagh; Mr. Broughton, and the engineers of the two companies. Captain Rich decided the point of junction where the Newry and Armagh Company shall join the Ulster Company, this being the only matter which he had the absolute power by act of parliament to decide. In all the other details, except one, both companies met each other in a friendly spirit, and terms were agreed upon. The only matter on which a controversy arose was with respect to the accommodation for the goods traffic of the Newry and Armagh line; and, if confirmed by the Board of Trade, the goods traffic of the Newry and Armagh Company will be carried on at Armagh in the station of the Ulster Railway Company, the Newry and Armagh Company having there a booking clerk and weighmaster of their own to look after their interests. The passenger traffic of the Newry and Armagh line, at Armagh, it was agreed, should be managed by the Ulster Railway Company. The award of the Board of Trade, settling all matters in controversy, will be made in less than a month, and it is expected that the trains of the Newry and Armagh Company will be enabled to run into the Armagh station within that time.

**LIMERICK AND FOYNES.—Directors' Report.**—By the statement for past half-year the line appears to participate in the general decline of passenger traffic, which has affected almost all Irish railways for some time past, showing a decrease in receipts of £213 4s. 8d., arising chiefly on this item, and on third class, but the receipts under other heads have been fairly maintained. The reduction of the train-service during the first four months of the half-year and the cessation of Sunday trains may partly account for this decrease, but it has effected a saving in haulage of £264 12s. 3d. The usual statement of accounts shows a balance on the half-year against revenue, owing to diminished receipts and a large increase of the charge for interest, which presses heavily on the company's resources, as well as the expense of renewing the permanent way. The bill for enabling the Rathkeale and Newcastle Company to complete their railways was passed in the late session of Parliament—the opening of which line, with the improved prospects of the country this harvest, may be confidently expected to increase receipts. **Engineer's Report.**—The way and works of your line have been well maintained since my last report, and the ballasting which was much required is now in progress.

**LIMERICK AND ENNIS.—Directors' Report.**—The directors submit to the shareholders the analysis of the operations of the company for the half-year ending 30th June last, as compared with the corresponding period of 1863. The pressure of adversity is still felt in the passenger traffic, which is less by 2,706 passengers, and £147 7s. 5d. than in the similar period of 1863. The directors are, on the other hand, glad to be able to point to an increase in goods and cattle, the former of which is more by 651 tons, and £184 Os. 2d., and the latter by 3,791 head, and £77 7s. 9d. The net increase on all traffic is £111 15s. 11d. The very high price of money within the period embraced in the account, has affected the interests of this Company in common with all similar undertakings. The railway continues to be worked without the slightest accident. The usual audited statement of accounts is presented herewith. **Engineer's Report.**—I have much pleasure in reporting that the way and works of your line continue to be maintained in satisfactory repair and efficiency. The ballasting of about half the line has recently been renewed, which was much required, and will prove advantageous in the working during the coming winter.

#### AGRICULTURAL STATISTICS.

We take the following from a valuable report by William Donnelly, Esq., the Registrar-General, presented to his Excellency the Lord Lieutenant and the houses of parliament:—

	Acres.
"The total area under crops this year is	5,672,980
"In 1863 the area was	5,662,487
"Showing an increase under crops in 1864 of	10,493
"Of the cereal crops, the total extent under wheat was greater in 1864 than in 1863 by 19,552 acres; whilst the total area under oats has diminished by 143,965 acres. The decrease in oats has taken place in every county. Barley, bere, and rye increased by 1,103, and beans and peas by 873 acres, exhibiting on the whole a decrease in cereals of 122,437 acres. In green crops there is a slight decrease this year compared with last. Turnips show a diminution of	

14,153 acres; mangel wurzel and beet root of 2,328; cabbage of 2,369; and vetches and rape of 20 acres; potatoes, however, have increased by 15,868 acres, and carrots and other green crops by 685 acres,—so that, on the whole, the green crops in 1864 have only diminished by 2,317 acres, on a total amounting to nearly 1,500,000 acres. In 1864, according to the returns, the number of cattle and sheep is greater, and of horses and pigs less, than last year. The increase in cattle (amounting to 113,078) took place, as in 1863, in yearlings and calves, owing, as I am informed, to their importation, and also to the very general rearing of calves which now prevails throughout the country. In sheep the decrease is confined to tups and wethers, ewes and lambs having increased. The falling off in the number of horses was amongst those returned under the heads of 'agricultural' and 'under one year.' In pigs the decrease was almost entirely amongst those 'one year old and upwards.' Notwithstanding the decrease in the number of horses and pigs, there is an increase in the estimated total value of stock this year compared with last (amounting to £632,411). This increase, combined with the larger extent of flax—87,761 acres—and the consequent greater yield and value of that crop in 1864 compared with 1863, also the expected increase in the 'average yield' of other crops this year, may be considered as affording fair hope of a return to more propitious seasons for the farmer than Ireland has enjoyed for some years past. According to the returns received, 84,586 persons left Ireland this year up to the 31st of July—who stated it was their intention not to return—being an increase of 4,080 on the number for last year. The entire number of emigrants since the date when their enumeration at the several ports of Ireland commenced—1st May, 1851—to the 31st of July last, amounted to 1,499,642 persons."

#### Books Received.

- "Another Blow for Life." Allen & Co., London.
- "The Grammar of House Planning." Fullarton & Co., Edinburgh and London.
- "The Art-Student." Hall, Smart, & Allen, London.
- "The Life Boat Journal."
- "The British Workman," and the other marvellously cheap Monthlies published by Messrs. Partridge.
- "The Wine Trade Circular;" "The Grocer;" both valuable serials to these trades.

#### Public and Private Works.

Improvements have been made at Bennett's Bridge within the last few months, under the superintendence of J. Carnegie, Esq., the guardian of the estate of the Shees, minors, assisted by Mr. James Shee, one of the minors. The mill, which was burned about three years since, has been re-built, and a scutch-mill has been attached for flax; in addition, the village, which was in a state of dilapidation, has been put into good repair, and many houses re-built.

The Board of Commissioners of Public Works have agreed to accede to the application of the Waterford Harbour Board for an increase of £25,000, for deepening the Ford. A contractor, who has just finished a somewhat similar work, and who has two powerful steam tugs at his command, is prepared to execute the work.

The Bishop of Kilmore has re opened the parish church at Mohill, which had been closed for three months for alterations. The old square pews have been replaced by single benches, and a new pulpit, and reading-desk, and chancel railing erected. The Ecclesiastical Commissioners contributed more than half the funds, and Sir Morgan G. Crofton, Bart., the landlord, gave upwards of £120, and about £50 was collected in the parish.

**NEW SHIRT FACTORY AT STRABANE.**—A building of a large extent, intended for the shirt trade is now in the course of completion at the North-east end of Strabane.

**MONEYMORE.**—A family vault surmounted by a monument has been erected in the churchyard of Moneymore by the tenants on the estate of the Drapers' Company and the adjoining districts, as a memorial to the late John Rowley Miller, Esq., for many years the respected agent for this and other estates in the neighbourhood. The monument stands about twelve feet high. It is in the Gothic style of architecture, and a large marble panel in the centre bears the following inscription:—"Erected by tenants on the Drapers' Estate, and other friends, in affectionate remembrance of John Rowley Miller, Esq., J.P., joint agent to the Worshipful Drapers' Company, London. Born 22nd January, 1808. Died 25th December, 1862." Mr. Magee, of Moneymore, prepared the vault; the monumental part was entrusted to Mr. Graham, of Belfast; and the iron railing, &c., is by Mr. David Allen, Moneymore.

**DERRY.**—The new road from Clooney-terrace to the new bridge is almost completed.

The first work which the Derry Corporation intend to carry out under their new bill is the construction of a new gateway through the city wall, from Shipquay-place to Magazine-street, an undertaking, about the desirability of which there are no two opinions in the community. Designs having been advertised for by the Improvement Committee, no fewer than six architects belonging to Derry and Belfast, competed for the best plans of the work. At a meeting of the committee, the design of Mr. Fitzgibbon Louch, C.E., Derry, was almost unanimously accepted, after a careful examination into the respective merits of the plans submitted. The gateway will be tripartite, the main span occupying twenty-five feet in width; the side or foot passages being six feet each. The height of the main archway will correspond with Shipquay gate. The Corinthian order of architecture has been followed by the architect, and the facings of the gateway will be executed in Glasgow stone. In order to do away with a dead wall effect, the divisions between the side arch and main roadway will be pierced in two places, and on the summit of the arches two handsome lamps will be placed. The main arch will be traversed by an iron girder bridge. The balustrading will be of cast metal, moulded in harmony with the chosen style of architecture, and in the centre of the arch the Derry arms, fully emblazoned, will form a conspicuous object. The work is to be completed at a cost of £500.—*Derry Sentinel.*

**THE DOWN LUNATIC ASYLUM.**—A stone of this much called-for building (says the *Recorder*) has not yet been laid, although the land has been purchased and paid for nearly two years. It is a matter of surprise to every one that more energetic steps are not being taken to expedite a work of such paramount importance to the community at large. The county goal is being filled with lunatics, for whom there is no accommodation in the district asylum. This is a crying evil.

Messrs. Malcomson, Brothers, are about erecting a spinning-mill at their factory in Carrick-on-Suir. Several of the girders and columns arrived this week. There are about 500 hands at work there at present at winding, and weaving, &c.

**PORTUMNA CASTLE.**—The new castle of Portumna, now in course of erection by the Marquis of Clanricarde, is fast hastening to completion. The site has been chosen at some distance from the present castle, overlooking the Shannon with its varied scenery. The edifice itself—which has an extensive ground plan—will be a noble structure; and, in point of architectural beauty and taste, it will, perhaps, be unsurpassed in the United Kingdom. The employment afforded in connection with this building must be of great importance to the town and neighbourhood of Portumna.—*Western Star.*

**THE UNION BANK.**—A branch of this bank is about being opened in Tipperary. Extensive premises have already been taken in the Main-street.

**THE MATHEW MEMORIAL, CORK.**—The committee have finally decided on placing the statue of Father Mathew nearly opposite to Mr. Donegan's house in Patrick-street, and within some 80 feet of the crossing, or line, from Lavitt's-quay to Merchants'-quay. In deciding on this site, the committee have done so in strict accordance with the expressed wish of Mr. Foley, the artist by whom the statue has been executed. This site, besides being the very finest in the city, will be of very great advantage as a means of dividing the traffic over the bridge, which is the greatest and most important in Cork.

**KILMARNOCK, BALLYBRACK.**—Extensive alterations and additions, with new lodge and entrance, are at present being carried into effect for the Right Hon. Judge FitzGerald. The new buildings will afford much increased accommodation, and present ornamental frontages to south and west, having spacious oriel windows, balustrades, terraces, and central porch. The walls are of granite, protected with projecting cantilever eaves. The contract has been taken by Mr. Hughes, under the direction of Mr. C. Geoghegan, architect.

A new office for the National Bank is in course of erection at Boyle, presenting a frontage to the street of about 50ft. The building is two storeys in height, and contains on the ground floor a public office 26ft. x 27ft. 6in. in the centre, with an entrance for the public, and entrance-hall to manager's residence on either side, private office, safes, kitchen, and out-offices. The upper floor affords a drawing and dining room 27ft. x 19ft. and 20ft. x 19 respectively. The bedrooms are provided for in a wing returning at the rear. Externally the front is arranged with two projecting blocks at either side, in which are the entrance doors, the central or recessed portion being divided into three bays, with segmental-headed windows. The dressings to doors, windows, cornice, &c., are of local limestone, and the face of building of an excellent

local freestone, of a brown tint, in roughly punched ashler. The entrances have shafts of polished limestone and foliated caps. Mr. James Freeman, of Dublin, builder; Mr. Caldbeck, architect. Amount of contract about £2,500.

**CHERBURY, BOOTERSTOWN.**—Improvements are about being made to this property for Robert Millner, Esq., consisting of extensions to the present dwelling-house and out-offices, with new back and front porch entrances, French casements, roofs, balustrades, chimneys, &c. The works have been undertaken by Mr. Geraty, builder; Mr. Charles Geoghegan, architect.

We learn from the *Drogheda Reporter* that in that town some districts have changed their aspect completely, and a metamorphosis has been accomplished which gives hopeful and healthful promise of a prosperous future. There is Laurence-street, for instance. Only a few months ago the greater portion of it had the appearance of a dingy pile of dilapidated, dirty old structures, some of them in ruins. It was dangerous to walk through the street, and it was a disgrace to any community. Now, however, most of the tumble-down houses have been razed and rebuilt, and others have been repaired and a new face put upon them, so that, in the lower part, a marked improvement has taken place, though there is room for much more. In the upper part, also, important works are in progress. The Whitworth Hall, the erection of which is proceeding, will be a most attractive structure, not only in that locality, but to the town at large. It is expected to be finished about the month of March next, when it will be formally inaugurated by the princely donor in person. The Bank of Ireland, opposite, has just undergone a thorough renovation, and has received a new front, which will add not a little to the general appearance of the street. West-street, though on the whole highly creditable to Drogheda as its principal street, is yet marred by many houses which are not only out of all character with their neighbours—perhaps most so with those immediately adjoining—but an unmitigated disgrace to their owners. It is with gratification we notice the erection of another establishment on the site of an old and unsightly ruin opposite Mr. Casey's brewery, and at the corner of Duke-street. It is from designs by Mr. J. McClean, architect. The front of the building will be of red brick, the cornice and dressings of the windows being white stone and brick. The frontage of the building towards the street from east to west, will be 40ft., extending backwards about 100ft., with an extensive rear. The building will be three storeys in height, and extensive vaults underneath. The cost will be over £3,000. In West-street improvement may be noted, and in other isolated positions in the town houses are being built and other improvements of an important nature carried on. Outside Laurence-gate a row of neat houses suitable for mechanics has been built, and more are sadly wanted. The cotton factory at Greenhills, which the Messrs. Hammond are building for Mr. Whitworth, and which, we hope, is but the first of many similar concerns is rising rapidly from the ground. Mr. Buxton is busily engaged at a new bridge at Shop-street.

The new offices for the Catholic Cemeteries' Committee, Lower Ormond-quay, have recently been opened. The ground floor consisting of public office, board-room, porter's room, lavatories, &c. The upper storeys being reserved for the residence of the secretary. The works have been executed by Mr. Donnelly, under the architect, Mr. Charles Geoghegan.

### General Items.

A new measurement of Ben Macdhui and the other mountains of the Cairngorm group has just been made by the Royal Engineers engaged upon that part of the Ordnance Survey of Scotland. Ben Macdhui, which was formerly supposed to be 4,390 feet in height, is now set down at nearly 100 feet less—viz., 4,296. Ben Macdhui has of late years been supposed to be the highest mountain in Britain, but the new measurement restores the supremacy to Ben Nevis.

Mr. Hornsey, an architect at York, has been killed by the fall of a kiln which he was surveying for the purpose of reconstruction. Two others had a narrow escape.

Public curiosity was excited recently in the Place du Havre by two men carrying large cages full of rats, old and young, caught during the past night by an ingenious plan. It consists in forming with bricks a kind of narrow drain, at the end of which is a board so balanced that the rats, when attracted by a bait, can push by it into a box beyond, whilst the board resumes its first position, so that they cannot return.—*Galignani.*

The Pope has sent the Emperor Napoleon a lance taken from the tomb of Charlemagne.

Nine hundred and seven women are going out to India to take charge of the telegraph wires.

The balance-sheet of the Committee of the Stratford Shakesperean Festival shows a deficiency of £3,300.

The unclaimed dividends handed over to the Commissioners for the reduction of the National Debt, and by them invested in the public funds, amounted at the close of the last financial year to no less than £2,879,975 stock. There is also in the hands of the Commissioners more than £500,000 stock on which no dividend has been claimed for upwards of ten years.

The *Standard*, in its description of Benson's Great Clock, says:—"A more splendid and exquisitely finished piece of mechanism we have never seen." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bed room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

### BANKRUPTS.

Frederick Settle Barff and William Beesley, of Potter's-alley, Dublin, stained glass manufacturers and decorators, trading as Frederick S. Barff and Co., to surrender 7th and 22nd October.

### AUCTIONS.

Thursday, October 6th, Dublin Wood Company, annual clearance sale.

Thursday, October 20th, Messrs. Martin and Son, deals, red pine, &c.

### TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

The back numbers of this Journal, from its commencement in January, 1859, can be had on application at the office, 42, Mabbot-street, Dublin.

As several mistakes occur through correspondents not giving their CORRECT POST-TOWNS, it is requested that parties writing to the publisher will be particular in this respect.

All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

### RATE OF SUBSCRIPTION TO THE DUBLIN BUILDER.

YEARLY (delivered in the city and circuit) ... 8s.  
" by post ... 10s.  
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### [ADVERTISEMENT.]

#### SALE OF TIMBER AND DEALS.

**JOHN MARTIN AND SON** will SELL

BY AUCTION, at their Timber Stores, NORTH WALL, on THURSDAY, the 20th day of OCTOBER, 1864, the following Parcels of Wood Goods:—

80,000 Pieces Spruce Deals, Battens and Plank, 8 feet to 24 feet, just landed, ex "Vortex," "Hampton," and "Excelsior," @ St. John, N.B.  
30,000 " Quebec Spruce, 1st, 2nd, and 3rd quality.  
1,500 " Do. Pine Plank, " " up to 32 inches wide.  
800 Tons Quebec Red Pine Timber.  
500 " Do. Yellow Pine.  
50 " Do. Birch, up to 24 inches.  
50 " Do. Elm.  
50 " Do. Ash.  
60 " St. John Birch, prime quality.  
150 " Do. Pine Timber.

Also the following Cargoes daily expected to arrive, viz.:—

"Eugenie," @ Quebec.  
"Rienzie," "  
"Inchiquin," "  
"Hibernia," "  
"Bessie Parker," @ St. John.  
"Cecelia," @ Memel.  
"Rhea," "  
"Maryann," @ Danzig.

JAFFRAY BARGROFT,  
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## Business Addresses.

TO HIS GRACE THE DUKE OF LEINSTER, &amp;c. &amp;c.

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AND GILDER,  
EMBOSSEUR ON WHITE AND COLOURED GLASS  
For Ecclesiastical Work in Medieval and other styles.  
WOOD STAINING ON AN IMPROVED PRINCIPLE.  
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**MARBLE WORKS, MONUMENTS, CHIMNEY**  
PIECES, CRESTS, VASES, &c., &c., and every description  
of Ornamental Work executed in Marble.  
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AGRICULTURAL ENGINEER AND ARCHITECT,  
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A quantity of Consoles and Block Letters constantly on hand.

## A CARD.

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22, DASH-LANE, CANNON-STREET, LONDON.

See Advertisement in another column.

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Plumbers, Iron & Brass Founders, & Lead Merchants,  
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**BERNEY ARMS PORTLAND CEMENT**  
WORKS, BURGH CASTLE, GREAT YARMOUTH.

London Depot for Cement—COTTON'S & DEPOT WHARF.

**THOMAS CHEESMAN,**

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To whom address all Communications and Orders.

Cement shipped to the undersigned Ports by Steamers leaving  
London weekly, in quantities of 20 barrels and upwards, at  
the greatly reduced rates, as quoted below:—

Delivered free on the Quay at—	
BELFAST AND CORK	11s. 0d.
LONDON, DERRY, CARLISLE, & WHITEHAVEN	11s. 2d.
GLASGOW, DUNDEE, DUBLIN, EDINBURGH	11s. 6d.
ARRIBON, AND STRANRAER	11s. 6d.
LIMERICK, TRALEE, AND WATERFORD	10s. 9d.
ABERDEEN, COLERAINE, AND OMAGH	12s. 0d.

In quantities of 100 barrels, at 6d. less, and in quantities of  
500 barrels, at considerably less than the above quotations.

This Cement will carry considerably more sand than the  
Lias cements, so much of which is now sold as "Portland,"  
weighing less than 75 lbs. to the bushel, thereby becomes much  
cheaper, independent of its superior quality. It is GUARANTEED  
to bear the "HYDRAULIC" and other tests as ordered by the  
Engineers to the Government works.

## CERTIFICATE.

Sutton-street, Lambeth, June 6th, 1864.

Mr. T. CHEESMAN,

Sir,—In reply to your enquiry as to my opinion of the  
"Berny Arms Cement," I have used it largely in connection  
with river works. I fully approve of the cement; it is really  
a "Portland cement," and not a "Roman;" therefore requires  
cooling, and takes a day or two to attain great hardness, yet  
is quick enough for work in tidal rivers. My opinion is, if  
properly cooled, it will not "fire crack," and has great uni-  
formity of colour.

I like the cement, and those who know how to use Portland  
cannot but do justice to my remark.—Yours faithfully,  
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Royal Exchange, London.  
House of Commons, 2nd March, 1864.

DEAR SIR,—In reply to your note, I beg to say that I have  
used both the sorts of Cement manufactured by your firm, and  
that of Messrs. Francis & Son; I mean the Cement usually  
called Roman Cement, or the more recent introduction of  
Portland Cement. I believe these Cements, manufactured by  
either of your firms, to be equally good. I know no differ-  
ence, chemically or practically, between them; and I should  
use, and authorize to be used indifferently, either one or the  
other. You are at liberty to use this note, if you think it ne-  
cessary.—I am, Dear Sir, your obedient servant,  
Messrs. White & Son. (Signed) **WILLIAM TITE.**

From **R.O. MINNIE, Esq., Surveyor to Board of Ordnance, London.**  
War Office, Pall Mall, London, S.W.,  
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(Signed) **R. O. MINNIE, Surveyor.**

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# The Dublin Builder.

VOL. VI.—No. 116.

## CONCERNING MONUMENTS.

WE have been—almost without our own knowledge—through countless ages, one of the most monument-building nations on the face of the earth. It matters not from what stock or country, however differing in race, religion, or civilization have been the various peoples which go to make up that strange medley of races now known as the people of Great Britain and Ireland; however distinctive may be still the lines of demarcation between descendants of the different species thus mixed together, in one trait they have never been at variance with each other. Each and all have possessed in a greater or less degree a passion for commemorating, more or less excellently well, their departed dead, who in their turn may have been, more or less, or not at all, deserving of such commemoration. Pre-Adamites—if you will—pre-histories at any rate, Ancient Briton, Celt, or Saxon, Roman, Dane, or Norman, even the last element which has accrued in these our days, the political refugee from every nation and clime of Europe, all have shared more or less in this love of glorification and commemoration of departed worthies or unworthies as the case may be; and none have ever contributed to the national commonwealth of thought and feeling a spark of a tone of mind, which might have travelled to us out of the East from peoples to whom “to-day is worth all the past and half the future,” to whom, as we have lately seen by way of instance, Sigelum is but a quarry of more or less available “old materials” to whom “the last traces which would give a local habitation to once-mighty Troy are but a heap of rubbish from which, perhaps, may be gathered some materials “fit and applicable,” as we have it in our specification, for the new stables of the harem; to whom the might of Priam, the craft of Ulysses, indomitable Hector, Agamemnon King of men, Menelaus, Godlike Paris, Helen, fairest of women, are names but “Greek” indeed as our vulgar phrase has it.

Such being the case it might be somewhat profitable and not without its special use just at present, if we were to take stock, each of us in our own minds, of what has been done, and what amount of success has been achieved by us with all our monumental tendencies. There have been lately brought to light in Northumberland certain rude rocks covered with a language which most ingenious of *savants* fail to decipher, in many places prying investigations are being made into tumuli and sepulchral burrows; these probably are, and the stone circles of Stonehenge and elsewhere, and the Druidical “Cromlechs” may have been monuments, and as such may be considered the earliest which come under our notice. Is it too much to say that if this is the most simple and barbarous, it is at least the most inoffensive in all its productions of monument building periods?

These may have been—shall we ever know?—monuments of religion or connected with the forgotten faiths of all but unknown peoples; we must pass them by for those monuments which date after the inauguration of that era when the dawn of Mediæval faith and architecture combined first appears on the horizon. It would seem at first a natural and plausible

division to separate all the examples of monumental art which have been presented to us between the eleventh and nineteenth centuries, and class them under the two heads of civil and religious—but this is looking at it from a nineteenth century point of view, and however fair and specious in theory is utterly fallacious as the basis of a system of classification in practice. In earlier times the religious element has entered so largely into all civil monuments, and in modern times the secular element has so largely influenced all religious ones, that it is impossible in either case to treat of them as distinctive, and we must be contented with what seems on the surface but a sorry distinction: those works of monumental art which are in our churches, and those whose location is in the halls of our civil buildings, or by the way-side, in the busy street, or on the mountain height.

Beginning in point of chronological order, our business is at first almost solely with those which have been preserved to us in the comparatively unviolated temples of religion, where, save for traces of the sudden and transitory rage of the iconoclast, one might imagine time to have stood still; and in the earlier tombs and monuments preceding the fourteenth century we have, looking back at them from the sad experience of so-called non-refined ages, to regard them with earnest admiration and unqualified respect for the simple dignity of their conception, for their impressive tranquillity and repose, that they are so in harmony with their surroundings, and for an unobtrusiveness which never mars, and is ever subordinate to the grand effects of the great shrines in which they are. Rude many of them may be, regarded as works of art, but the spirit which later centuries have disregarded is never absent. Unpretentious, but cunningly wrought brasses inlay the walls and floors, rich stained glass tells the histories of departed saints and benefactors, and low tombs surmounted by reclining figures with their hands folded in prayer, and peacefully turned heavenwards, in a few grand words and with a few sacred symbols record the existence and death of some departed bishop or pious knight. Occasionally the more pretentious of these may have in addition a canopy generally of exquisite design (as for instance the tomb of Archbishop Walter Guy, anno 1255, at York, and a host of others), but these never are at variance with the place in which they are, rarely impede or injure a grand vista of aisle, choir, or nave, but group pleasingly and effectively with the great features of the building. Before, however, we have reached the period of the decline and fall of Gothic art, the student will perceive a gradual change stealing over monumental art, steadily retrograding from its original freshness and purity step by step with the decline of pure design and purpose in the building of which indeed it was now an essential part, and as it rose with its days of development and strength, fell and as surely degenerated in its days of weakness and decline. Coats of arms and heraldic devices multiplied and took the place of sacred symbols. Cleric and lay artists ceased to commemorate and symbolize in their works religious ideas that they might glorify individuals. It is to this change of feeling, not to the destruction or disappearance of earlier monuments through lapse of time, that we are to attribute the great preponderance in point of number of monuments of the perpendicular period. Coeval decoration of sacred edifices elsewhere will indicate how in the decaying days of art, individual glorification had in a great measure superseded the symbolism of earlier days. Monuments grew greater in size, more obstructive, more pretentious, more feeble,

and consequently, less imposing, more secular, and less religious, until this field of art was perhaps more ripe than any other for its utter downfall under the first inroads of the Renaissance period. We are all of us familiar with the monstrosities of what we must now cease to designate for a while as art—which now in all the outlawry of design, pomposity and barbarousness disgraced the Elizabethan and Jacobean periods, and which some poet of a past date, whose name we do not just at present recal, fancying in his innocence he was paying a neat compliment called “storied monuments.” “Storied,” indeed our readers, who wish to appreciate the elegance of the expression and the objects of it, have only to think of the familiar Boyle monument in St. Patrick’s with its storeys of be-ruffed effigies, each as they occupy more lofty berths turning over yet a little more to contemplate the earthly things below. There were people even then with what we would call “old-fogey” notions, whose prejudices held to past usages—quite behind the times in the way of progress as we would have it. Webster, the old tailor-dramatist, whose “little day” was somewhere placed about the year A.D. 1600, might have had such things as our friend the Boyle monument in his eye when he took advantage of his tragedy of the Duchess of Malpy to ventilate his strong personal antipathies. The unhappy Duchess is about to meet her death from a hired assassin, one Bosola, when the following passage occurs:—

“DUCHESS—

Why do we grow phantastical in our death beds? Do we affect fashion in the grave?”

“Bos.—

Most ambitiously. Princes’ images on the tombs Do not lie as they were wont seeming to pray Up to heaven; but with their hands under their cheeks As if they died of the toothache! They are not carved With their eyes fixed upon the stars; but as Their minds were wholly bent upon the world The selfsame way they seem to turn their faces.”

It is rather too bad to put an observation full of so much truth and point into the mouth of a brutal murderer instead of into that of the amiable duchess, from whose lips it would have come better, but we must somewhat abruptly leave the continuance of the subject for a next occasion, as there is something more to be said before we reach the final points of consideration of our subject which bears more immediately on passing events, on the several contemplated public monuments which are now under the consideration of the artistic public in general, and the architectural branch of it more particularly.

## THE GRAMMAR OF HOUSE PLANNING.\*

A LITTLE handbook which comes before us in the most modest manner, for the author or authors (we learn from the title-page that it is by a M.S.A., and a M.R.A.S. conjointly), while they state in their preface that it “purposes to place before the reader a wide variety of plans, ranging from that adapted to the simplest cottage and street-house up to the more pretentious country villa and town mansion,” uniformly refrain from claiming any special honour for the comparatively small amount of original matter which assists to make up the volume. The compiler, as the author of the preface consistently designates himself, does not fail to acknowledge the sources from which the great mass of his information is derived, and these will be found to be the *Builder*, *Building News*, Papers read before various Scientific Societies, the *Mark Lane Express*, the *Agricultural Journal*, and a few other periodicals. As such the book is valuable as containing a miscellaneous collection of remarks on a point, the importance of which the general public are but little alive to, and, we blush to say it, many architects very imperfectly comprehend.

We find no fault with the system of compilation on

\* “The Grammar of House Planning: Hints on Arranging and Modifying Plans of Cottages, Street-houses, Farm-houses, Villas, Mansions, and Out-buildings.” By an M.S.A., and M.R.A.S. Edinburgh & London: A. Fullarton & Co. 1864.

which this book is constructed—quite the reverse; it is a practice becoming daily more common in literary and quasi-literary circles;—and so long as the sources from which the information is drawn are fully and honourably acknowledged, the author or compiler is rather worthy of credit than otherwise. These modest labourers in the school of literature, who do not aspire to greater things, perhaps accomplish a more useful work than some of their more ambitious brethren, thus saving from oblivion much that is valuable in the ephemeral literature of our day.

Composed, therefore, as this volume is, of very miscellaneous writings of different authors on the subject of Planning, &c., with a little judicious filling in from the hand of "the compiler," we will be excused if, in spite of its special uses (of which we will speak hereafter), we regard it less as a "grammar," in the strict acceptance of the word, than a collection of exercises and hints more or less useful,—in fact a mass of well-selected gossip on the subject of which it treats, which does not fail to convey to the reader many useful trifles of which he is surprised to find he has been previously ignorant. Nor is there anything for him to be ashamed of in this. The profoundest philosopher will sometimes be startled by some simple, almost axiomatic truth found floating or cast away upon the sea of rudimentary handbooks and Children's "Guides to Knowledge."

But to address ourselves to the subject of House Planning,—we are addressing a professional audience—almost a family circle, from which the general public is excluded—and may venture on the admission of an awful secret. It is in this branch of the profession that many architects are more deficient than any other. For our credit, we would not like the world in general to know it; but, upon reflection, the reasons of this shortcoming are obvious. Take, for example, the problem of "arrangement" presented by the requirements of a public building. Remember we are speaking of "plan" only. An architect gifted merely with natural common sense, sufficient to enable him to see the disadvantages which would be imposed on those using this public building by an ill arranged plan, would, by avoiding many faults, produce a good plan, according to his lights wherein he walked; but the planning of dwelling-houses requires much more than mere practical common sense, although this is the main requisite. It requires an intimate acquaintance with the habits, tastes, and prejudices wrapped up with lives of infinite gradations of society, differing widely in these points at every gradation of class, and in every locality. It requires an ability to adapt internal arrangements cunningly to the requirements of the great or little community who, under one or many roofs, are to be born and live (not forgetting as a point of detail in this last that they are to eat, drink, and sleep), study and play, meditate in privacy, or enjoy the society of their friends; come and go, be merry and sad, toil and rest, marry and be given in marriage, have children born to them, and reared up; last of all, sicken and die. These are a few of the infinite uses for which a dwelling-house must needs provide; but in this class of building more than any other will the architect be called on for greater resources of practical acquaintance with little constructional details, domestic conveniences, and building contrivances, than in any other. He who thinks that this is making a "much ado about nothing," and an architect's device to frighten the architectural layman with the mysteries of his craft, will find himself grievously mistaken if he will set himself to the subject, and study it thoroughly, like a man. Should he even fancy that he has arrived at such a stage of proficiency as to compose unimpeachable plans for himself, let him submit them to an architect who understands this department of his profession, and ask him to point out their shortcomings, and we think he will give up amateur efforts with unmingled disgust and despair. We make these remarks, perhaps unnecessarily, lest anyone should be led into a belief, outside professional circles, that this book or any other book in existence will, when studied, enable him to make plans of houses for himself: he might as well qualify himself to execute a fantasia on the piano-forte by the mere study of learned treatises on thorough bass and counterpoint, and the sooner he gives up the attempt (unfortunately not unknown) the better. But this book will repay his perusal and study in the same way as it will repay the architectural student, to which other class of the community we consider it most fittingly directed; it will set his mind on the course of thinking necessary for comprehending the merits and demerits of a plan, and if he is in a "truly rural" walk of life, will give him not a few "wrinkles" about his stables and farm offices of which he may probably have not heard before, and the merits of which he is of course free to canvass, and reject them, if he is so minded; but at least his mind will be improved by the mental exercise on a congenial topic.

To this class of reader in particular much is presented in this volume of an excellently practical and instructive nature, although it may not be very new to the professional reader, but those points to which we refer

may be understood and appreciated possibly better by amateurs than professionals, and we conceive is more fittingly addressed to them. In the general remarks on stables it is stated:—

"As to the height and width of the stable within, 11 feet of height is quite sufficient. A greater height is objectionable on account of the chilliness it might occasion; while, if lower to any considerable extent, it would be dark, and perhaps might prove unhealthy. In width (or from front wall to back wall), it should not be less than 22 feet. Many speak of 18 feet as being sufficient, but experience shows that 18 feet is too narrow."

The only observation we have to make on this paragraph is, that there are advantages connected with a span of 18 feet in a stable building which a greater span will not admit of. With a centre beam or bressummer running up the centre of the building, the floor, where it does not exceed this width, may be formed of three-inch planking, or "treble deals," grooved and tongued with hoop iron, which does away with any necessity for joists or plastered ceiling, prevents dust from falling through, and, most important of all, leaves no intervening space for the harbour of vermin. As a specimen of the practical nature of the observations which follow, we proceed—

"The door jambs should be rounded at the edges, to prevent a horse, when going into the stable, or when coming out, from injuring the hips, should he make a rush, or become alarmed during the act.

"Stalls, where space of ground will allow, should be 6 feet in width; but certainly not less than 5 feet 8 or 9 inches. As to height, 7 feet 6 inches, at the highest part, is abundantly sufficient for the largest-sized horse, and about 6 feet at the lowest end.

"A common practice with many is to have the stall-posts to proceed from the ground up to the ceiling. This is objectionable on two grounds: it looks ugly; and a large-sized horse, placed in the stall, and made to turn quickly round, would be very liable to strike his head against it, and possibly damage an eye, or knock out a tooth.

"The stall partitions should consist of boards 4 or 5 inches in width, and about 2½ inches thick. They should not be tongued and grooved, but simply fitted close and compact to one another. The length of the stall partitions, from the back of the manger to where the boards join the stall-post (that is to say, the length of the stalls from the hay-rack to the heel-post behind), should be 9 feet.

"Our author inclines to the old arrangement of hay-rack and manger, with some alterations, and does not recommend a water-trough. On these points, in a letter to us commenting on one of his reviewers, he says,—

"Water-troughs, filled with water close to horses' heads, are a great nuisance, and I never recommend them. Hay-seeds and straws of hay fall into them, and the horses are always slobbering in the water, and in a very short time the fluid becomes so disgusting that the horses will not look at it. It is a very nice thing in idea to always let your horse have water beside him, but I never knew any one who allowed such things to remain in his stable more than twelve months. Fault has been found with me by one reviewer for recommending the old style of rack and manger. He says that the low racks are better, and horses do not waste near so much hay as with the old racks. Now, I will tell you why I recommend the old form of hay rack. I have had several cases where horses have been severely injured in consequence of their getting their fore feet fast in the low rack: in one case a horse, that cost the owner £100, was so lamed and the ligaments of the fetlock joint were so much torn and lacerated, that the animal was never worth £10 afterwards. For these reasons (and I think they are good ones) I recommend the old form of hay-rack."

The illustrations which accompany this portion of the work are chiefly of building contrivances well known to the building public for their excellence. Those of the stable and cow-house fittings of the Messrs. Musgrave, of Belfast (by the way, printed, by a curious typographical mistake, "Musgrove's" throughout the book), are beyond all praise for their excellence, neatness, and adaptation to the several purposes to which they are applied. They are too well known to most of our readers to require any further observation on our part.

We only cite these observations on the subject of stables as a sample of the hints which, collected from various other sources, this book presents to us. The principal portion of the work naturally devotes itself to cottage planning and the planning of villas and semi-detached houses of moderate dimensions; for the size and intention of the work evidently precludes the possibility of presenting any plans for houses of more than ordinary dimensions and requirements, and to this department we beg to devote some little attention, as being the most important brought under our notice.

First of all we may be allowed, without any dis-

paraging spirit, to enter our protest against the illustrations of plans in mere lines of type, or "diagrammatic plans," as they are called, except in cases of the most elementary and simple description; were many of these apparently admirable sketch plans duly "plotted" with the doors, windows, and fireplaces all duly allocated as described, they would not only present plans very different in appearance, but probably very inconvenient and impossible to carry out in all their details. Nevertheless they will have their special use in suggesting to the architectural student, new arrangements for his consideration and working out. He may apply himself less profitably to many a study than this apparently simple one. And so with regard to the plans at the end of the book, we see a special use in these plans as exercises for the student, for strange to say though there are many plans which approach excellence in arrangement, there is not one plan which may be regarded as a model one; as for instance the little plan of a villa, plate VI., is for the most part a very economical, practically workable plan, perhaps one of the best in the book, but this presents us at first glance with one fault which is common to the great majority of the plans in the book, namely that the kitchens are generally to be found opening off the hall or staircase in an unpleasantly public manner. It is, perhaps, hypercritical to observe so trifling a defect, for the student will at once see how easy it is by a trifling alteration (in this case the removal of the door under the landing of the stairs and its separation by a screen and second door) this defective arrangement will be avoided. As a matter of taste we would prefer to substitute a snug close porch for the "glass porch or flower-house" shewn, and would effect, if it was ours, some trifling alterations in doors and windows. We select this comparatively unimportant plan because it is a fair specimen of the plans which illustrate the book, and affords a specimen of the kind of criticism which we would be disposed to offer on every plan in it. But, as we said before, these secondary matters are good exercises for the student. Some of the plans on which no comment is made are evidently intended to call out the student's powers of correction in the way in which passages of doubtful etymology and questionable orthography are submitted to the victims of competitive examinations, being open to the most palpable objections. We think, not having the slightest intention of disparaging this excellent work, that, with a view of fitting it more especially for the use of architectural students, a few words might be judiciously added, advising him what general points should be kept in view in planning small houses—as small houses are invariably required—with a view to economy. Thus, that while he may give variety and picturesqueness by a greatly varied and broken plan, he does so at the sacrifice of a certain amount of economy, when considered with reference to exterior finish, roofing, &c.; that it is possible, having arranged the most compact, convenient, and unbroken of plans to give variety of elevation by other means; and the great truth which every house planner has found for himself, that a properly arranged plan affords him, without his giving himself any trouble in the matter, the groundwork of a pleasing elevation; and so sure as he sacrifices any point of convenience for an imaginary exterior effect, or lends himself to one single deception in presenting any essential feature of a plan in a different external aspect, so surely does he entail on himself a host of troubles and perplexities—there is ever a sudden visitation of retributive justice on the head of the offender in this as well as in other pieces of deception.

To the eyes of those whose experience of building materials in country districts is the general use of rubble stone for walls and the sparing use of brick, most of these plans will have a somewhat unfamiliar aspect, as they generally exhibit walls, which could only be constructed of brick, and they must, therefore, exercise their ingenuity to adapt them to their wants. Their different circumstances, they will find, will lead to not unimportant modifications.

We notice here and there in the very distinct and intelligible woodcuts which illustrate the work some trifling errors which would correspond with typographical ones in the text, and which, no doubt, the eye of an architectural "reader" would lead him to correct in a next edition; they do not detract, however, from the general usefulness of the plans. We hope we will not be suspected of offering useless trivial suggestions for a new edition, which we hope to see. If permitted, we would suggest that the sections (we are of course not so stupid as to be unaware that they are only intended as illustrative sketches, as such are perfectly efficient for their purpose) might, as a matter of appearance for a trained eye, be with advantage more accurately drawn to scale—as, for instance, in the scantlings of roof-timbers, dimensions of footings, and some other details—merely for the look of the thing, for these serve their purpose in spite of what we have noted. The subject of the "grammar of the house-planning" is not only a most important one, but a most difficult one to deal with in a treatise. We

would wish to see this useful handbook developed into a more elaborate treatise (of larger size, so that plates might be referred to without folding sheets), in which simple rules for the guidance of students might be compressed into the most elementary form in the beginning, and followed by one or two unexceptionally arranged plans. For, after all, there are not so many types of perfect house-plans as might be supposed;—the same general requirements are common to most of them, and there are never varieties of solutions to any general problem. Special details are another study.

There are other points, such as the rudiments of building construction, water supply, sewerage, &c., the preparation of sketch and working drawings, which might be valuably laid before the student in one or two examples of carefully drawn plans, and one or two practical specifications. One or two examples are worth a host of precepts. But we have wandered away from our subject, to speak of what we have long felt would be a desirable addition to the handbooks of the architectural student if thoroughly well done. Our business now is with the "Grammar of House Planning," which we have studied with pleasure. It does not pretend to meet such a want as we have indicated above; and the non-professional, particularly the country gentleman or farmer, will read it profitably, and the student will find no little food for thought in it.

### THE WATERWORKS AT MENILMONTANT FOR THE SUPPLY OF PARIS.

The description of the Paris Waterworks which we give below will have some interest for our readers, the great majority of whom have a special interest just at present in such projects. We notice that another article has appeared in our contemporary the *Irish Times*, bringing the gravest charges against the efficiency of the Varttry works. We are surprised that no official notice has been taken of either this or the preceding article:—

"Notwithstanding the great sanitary improvements in Paris of late years, an increased supply of good water is still a desideratum, that drawn from the river Seine having become, from various causes, more or less polluted, and water not being obtainable in the upper storeys of Parisian houses. Both these inconveniences will shortly cease by the introduction into Paris of a vast quantity of pure water, obtained from a considerable distance, and to be distributed from two immense reservoirs established within the limits of the city; one at Menilmontant, for the supply of the Parisian levels, and the other at Belleville, for the supply of the more elevated districts in that quarter. The water destined for the Belleville reservoir will be pumped up by immense steam-engines in course of construction for that purpose.

"The more important reservoir at Menilmontant, together with that of Belleville, will be alimented by the waters obtained from the rivers Dhuis and Marne, both celebrated for their pure and hygienic qualities, in order to ensure which with still greater certainty an immense aqueduct, from the source of the river Dhuis to Paris, has been constructed under the direction of one of the most competent of French engineers, to whom we are indebted for the following information as to its extent and capacities.

The entire length of the aqueduct for conveying the waters from the springs of the river Dhuis to Paris is 134 kilometres.\* This immense work has been constructed partly in cast iron and partly in masonry. The portion executed in cast iron constitutes 16 kilometres, while that executed in masonry is 118 kilometres long, of which 10 kilometres are subterranean and 108 open, the water being carried through trenches of from three to seven metres in depth.

"The parts of the aqueduct composed of cast-iron tubes of one metre interior diameter are met with in the spots where hills had to be passed through; those in masonry on the flat ground, or around hill sides. The aqueduct has an incline of but one tenth of a millimetre per metre, and is of an ovoid form. The masonry, composed of stone and cement, is twenty centimetres in thickness, and the roof of the vault is covered with a coat of cement two centimetres thick; moreover, all the interior is guaranteed by a covering in cement, so as to render the masonry altogether impermeable.

"The lengths of the subterranean portions of this aqueduct vary from 200 to 2000 metres, and they have been constructed by means of wells of from 10 to 50 metres in depth. For the construction of the masonry and the artistic works connected with this great undertaking, 38 millions of kilogrammes of cement, 160,000 metres of stone, and 88,000 cubic metres of sand have been employed; and the quantity of earth displaced for the passage of the aqueduct amounts to

850,000 cubic metres. For the metal tubes 10,000,000 kilogrammes of cast iron and 140,000 kilogrammes of lead have been required.

"The free channel and the forced, or metal channel, traverses, by means of twenty-eight small bridges, the numerous watercourses met with in its route; three similar bridges, or pontceaux, as they are called, have been employed for crossing different portions of the Eastern Railway. The most important of these bridges is that over the Marne, near the village of Dampmart, five kilometres from Lagny; it consists of three arches, the middle one spanning 27 metres, and the two others 22½ metres each. The beauty and the boldness of this fine work of art consist in its arches being only three metres in width for a bearing of 27 metres, the arches themselves forming a semi-ellipse, raised, at the keystone, 9 metres above the average height of the waters of the river Marne.

"We terminate these necessarily untechnical details respecting this interesting aqueduct by the most important statement as to its capacities, which will enable it to deliver into the city of Paris 12,000,000 gallons of pure water daily, or nearly 140 gallons per second!"—*Illustrated News*.

### ART IN BELGIUM.\*

A REMARKABLE exhibition of objects of arts is now to be seen at Mechlin (Malines), the ecclesiastical capital of Belgium. The collection was formed there on the occasion of the late Roman Catholic congress, but was not completed as an exhibition until the middle of the present month, the period advertised for closing, though it is now arranged to remain open till Oct. 15, to allow persons to examine the collection with a descriptive catalogue, an advantage not enjoyed by the first visitors. The delay in the completion of the display was caused by the reluctance of owners to part with their price-less treasures—articles many of them in daily use, or relics that have not quitted their resting-places for centuries.

The works exhibited consist of utensils, decorative objects, robes, and all the splendid paraphernalia employed in the offices of the Roman Catholic Church, and they range over the Mediæval, Renaissance, and Modern periods. They comprise a considerable proportion of the most valued treasures of the many churches, corporations, and private collections of Belgium, and not a few have never before been publicly exhibited. It is to be regretted that so fine a collection is not to be seen in one of the noble mediæval halls for which Flanders is so famous, instead of, as it is, in the inconvenient rooms of an ordinary residence, the Hotel Liedekerke, in the Rue de la Blanchisserie, where the effect the ensemble would have had is entirely sacrificed; and, of course, as a mere show, it would have been vastly more popular in Brussels or Antwerp. To the artist and the antiquary, however, the ancient, quaint, and picturesque see of the Belgian Primate presents attractions which are scarcely equalled by the capital or seaport.

In attempting to give some idea of a collection of this kind the difficulty of selection is enormous; for everywhere art-merit, historic interest, intrinsic or extrinsic value, compete for consideration, and in many instances, in one and the same object. Let us, however, begin by noting that there are Byzantine crucifixes of the earliest date, enamelled and set with crystals; large processional crosses and pastoral staves, including one of ivory of the sixth century; diptychs of the eighth and ninth centuries; and monstrances, one of which was given by Henry VIII. to Hall after the siege of Tournay. Among these, as among other objects d'art, the best designs will often be found in combination with the roughest work, and vice versa. Of old bookcovers there are two remarkably early examples from Tengres and Namur, that from the Sœurs de Notre Dame de Namur being marvellous for beauty and variety of design, material, and workmanship. There are a very fine chalice and a curiously beautiful altar-cover of Frere Hugo de Oignies. There are also a chalice and chasuble of "St." Thomas-a-Becket. The reliquaries are numerous, interesting, and artistic, though often very grotesquely shaped, on account of the odd forms they were made to contain; perhaps the most noteworthy being that of Saint Chandelie of Arras, of the twelfth century. The reliquary of the St. Epine—so named from being said to contain a thorn from our Saviour's crown—was presented by Alexander of Scotland to St. Louis. In 1587 Mary Queen of Scots gave it on the scaffold to the daughter of the Earl of Northumberland. It then passed to the English College at Watton, and, upon the suppression of religious houses, passed into the keeping of the Bishop of Ghent. There is also a gold reliquary, adorned with precious stones and enamels, that once belonged to Margaret of York. Other reliquaries are said

to contain wood from the true cross, portions of the veil of the Virgin, a tooth of St. Nicholas, &c. Of shrines there are many in gold and brass, jewelled and otherwise decorated, a few being of very early date. It would be impossible to enumerate here even the most remarkable enamels (some being of the rare cloisonné description), or niello and repousse work. There are numerous rings of abbots, heads of religious houses, &c., including one of Sir Thomas More's. A silver collar belonging to the goldsmith's guild at Ghent is remarkably picturesque in its treatment. Of embroidered fabrics and priests' vestments there is a gorgeous display, though few are good in design. Among these is a tunic of St. Bridget, left by Gunilda, the sister of Harold, to the cathedral of Bruges. A small mosaic of Roman work, presented by Sixtus IV. to the Prince of Chimay, is also exhibited.

Regarding the modern work, exhibited in the lower rooms, it is to be remarked that, while the Continental art-workman is seen to very great advantage, the designs are generally inferior to the earlier specimens. The Belgian designer, like the nation generally, is influenced by French taste and predilection for the Renaissance. We should add that the formation of this exhibition is due to the exertions of an Englishman, settled in Belgium, the zealous antiquary, Mr. W. H. James Weal.

Whilst at Mechlin there is this display of mediæval art, at Brussels is to be seen another exhibition of a somewhat novel character, and one—now that we are beginning to feel the national importance of monumental painting in fresco, water-glass, and mosaic—which should be repeated in this country. We allude to the international exhibition of cartoons, including photographs from colossal works, which is held in a temporary building of wood, situated at the rear of the royal palace. The collection comprises many works of a remarkable character, most of them having been used in the preparation of mural decorations, as is evident by the marks of the stylus or pounce-holes they contain. They are of all shapes and sizes; some are in long strips, for friezes; others are three-cornered, for spandrels; some are as large as the side of an ordinary house; others are pencil-drawings suited for a book illustration. The collection is highly instructive, from its practical nature and for the unusual facilities it affords for comparison; and not unpopular, if the attendance may be taken as a test. At the end of the grand salon is Kaulbach's immense design, "The Reformation," where Luther, standing in the centre, holds aloft the Bible, which sheds rays upon the heroes and worthies of the immediate period, our own Shakespeare occupying a prominent position in the foreground. Echter has two designs executed in a railway station—"The Telegraph" and "The Locomotive." Muller, of Dusseldorf, many religious subjects; Guffens, of Antwerp, several historical incidents connected with that city; Von Orsel, the drawings used by him for his decorations in the Church of Notre Dame de Lorette, Paris. Many other of the leading mural painters of the Netherlands, Germany, and France, are also represented.

### THE MATHEW MEMORIAL, CORK.

THE ceremony of unveiling the statue of the Apostle of Temperance took place at Cork on Monday last, and is described as the most imposing ceremonial which ever took place in that city. Having traversed the principal streets, the procession arrived opposite the statue in Patrick-street, and after an inaugural address by the Mayor, the statue was unveiled amidst the deafening cheers of the many thousands of persons present. The members of the various trades, to the number of 5,000 or 6,000, all wore appropriate sashes, badges, or dresses of some kind, and the magnificent banners and insignia gave an air of completeness to the whole which rendered it unique in its way in Cork. Besides the trades, about 5,000 other persons, consisting of Odd Fellows, Foresters, Temperance Societies, &c., took part in the procession, while those who accompanied it through the streets, although not taking regular part in it, were four times that number. At the moment of unveiling there could not have been less than 30,000 persons in the immediate neighbourhood of the statue. The entire proceedings passed off without disturbance or accident of any kind.

In the course of an eloquent and not undeserved panegyric on the character of Father Mathew, delivered by the Mayor, Mr. John Francis Maguire, he observed, "For nearly a quarter of a century the humble Capuchin Friar was unconsciously building up, stone by stone, and pillar after pillar, the glorious fabric of his future greatness. In his many virtues was laid the broad, deep, and solid foundation of his fame. His services to humanity formed the basis of a reputation which, spurning the narrow limits of a provincial city, became famous throughout the earth. The same impulse that led him to the sanctuary impelled him to the ranks of tempe-

\* In order not to confuse the engineer's figures we have preserved the French weights and measures. The kilometre is 1609 metres, of which 1609 go to an English mile; the metre, 10 centimetres, of which 91½ constitute a yard; and the millimetre is one tenth of a centimetre. The kilogramme is a little over two pounds.

\* From a correspondent of the *Illustrated London News*.

rance. There was no vanity, no self-seeking, no craving after popularity in this impulse, or in this act; it had its origin in his love of the people, and his desire to raise them in the social and moral scale. He did not rush into the position of a leader, or wantonly assume its grave responsibility. The position was forced upon him, and the responsibility followed and grew out of the position. Though often urged to accept the leadership of the cause, it was not until after long deliberation and earnest self-communing, and a conviction that it was his duty to assume it, that he consented to come from out his modest obscurity and place himself before his fellow-men in a new and a strange capacity. And, oh! how many thousands of homes and hearths he blessed by that resolution!—how many desperate and despairing creatures he saved from sin and its punishment! how many hearts he gladdened and purified!—how many children he helped to feed, and clothe, and educate!—how he promoted industry, frugality, and self-reliance!—how he ennobled and elevated a whole people!—how he did all these things you know, and history has already recorded. But what amazing labour he underwent in the course of his new mission, no tongue can adequately describe. For eleven long years—from 1838 to 1849—no man ever laboured as he did; nor upon any man scarcely ever has a greater or heavier responsibility rested than there did on the bold Mathew during those pregnant years. Father Mathew did not content himself with preaching the virtue of temperance, but he preached every other virtue, and especially the greatest of the commandments—that taught by the Redeemer—charity and love of one another. In his presence the voice of anger was stilled, and the cry of faction was hushed. Peace and good will were on his tongue and in his heart, and his influence, as a man of peace and conciliation, was marked upon the temper of the times."

The statue is of bronze, and stands 8 feet, including the plinth. Father Mathew is supposed to be in the act of blessing the multitude upon whom he has just conferred the temperance pledge. One hand gathers up the folds of the large cloak, which it is no violation of literal truth to place upon his shoulders. The other, slightly extended, seems as if it were about to be raised in benediction. The long surtout and the close fitting Hessian boots, while well suited for sculptural purposes, are, as very many readers probably remember, faithful reproductions of the well-known attire of Father Mathew. A Temperance medal upon the breast is equally characteristic and significant. But the triumph of the artistic effort is in the face. Though Mr. Foley never saw Father Mathew, and has therefore been compelled to depend upon such helps as he could get in the way of portraits, he has not only produced a most striking likeness of the mere features, but contrived to throw into the lineaments that expression of sweet and beaming benevolence which made the charm of that countenance the people so loved to look upon. The statue has been most successfully cast by Mr. Prince of London. The cost has been £1,000. The pedestal, which stands 9 feet 6 inches high, has been designed by Mr. Atkins, architect. Its best feature is its suitability. It is square, with a rich moulding a little below the base of the figure, which has not been allowed to project to any considerable extent. The inscriptions are as follow:—

"MATHEW,"  
"APOSTLE OF TEMPERANCE"  
"THE TRIBUTE OF A GRATEFUL PEOPLE."  
ERECTED IN THE MAYORALTY OF  
JOHN FRANCIS MAGUIRE, M.P., 1864.

On the sides towards the footpaths are small marble drinking-fountains. The stonework has been executed by Mr. Egan, of Cork.

Our contemporary, the *Cork Constitution* remarks, "Now that it is up, we think it will be admitted that the statue is misplaced. In the site originally intended it would have been better seen. It makes no impression where it is, and if it is ever to be an object of admiration it must be removed to some place where it will not be, if we may so speak, lost in the surrounding light. There are too many openings about it where it is."

[This is a point for the O'Connell Monument Committee to consider. The failure in appearance of many intrinsically excellent monuments, through the want of proper back ground, is a widely known fact among artists, and its importance cannot be over-estimated.—ED. D. B.]

London is now connected with Sidon and with Jerusalem by telegraph.

The *Times* announces that the re-opening of the Malta and Alexandria telegraph for the transmission of messages to Egypt, India, China, Australia, &c.

#### BATH FREESTONE.\*

THE paper which I have the honour to lay before you has reference to two subjects, both of equal local interest,—the one in an economical and commercial point of view, and the other bearing upon the scientific conditions, both as regards the mode of working and geological position of those beds in the great or Bath oolite, which may be called the "quarry-stone," and which are so extensively worked in the Bath district. I purpose, therefore, to divide my paper into two sections, or arrange the materials into a short, and yet, I hope, sufficiently detailed manner, under two heads: first, to determine the true horizon or geological position of the workable beds of this valuable freestone in the series termed the great oolite; secondly, to enter upon the mode of "working and getting" this extensively-used and valuable building stone.

*Geological Position.*—Nowhere, I believe, in Great Britain (indeed in Europe) are the lower members of the Jurassic group of rocks so extensively developed as in the Bath district, where each group seems to have attained its fullest recognized development: nowhere can the whole Jurassic series be so readily studied; nowhere so easily understood; and this applies to the lias itself in its three divisions. The Fuller's earth (here extensively employed), and the member of the Lower Oolitic, under consideration, viz., the Bath, or Great Oolite, is distinguished here for its economical value, and at Minchinhampton and other places for its fine and typical organic remains. Above this series, but intimately associated with it, the forest marble and cornbrash are highly and typically developed; succeeded by the Oxfordian and Kimmeridge groups; not omitting even the Portlandian, at Swindon, and the Purbecks of the Vale of Wardour. To each of these may be appended important notes bearing upon their high importance, economically considered, and which are extensively developed in the district; but I purpose drawing the attention of the members of this section to the Bath oolite only, determining the position of that zone from which the freestone is extracted, and on which the wealth and comfort of the population of this neighbourhood, engaged in quarrying operations, so much depend. I have also endeavoured to fix, by detailed and measured sections, the workable beds of the district; and to correlate them over a considerable area, useful, it is hoped, both to the man of business and the geologist. These sections, which I may here refer to, are all coloured the same in their respective zones; show the importance of carefully determining the place or position of the workable beds, prior to any outlay of capital; and however difficult, indeed impossible, it may be to diagnose the quality of the freestone beds in depth, there can be no doubt as to their position and probable condition; and when it is known that uniformity of condition over any large area is of extreme uncertainty, and knowing as we do that the thinning out of the marketable beds of freestone in this district, like the great oolite *en masse* on the line of deposition and dip, is a fact now well understood, it becomes a matter of high importance to the capitalist to be assured and confirmed as to the chances of success in opening out or developing a new district. The natural grouping of the beds constituting the great oolite series in this district fall under three well-marked divisions, all well exhibited in the sections exposed at Murhill, Westwood, and Farleydown, Combe and Hampton Downs, Box and Corsham workings, &c., &c. Indeed, generally, where conditions have exposed them, and reading downwards from the surface, we meet with, over the Bath area, immediately below the forest marble (where present), the following groupings:—1. The Upper Ragstones; 2. The Fine Freestones or Building Bed; 3. The Lower Ragstones. These constitute a series from 60 to 120ft. in thickness, depending upon local circumstances and conditions during deposition, and, perhaps, subsequent denudation.

*The Upper Ragstones.*—This series consists of (in the upper part) coarse, shelly, and irregularly bedded limestones, with usually a few underlying beds of white, fine-grained limestones, possessing a distinctly and well-defined oolitic structure and finely comminuted shells. These are again succeeded by tough argillaceous beds of limestone, usually pale brown in colour, and smooth in texture, the whole ranging in thickness from 25ft. to about 50ft. No beds of workable value occur in this upper series.

*The Fine Freestone, or Building Beds, in the Bath Stone Series.*—Succeeding the upper ragstone are the Bath freestone, or fine-grained building beds, which vary in the number and thickness of the various beds comprising the series, and also economically distinguished from each other by their structural condition, the size and structure of the oolitic grains, the presence or absence of silicious particles or finely-divided shelly matters; each of which may materially affect the limestone during the process of working, or

influence them after being placed in position, and subject to weathering under atmospheric changes. In some localities the beds assume an earthy structure, indistinct in texture, smooth, and close-grained, and hold more moisture.

*The Lower Ragstone.*—Below the fine building beds, or freestone series, are the lower ragstones, which appear to be persistent everywhere over the entire area, and resting upon the Fuller's earth. They consist of numerous and generally well-defined beds of a coarse shelly texture, and hard crystalline limestone, exhibiting much false bedding, especially near the base. Many species of mollusca occur in the bottom beds, such as *Ostrea acuminata*, *Terebratulula*, *Ornithocephala*, *Rhynchonella*, *Trikittis*, *Concinna*, and *Tancredia*. These lower ragstones, as before mentioned, rest immediately upon the Fuller's earth; but this member of the oolitic series concerns us only by position, and is in this district west of Corsham and Bradford, a most persistent and important zone, between the inferior oolite beds below and the lower ragstones of the great oolite above, and, in some places, very fossiliferous, and varies in thickness from 150ft. to 200ft. Taking, therefore, as our guide in this district, the above three divisions of the great oolite, we are enabled to construct vertical sections to aid us in our determinations as to the position and condition of the few feet of stone profitable to work in the series, or the "freestone beds,"—at all times an anxious and important question when seeking for and developing new ground. In this paper I deal chiefly with facts, and therefore give detailed and measured sections of type localities, from which may be determined by comparison the probable conditions under which the beds may occur at intermediate and unexplored stations or localities on the table-lands behind such outstanding mural precipices as Farley, Murhill, Box, on the eastern side of the Bradford and Slaughterford valleys; or on the elevated downs at Claverton, Combe, Hampton, Freshford, &c., to the south of Bath, and west of the Bradford Valley, and on the receding flats to the east of Monklow, Farleigh, and Bradford, &c., conspicuous for the numerous quarries opened in the cornbrash and forest marble, the latter of which occurs in detached patches or continuous lines, stretching from Malmesbury on the north, to Chippenham, Bradford, and other localities, to the east of Bath, and especially conspicuous near Corsham, Chapel Korap, South Wrexall, and on to Melksham. The most complete section, and which may be regarded as a typical one of the great oolite and forest marble beds of the Bath district, is that of the Box-hill and Corsham Quarry workings; No. 1 showing those beds not usually seen or exposed, but which were cut through by the construction of the Box tunnel, and which we are now extensively working in that neighbourhood. Another exposition of the series is shown at Murhill, on the eastern side of the Bradford Valley, where the three divisions into which the series group themselves may be studied *in situ*. Also at Upper Westwood, on the opposite or west side of the valley, other sections occur tending to show the same facts; and the variable condition and thinning out of the same beds upon the line of Diss, even at this short distance. Believing, therefore, that I shall convey more information by giving detailed sections, showing the divisions of the three series, with special reference to the building freestones, I have endeavoured to lay before this assembly somewhat detailed measured sections of the more important localities where the beds of the three series are exposed, and at such distances as will show the attenuation of the fine building stones to the south-east, and will tend to show how much the irregularly bedded and coarse shelly limestones in the upper and lower ragstones vary in different localities, thereby leading us to thoroughly acquaint ourselves with those necessary details which it is most desirable should be understood before large operations are commenced or capital sunk.

*The Sections.*—The shafts which are constructed along the line of the Box Tunnel, on the Great Western Railway, afford at the several points where they are carried through the beds of the great oolite, accurate data for the construction of sections and clear evidence of the succession of the strata, comprising the three divisions, I have endeavoured to maintain, as occurring through this district, and being situated considerably to the eastward of the Bath Valley escarpments, a large area, or the productiveness of that area is estimated by the lie position and condition of the building freestones, supposed to occupy the summit of the table-land, stretching from the eastern escarpment of the Bradford, Box, and Slaughterford valleys to Yatten Kennel, Biddestone, and Corsham. The section No. 1 gives accurate measurement and sufficient details to enable a practical observer to determine the series of beds at almost any point over the area above indicated, or even between the westerly extension of the Oxford Clay Line, from Malmesbury to Corsham and Melksham, and the valley escarpments before mentioned. It is not necessary to notice the forest marble, or cornbrash, which is foreign to my

\* Read by Mr. James Randell, of the firm of Randell and Saunders, at the Bath Meeting of the British Association for Science.

paper, and which, although usually present, may or may not occur on any special area above the great oolite proper, local conditions, during depositions or subsequent denudations, having removed one or the other, or both; but everywhere, so far as I know, over the whole table-land do we find the coarse shelly limestones, and some finely-grained oolite beds belonging to the upper ragstones or highest members of the great oolite. In the typical section No. 1, taken at No. 7 shaft, Box Tunnel; also at the shafts 4, 5, 6, these beds occur, and were cut through when sinking, and were found to be from 20ft. to 35ft. in thickness, before proving the "capping" to the building or "fine beds" below. At Murhill, near Winsley, these upper ragstone-beds are about 20ft. in thickness, and are hard, coarse, and fine shelly limestones, highly comminuted in structure, and occasionally oolitic. In some of the localities, many of the beds are of considerable thickness, and of regular and even texture; still they are too hard for those purposes for which the softer fine-grained, whiter, and more easily worked architectural stones below (in the second series) are sought for, and to which they are applied; and, again, they are not good weather stones, but rapidly fall to decay on exposure to severe changes of weather. At Upper Westwood, on the south side of the Bradford Valley, opposite Winsley and Murhill, the beds comprising this upper series are thicker and of more even texture, but, as weather stones, are of little or no value. At Farley Down (Section 3), overhanging Bathford, this upper series is nearly 30ft. in thickness, composed of coarse shelly limestones at the top, with hard and soft ragstones down to the capping of the fine "building beds" below. At Combe Down and Odd Down the beds closely resemble those of Farley and Box, and approximate in thickness. Thus we may examine detailed sections of this upper series at Murhill, Farley, Westwood, Combe, and Odd Down, and the Box district generally; but the beds at neither locality are deemed of sufficient value to work for transit as a building stone. This series is coloured grey in the sections Nos. 1, 3, 4, 5, 6.

*The Second or Middle Series.*—Succeeding the ragstones above mentioned, and commencing the second series, there appears to be everywhere a peculiar bed extending over a large area, termed the "cover," or capping, varying in thickness, but generally hard in texture: this forms the roof, or ceiling, to the fine economical building freestones below, and over which it lies, and is a marked feature in extensive underground workings, both for its horizontal extent, application, and importance as protection to the workmen, and as commencing the second series, or middle beds, which occur between the "upper and lower ragstones." At Bradford, Westwood, and Murhill, this bed is a coarse, shelly, hard limestone; at Corsham and Box a closer grained and tough rock. I associate it with the building freestone, or fine beds below it, rather than with the ragstone above, from its persistency and the constancy of its conditions. Succeeding this is the true Bath stone, or fine freestones, and which I believe occupy, with minor differences, the same position or horizon over the whole of the Bath district. This second, middle, or freestone series, are as a group from 20ft. to 30ft. in thickness, and are coloured chromo-yellow in all sections, and those beds worked for transit are usually evenly grained in texture, regularly bedded, yield well to the saw, are non-fossiliferous, and give evident proof of having been accumulated or deposited in a somewhat deep and tranquil sea, or away from any littoral or wave disturbance, and which the almost total absence of organic remains still further tends to confirm or demonstrate. It appears from observation, and the correlation of measured sections, and conditions observable underground, that these fine-grained regular beds thin away in a south-easterly direction, or upon the line of their general dip, a fact clearly determinable on examining the sections exposed in the valleys. Indeed, it cannot be doubted but that the great or Bath oolite as a group, in this neighbourhood, exists under extremely irregular conditions, and dies out and disappears in the form of a lenticular or wedge-shaped mass, to the east and south-east. This circumstance, causing the building freestones to thus vary in their relative thickness as we proceed from the western part of the area to the east and south-east, and the removing of much of the exposed belt comprising the oolitic series between Bath and Bradford, on the line of their strike, north-east and south-west, caused, it would appear, by the extreme denudation of the Bath and Bradford valleys, and the westerly extension of the cretaceous series from Melksham to Westbury, Frome, and Warminster, are due, perhaps, to physical conditions connected with the eastward extension of the Mendip axis, and the little understood deeply-seated, but undoubted position of the palæozoic series, between Frome on the south, and Bath and Wickwar on the north, or along the eastern edge of the Bristol coal-field; but under any circumstances the extension or invasion of the cretaceous series to the east, the narrowing of the exposed oolitic series above-mentioned, and the mechanical arrangement of the rock

structures themselves, evince and determine local deposition to have gone on under continued oscillation of the land at the time of the deposition of the great oolite series. It is to this second grouping, therefore, or the middle series, which exist between the upper and lower ragstones, that we must assign the workable beds of freestone now extensively quarried in the Bath district.

*The Lower Ragstones.*—These are an extensive series of rather fine and hard, as well as coarse and shelly, limestones. The lowest beds of this series, are usually finer in texture than the upper, and when exposed, are generally from 30 to 40ft. in thickness. Nowhere in this neighbourhood are finer sections to be seen than at Murhill, on the north side of the Bradford Valley, and Upper Westwood, on the south side. The beds comprising this division usually occur, or are exposed in the escarpments of the denuded valleys, or the projecting downs above. Masses of the thicker and fine-grained beds, frequently occur on the inclined slopes of the valleys, owing to, or arising from, frequent slips or slides over the fuller's earth upon which these lower ragstones immediately rest. It is, therefore, in the narrowing of the valleys and abrupt cliffs that this series of the great oolite are best exposed. The chief economical value of these beds is confined to local purposes, being utterly unfit for architectural work, or exposure to atmospheric influences. The stone used in the construction of the aqueduct conveying the canal over the river Avon, at Avon Cliff, came from the beds of this series at the Westwood Quarry, and although *in situ* the stone appears of a fine texture and quality, yet it rapidly decomposes on exposure, and the stonework of the Avon Cliff aqueduct is a perishing evidence of its non-durability. At the Box and Corsham quarries these lower beds, though not observable at the surface, are, nevertheless, 43ft. in thickness, and are chiefly composed of fine textured oolitic limestones; but are not worked, as they are of no value in a commercial point of view.

*On the Mode of Working the Bath Freestones.*—Having endeavoured to determine the horizon of the workable beds of oolite, and the relations they hold to the ragstones, or shelly series, recognised above and below these freestones, with the permission of this section of the British Association, I will endeavour to describe shortly the mode of opening, working, and extracting the rock,—a matter you will see to be of no little importance when I inform you that more than 100,000 tons of the Bath freestone are annually removed from their original position in this neighbourhood, and forwarded to various parts of the United Kingdom. In working for stone, the first question to determine is, whether the stone shall be reached by open or underground workings; and this must depend upon the presence and conditions of the upper ragstones (and forest marbles, where they exist), as they must of necessity be passed through, unless the stone can be reached by tunnelling on the face of an escarpment where the beds are vertically exposed, or by driving a level to cut the beds; but, if the desired beds are not too much covered, open workings are resorted to. Few persons travelling from London to the West of England, via the Great Western Railway, through the Box tunnel, have any conception, on passing through it, that around and over them are large and extensively-worked mines, from which the well-known Corsham and Box freestones are taken; or, as they shoot from the tunnel-mouth into the Bath-hampton, Bath-easton, and Bradford valleys, that it is the seat of so much quarry industry, having for its object the working of the Bath freestone. In describing the particular mode of getting the stone, I will, with your permission, take for my type the Corsham Down and Box Hill workings. I do so, because these mines have had more thought and attention bestowed on them than any others in this neighbourhood, and because they are the most extensively developed. It is believed that the Box and Corsham locality has been worked for stone, with more or less activity, for three centuries, but it was not demonstrated that so large an amount of good workable freestone existed in the district until the fact was evidenced by the cutting of the Box tunnel, which at once exposed the beds, and showed that to the north and north-west of the tunnel on the strike of the beds, there existed what we may practically call an inexhaustible supply of valuable freestone. The cutting of the Box tunnel having opened to view this fact, gave an impulse to the previously limited mining operations of the district. The plans and maps I have the pleasure of placing before you will illustrate the position of the workings. You will see the chief operations are situate on the north side of the tunnel: the reason of this is that the rock is found sounder in this direction, and the stone more even in colour, and more regular in quality and texture, than to the south or dip of the stone. The entrance to these workings is driven from the Corsham or eastern end, immediately contiguous to the mouth of the Box tunnel; and it is here that the railways of the underground workings join the Great Western rail-

way on the same level. The chief or main road through the workings is carried from this point due west, in a direct line towards the Box-hill escarpment, a distance of  $1\frac{1}{2}$  miles, rising with the strata, for the purpose of keeping on the floor of the workable beds; thus making an incline to the west of about 1 in 40; and as the rise to the north is about 1 in 60, advantage has been taken of this, and the works so laid out, that much of the stone can be run on trolleys without draught power, that is to say, by gravitation, to the loading platform, where it is transferred from the quarry trolleys into the railway trucks, which are taken into the mine to receive it: to economise and facilitate the operation of loading, this platform stands on a level a few inches higher than the sides of the railway truck, into which the stone has to be loaded, and by the upper level narrow gauge tramways this platform is placed in direct connexion with the whole of the headings or workings; and by its lower level broad gauge railway it is connected with the Great Western Railway. By this loading arrangement, we are enabled to load off into railway trucks from thirty to forty tons in the hour. One uniform system of getting or working the stone prevails throughout the quarries, and this system is an inversion of the mode of working coal. The coal miner undercuts his coal, that the mass may fall and break; but building-stone so worked would make a valueless rubbish-heap. The freestone miner or quarryman has to commence his operations at the roof of the stone. This picking operation is effected by means of adze-shaped picks, on the heads of which longer handles are inserted, as the work proceeds, and the men thus make their driving a distance of six or seven feet back into the rock. The width or span of these stalls must of course depend on the soundness of the rock. In the Corsham workings they can, without danger, be driven a width of from 25 ft. to 35 ft. In the Box quarries, where the rock is not so sound, and the capping bed, before referred to, not so regular, the drivings are limited to from 12 ft. to 20 ft. This is, of course, regulated by the space that may be safely opened without danger to the working beneath. It must be evident to you, that the removal of eight or nine inches of the rock immediately under the ceiling deprives the overlying strata of the support of this area of stone as effectually as its removal throughout, from roof to floor, would do, and any tendency to settle or drop is at once determined, and any risk of life thus guarded against. Another process, by a fresh agency, is now called into exercise, for the cutting of the rock into blocks of required dimensions; for this, a one-handed saw is used. These saws are worked in lengths of four, five, six, and seven feet, and are made broad, rather, I should say, deep, at the head or extreme point, so as to ensure the saw sinking to its work at that point. The saw is worked in first horizontally, dropping a little as the cut goes on, and after the rock is thus opened down to the next natural parting, and the block thus separated laterally from the parent rock, levers are introduced into the bed or parting at the bottom of the block, and these levers are weighted and shaken till the block is forcibly detached at the back. It is then drawn down by crane power, and the broken end and the bed dressed with the axe, so as to make the block shapely; it is then placed on a trolley, and allowed to run to the loading platform. After the first block is removed, it will be evident to you that the workmen have then access by that opening to the back of the bank of stone, and they avail themselves of this to work the saw transversely, which separating the block from its back or hinder attachment, renders all further breaking off unnecessary, so the first block of each face is the only stone broken from the rock. To each face or heading of work, a 10-ton crane is erected in such position as to command the whole face. These cranes are now constructed telescopically, so as to accommodate them to slight variations in the headings arising from differences in the depths of the valuable beds, and the expense otherwise attendant on frequent alterations of the crane is thus avoided, and the periodical shifts from old worked out to new localities are effected with less trouble and loss of time. Some times after a block of freestone has been loosened *in situ*, a Lewis bolt is let into the face of the block, the chain of the crane attached to it, and the block is then drawn out horizontally. By the removal of the first stratum a sufficient space is obtained to allow the workmen an entrance under the roof; and vertical cuts are again carried down through the next bed to the parting below, and transverse cuts readily made. Meanwhile, the cutting is continued in the picking bed, the upper layer removed as before, and everything below this point quarried away, with all the sides of the block sawn, except the bed on which it has rested, and those abutting on the natural joints; hence each block comes out ready to pass into the hands of the builder, sculptor, or dealer, and this with much less cost, and less loss in waste, than formerly attended blasting, and other powerful but rough modes of extraction. The continued repetition of these several operations produces a terrace or step-like profile in the

workings, extending from the highest to the lowest of the beds worked on, and thus they present themselves to the view.

Professor Ansted said the Bath stone, when it was used for building purposes to a distance, was exposed to rapid destruction by the action of the atmosphere. He attributed this to the manner in which the stone was quarried. It had been observed that this did not occur with the stone that was used in the immediate neighbourhood of Bath. This, no doubt, was attributable to the fact that the stone was not taken away from its own atmosphere. He would suggest, therefore, to the quarry-owners, that all the stone to be sent to a distance should be exposed to its own atmosphere for some considerable time, until it had become seasoned, as it were. He believed that if this were done the stone would be as durable everywhere as it was in the immediate neighbourhood of Bath.

#### THE CARMICHAEL SCHOOL OF MEDICINE, NORTH BRUNSWICK-STREET.

THE new Carmichael School of Medicine, of which an illustration is given with present number, is rapidly approaching completion, and has been erected, in accordance with a provision in the will of the late Surgeon Richard Carmichael, who made the munificent bequest of £8,000, to be devoted to the cost of the building and the purchase of the ground.

It will be remembered that the first stone of the New School was laid by his Excellency the Earl of Carlisle on the 29th of March last, so that it is evident that the works have been pushed on with vigour from that time.

The materials used in the construction are granite, black stone, Tullamore limestone, Portland, Caen, and Cumberland red stone. The front is faced with rough punched granite ashlar, which contrasts well with the Caen and Portland stone of the dressings; the gutter and corbels supporting it are of Portland, as are all the projecting strings and hoodmoulds. The flanks are faced with black stone for the sake of economy; indeed, it may be well to remark that the extent of the building, the serious and unavoidable, extra upon the foundations (nearly £400), and the sum at his disposal, prevented the architect from indulging in any decoration except upon the front, and there only sparingly. When we consider the number of rooms it contains, and the area which the building covers, the new Carmichael School must be pronounced a remarkably cheap building at £6,000, which will be about the cost when everything is completed.

The roof over hall and staircase is arranged in a novel manner, being a hammer beam carrying a lantern. The dissecting-room roof is a king post, span 21 feet; the anatomical and chemical theatres 25 feet span, queen post.

The lift has been constructed by Messrs. Ross and Murray, of Abbey-street.

The decoration round the entrance door is something new in Dublin, the ornament (conventional foliage) is incised to a depth of about  $\frac{3}{4}$  of an inch and then filled up with Keene's cement, coloured as may be desired—the most effective colour for outdoor work appear to be black and red. This mode of decoration is less expensive than carving, very durable, and has the advantage of not catching the dust and dirt in the open air.

The dissecting-room floor is tiled, being formed of brick arches carried on iron girders 10 feet apart. The floor has been executed in accordance with the directions of W. Anderson, Esq., C.E., of Messrs. Courtney and Stephens, Blackhall-place. The advantage of this floor is, that it can be easily flushed with water, which, in a dissecting room, is very desirable. There is a Portland stone channel course along one wall of this room towards which the floor has a fall; the water is carried out by a pipe through the wall to the drain.

The stairs are granite, with an ornamental iron balustrade set in a Caen stone plinth supporting the handrail.

The upper arcade of the staircase is formed with three flat arches, carried by Portland stone piers with carved capitals and bases; the parapet of Caen stone is pierced with a geometrical pattern.

The proprietors have adopted the system of electric bells. The carvings have been very creditably

executed by Mr. Harrison, under the directions of the architect.

We feel it a duty to record the generosity of Mrs. Carmichael, the widow of the founder, who has nobly endeavoured to second her husband's munificent intentions by placing the money at the immediate disposal of the proprietors, instead of reserving it for her use, as she might have done, until after her death.

The architect of the building is Mr. James Edward Rogers, 205, Great Brunswick-street, on whom the design, however simple, reflects the highest credit. The different materials used in the exterior are artistically and quietly disposed, and the details are bold and good, and sufficiently uncommon to deserve more than ordinary notice, inasmuch as they are a step towards what we yet hope to see universal in practice. The vigour and beauty of Gothic detail applied to buildings which, in general disposition of their parts, of what some people call the "common sense" school. The public, right or wrong, will have buildings of this type, and are so wedded to it that we are never likely to see a revival of the picturesque type of Gothic to any extent: and it appears far from impossible to engraft on this accepted style some of the boldness of Gothic treatment, without either bad taste or incongruity.

The contractors are Gilbert Cockburn and Sons.

It is intended to open the school formally the first Monday in November, when Dr. Robert M'Donnell will deliver the inaugural address.

[For a general description of the above building see DUBLIN BUILDER for 1st of April, 1864.]

#### ST. JOHN'S CHURCH, SANDYMOUNT.

IN our last issue, when presenting an illustration of the interior of St John's Church, Sandymount, we were unable to accompany it with any record of the names of the architect and builder, &c., not being acquainted with them. We have since ascertained that the church was designed by Mr. B. Ferrey, of London, and carried out under the superintendence of Frederick Darley, Esq., of Dublin.

The entire cost was defrayed by the late lamented Lord Herbert, of Lea; and we have much pleasure in adding that the very creditable work displayed in the execution of the building is by Mr. George Farrell, builder, of this city.

#### THE STONECUTTERS' STRIKE.

IT is with regret we chronicle this week the continuance of the strike in the stonecutting trade. The result will probably be to give a check to cut stone building in this city, which the trade will not recover for years. Architects, looking forward to the possible recurrence of this movement, are beginning to look about for other materials; and if the stonecutters do not speedily find some solution of their difficulties we fear they will find brick, terra-cottas and plaster superseding their handiwork.

Can no settlement be effected on some such terms as these?

That the builders pledge themselves that they will give no undue preference in the selection of their setters to either trade so long as a properly qualified man presents himself—and that they will select such men for such departments of the work as they deem best fitted for it.

We think the result would be that intelligent builders would be found to hand over some portions of setting to qualified stonecutters, and a considerable portion, which in time would come to be clearly defined, would remain with the bricklayers.

We tell the bricklayers and stonecutters, in all earnestness, that no other fair arrangement can be arrived at. So long as a builder duly pays proper wages he has as much right to obtain such work as he thinks fit for it, and to expend his money as he thinks it most judiciously laid out, as he has a right to choose an article in a shop, for which he pays. Of course in the assertion of this broad principle we are not disposed to overlook the legitimate rights of trades, but in this case we consider the freedom

of action, which is the right of builders as well as other men, is somewhat infringed, and in an infringement of personal liberty trades unions descend at once from their proud position of usefulness to be a tyranny.

We repeat we do not think either stonecutters or bricklayers quite right in their views of the case, and the conduct of the masters appears temperate and forbearing.

#### MONUMENTS, STATUES, ETC.

A meeting was held on the 29th ult., at Ennis, for the purpose of taking steps for the completion of the O'Connell Monument in that town. Resolutions were passed: 1st. Agreeing to purchase the statue in Mr. Cahill's studio in Dublin for the sum of £225. 2nd. That as the total cost will be about £400, of which £120 has been collected, a subscription list be opened for the purpose of collecting the balance. The sum expected by Mr. Cahill for this statue (which has been already described and noticed in this journal) was £300.

Mr. Foley has just shipped for erection in Bombay a full length marble statue of the late Lord Elphinstone, formerly governor of that city. It will be placed in the Town Hall, as companion to Chantrey's Mountstuart Elphinstone.

A memorial group in white marble, representing John and Hubert Van Eyck, has just been erected at Maas-Eyck, Flanders. The sculptor is M. Wiener.

LORD BROUGHAM.—Mr. Joseph Wilkinson, of Ponscale, Ullswater, a veteran politician, who formerly took great interest in the election contests of Lord Brougham in Westmoreland, has just erected a stone pillar, twelve feet high, upon the mountain called Halle, in commemoration of the 86th birthday of the noble and venerable peer.

A handsome mural monument has been erected in the Mariner's Creek, Hobart Town, Tasmania, to the memory of Commander R. H. Burton, and the officers, seamen, and marines of H.M.S. Orpheus, wrecked on Manukau Bar, New Zealand, a year and a-half ago. The sculptors are Messrs. Huxley and Parker, of Melbourne.

Two new statues are shortly to be erected in Edinburgh—one to Allan Ramsay, the poet; the other to John Wilson, the famous Christopher North of *Blackwood*. Both will be placed in Prince's-street Gardens.

A marble tablet has been placed in the front of the house in Brecon, South Wales, wherein Mrs. Siddons was born, in order to keep the fact in memory.

Sir R. Murchison announces that it is proposed to erect a monument to commemorate the exploits of Captain Speke. Mr. Kinglake, writing to the *Times*, and speaking of Captain Speke, says:—"It may interest your readers to learn that a cast has been taken of his face, so that a faithful likeness may now be formed and preserved in imperishable marble of the lamented hero of the Nile, and serve to adorn the sculpture gallery of Somersetshire worthies, where memorials of the great and good men of the land—Blake and Locke—are visible in the Shire hall."

The Liverpool subscribers to a monument to Sir Rowland Hill have appointed a committee to arrange upon a suitable work of art for presentation to him.

A statue of the Prince Consort, by Durham, is to be erected at Framlingham.

The inauguration of the statue of General Count Pajol has taken place at Besancon, his native town. General Pajol, his son, is the author of this statue, which was admired at last year's Exhibition, and which received honorable mention from the jury.

A statue of the sculptor Ranche has been executed by Mr. Drake, for Berlin.—*Art Student*.

A monument to the late king Maximilian is to be erected at Munich, at an expense of 100,000 florins.—*Ibid*.

Professor Windmann, of Munich, is finishing a statue in marble of the late grand duchess Matilda, and has just completed a portrait statuette of King Maximilian II., described as an excellent likeness.—*Ibid*.

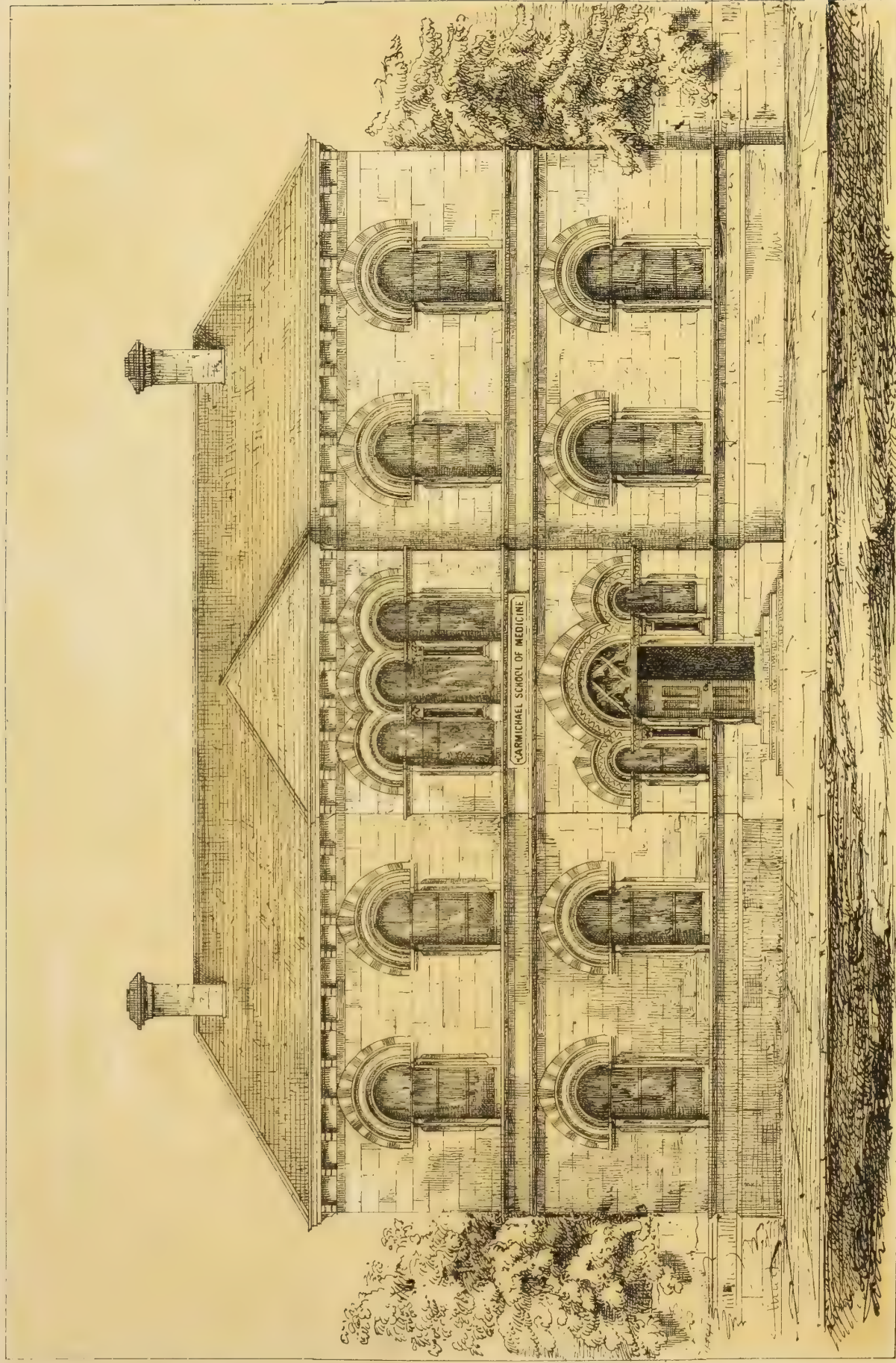
Several of the first artists in Paris are busily employed in sculpturing a splendid collection of beasts, destined to be placed in the Gardens of the Harem, at Constantinople. Twenty-two animals are already completed. Crocodiles, porcupines, tigers, and serpents are so life-like that one scarcely feels safe in their neighbourhood. According to the laws of the Koran the sultan is not allowed to have the statues of any descendants of Adam. He will, however, possess a collection of beasts in bronze and marble certainly unrivalled in Europe.—*Ibid*.

A plaster model of the bust of Meyerbeer, by Danton, is finished, and will be executed in marble, and placed in the Conservatoire Imperial de la Musique.

Madame de Levigni is to have a statue at Vichy. It is the decided wish of the Emperor.

DUBLIN BUILDER.

Nº 116. Oct. 15<sup>TH</sup> 1864.



J. E. ROYLE, ARCHT.

J. LEWIS, EN. JAMES S.

THE CARMICHAEL SCHOOL OF MEDICINE, DUBLIN.

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## BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE following list of subjects treated of in the various sections will be found interesting:—

SECTION A.—Mathematical and Physical Science.—J. Glaisher—Report on Luminous Meteors. Professor Hennessy—On the possible connection between the Ellipticity of Mars and the general appearance of its surface. Rev. T. W. Webb—On a suspected change of brightness in the lunar spot Werner. W. K. Birt—On the importance of adopting methods for the detection of change on the Moon's surface. Rev. T. Furlong—On the probability of constructing Ellipsoidal Lenses. Professor Phillips—Notice of the Physical Aspect of the Sun. C. Tomlinson—On the Cohesion Figures of Liquids. H. Moggridge—On an Easy Mode of Measuring Heights. Rev. E. B. Eilman—On the Earthquake and Storm in Sussex on the 21st August, 1864.

SECTION B.—Chemical Science.—Opening Address by the President, W. Holding, M.B., F.R.S., &c. Dr. Gladstone—Report of the Committee on the application of Gun Cotton to Warlike Purposes. Dr. Miller—On the Analysis of a hot spring containing Lithium Cesium in Wheel and Clifford. Dr. Daubeny—On the Bath Waters. Professor Wanklyn—On the rational formula of Kisaniline. Professor Wanklyn—On the Composition of certain Organic Dyes. Dr. Paul—Note on some of the constituents of the Oil known as Crude Paraffin Oil. A. R. Catton—On the direct conversion of Acetic Acid into Butyric and Caproic Acids. A. R. Catton—On the Molecular constitution of Carbon Compounds.

Mr. W. Gee read the following paper, giving an account of the mode adopted at the Bradford Union (Wiltshire) for the utilization of sewage:—"As chairman of a Wilts Poor Law Union, where the boys' and girls' schools' sewage has been for two years simply, clearly, and effectually deodorized and wholly saved by the Rev. H. Moule's earth method, I would most strongly advocate the 'dry way,' and not the 'wet way,' as the true method for half the population of this kingdom. All houses and cottages that are not in towns all workhouses, hospitals, and prisons will find this plan easily available. I beg attention to what follows:—"For fifteen months ending midsummer last there had been no removal of the product from the schools' shed, so that the heap of excreta and earth then apparent resulted from, say, 45 children during that long period. It must be understood that whenever the soil became sufficiently dry, under cover, it was used over and over again, and it will be then credible that the whole quantity did not weigh three tons. Two tons were sold to neighbouring farmers, and I purchased about 1 cwt. of the remainder, of which I am able to send you a small box. It is quite inoffensive, and might be handled by a lady in potting flowers. Without disparaging Dr. H. C. Bird's plan for towns, pray contrast the one simple process I have mentioned—the mere mixing of exuviae and dry earth—with the 13 heads of his (no doubt able) treatment of liquid sewage, where it cannot be taken to the fields direct, or coarsely filtered, and I venture to think you will advocate the adoption of the 'dry way' by every man who does not live in a street. Supposing even in any street persons were bold enough to try it (and pray let me repeat that I acknowledge all the difficulties of its adoption in a town, I only imply that it is possible), I will advance that, according to the above result, six families might, by one visit among them of one dust-cart in five months, be supplied with dry earth and relieved of a valuable product." A discussion followed, in the course of which Mr. Gee exhibited a box of the product, which had the appearance of mixed earth and guano. Dr. Daubeny said the mayor of Coventry had informed him that in that town the nightsoil was removed about two miles from the town, and was deodorized by street sweepings, and the expense and the proceeds about balanced each other. The chairman said he was strongly in favour of flushing as regarded towns, but the point to be discussed in that section was not the economical, but the chymical question. Professor Miller, Mr. Young, and several other gentlemen continued the discussion, in the course of which the opinion was expressed that precipitation destroyed the value of sewage as manure, and that the only plan of making the ordinary sewage of towns available for agricultural purposes was to distribute it on the land in a liquid form.

SECTION C.—Geology.—The President of this section, John Phillips, Esq., M.A., LL.D., F.R.S., F.G.S., Professor of Geology in the University of Oxford, delivered an address in opening the proceedings of the section. The following papers were then read:—W. Sanders—A brief explanation of a Geological Map of the neighbourhood of Bristol and Bath. Professor Phillips—Measures of Geological Time by Natural Chronometers, with a communication from M. Morlet. H. C. Sorby—On the conclusion to be deduced from the Physical Structure of some Meteorites. H. Woodward—On the family Eurypteridae, with description of some new genera and species. H. C. Salmon—On the Geognostic relations of the auriferous quartz of Nova Scotia. F. von Hauer—A notice of the latest labours of the Imperial Geological Institute of the Austrian Empire. Sir R. I. Murchison—Note on the occurrence of the same fossil plants in the Permian rocks of Westmoreland and Durham. W. Pengelly—On Changes of Relative Level of Land and Sea in south-western Devonshire, in connection with the Antiquity of Mankind. Professor Harkness—On the Lower Silurian rocks of the south-east of Cumberland and the north-east of Westmoreland.

SUB-SECTION D.—Physiology—was presided over by Dr. E. Smith. Dr. J. H. Bennett, of Edinburgh University, read a paper on "The Physiological Aspect of the Sewerage Question." He commenced by

stating that the importance of the subject was now universally recognized. In an economical point of view this country annually lost about £10,000,000 by the non-utilization of sewage, and if account were taken of the cost of the works required to carry off the sewage the extent of national loss might be doubled. The difficulties in the way of the application of sewage to agriculture arose from three sources—1. From the large admixture of sewage with water. 2. From certain ideas of its prejudicial influence on health. 3. Owing to the nuisance which it was thought by some would thereby be occasioned. All plans for the utilization of this important material were more or less interfered with in consequence of the assumption that there was something pestiferous or unhealthy in the fermentation, exposure, and smell of sewage. He agreed with Mr. Rawlinson, who was examined before the Committee of the House of Commons, that the health of the people was the first consideration, but he could not agree with him that the risk to public health from the utilization of sewage was such that it was better at any cost to remove it from towns and throw it into the sea. To prove the fallacy of that opinion, and remove some of the difficulties surrounding the question, he laid down the following propositions—1. That atmospheric air strongly impregnated with odours of various kinds was not necessarily injurious to health. 2. That atmospheric air without smell was often most deadly. From these two propositions he inferred—3. That there was no necessary connexion between smell and deleterious gases. Smells by themselves might be considered as non-injurious. They were not even a nuisance to those who lived among them. The sense of odour was very easily paralyzed. 4. That deleterious gases arising from excreta were injurious, being inhaled from pent-up drains. 5. That emanations from drains and sewage entering running streams were in no way dangerous. 6. That typhoid fever could not be proved to originate from excretal fermentation. 7. That the improvement of drainage by costly works did not necessarily diminish the amount of disease. Typhoid fever in Edinburgh appeared to follow improvement in drainage. Improper food and drink had much to do with fevers. The worst effects were produced by bad water. Decomposed animal matter, by means of cesspools, found its way into our wells. The general conclusion at which he arrived was this—that, so far from sewage being poisonous and injurious to man, it was a source of growth to the vegetable, and through that to the animal, world.

SECTION D.—Zoology and Botany.—The following papers were read in this section:—"The President"—Inaugural Address. T. Spencer Cobbold, M.D., F.R.S.—Report of Experiments respecting the Development and Migration of the Entozoa. J. Gwyn Jeffreys, F.R.S.—Further Report on Shetland Dredging. J. Gwyn Jeffreys, F.R.S.—Remarks on Styliifer, a genus of quasi-parasitic Mollusca, with particulars of the European species S. turtoni. J. E. Gray, Ph.D., F.R.S.—Preliminary Report of the Acclimatisation Committee. Francis Galton, F.R.S.—First step towards the Domestication of Animals. W. Bird Herapath, M.D., F.R.S.—On the genus Synapta, with new British Species.

SUB-SECTION D.—Physiology.—The following were the subjects for discussion in this section:—Rev. J. Slatter—On the Dietaries of the Agricultural Poor. G. D. Gibb, M.D.—On the various forms assumed by the Glottis. W. Turner, M.B.—On a Supplementary System of Nutrient Arteries for the Lungs. W. E. C. Nourse—On the Action of the Nervous Tissue concerned in Perception.

SECTION E.—Geography and Ethnology.—The following were the subjects for discussion in this section:—Rev. H. B. Tristram—On the Physical and Political Geography of the Jordan Valley and Eastern Palestine. Rev. G. Clowes—On the Western Shores of the Dead Sea. Alexander Michie—Notes on China, Mongolia, and Siberia. M. Vambery—On the Turcoman Tribes of Central Asia. M. Nicolas de Khanikoff—On the Ethnology of the Iranian Race. M. Alexander Hippus—Russian Trade with Bokhara.

SECTION F.—Economic Science and Statistics.—This section sat at eleven o'clock in the Milsom-street Rooms, under the presidency of Wm. Farr, Esq., M.D., D.C.L., F.R.S. There were present Sir John Bowring, F.R.S.; Col. Sykes, M.P.; Professor Levi, T. W. Saunders, Esq., Recorder of Bath; M. D. Hill, Esq., Recorder of Bristol; Mr. W. Tite, M.P.; Captain Scobell, &c.

IN SECTION G (Mechanical Science) the following papers were read:—James Oldham—Report of the Committee on Tidal Observations on the Humber, the Trent, and the Yorkshire Ouse. William Fairbairn, LL.D., F.R.S.—On the Mechanical Properties of the Atlantic Telegraph Cable. Admiral Sir Edward Belcher, communicated by Captain Doty, of the Confederate States—On Torpedoes used by the Confederate States in the destruction of some of the Federal Vessels of War, and the mode of attaching them to the Rams. Captain Wheatley, R.N.—On Revolving Sails. Captain Wheatley, R.N.—On Plated Ships and their Armament.

The Association will meet next year at Birmingham.

## NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.

THE eighth annual session of this Association has just concluded its sitting at York. Lord Brougham, president. Sir J. Pakington, M.P.; Sir J. P. Wilde; Lord Robert Montagu, M.P.; Sir Fitzroy Kelly, M.P.; Sir S. Northcote, M.P., and other public men, took part in the congress. The proceedings embraced a very comprehensive programme. Lord Brougham, the president, delivered the usual inaugural address in the Festival Concert-room, and on the following

morning Sir J. P. Wilde, the president of the Jurisprudence Department, delivered an introductory address to the general body of members, after which the business of the several departments regularly commenced. These departments were four in number—viz., Jurisprudence, Education, Health, and Economy and Trade. To the Jurisprudence Department was annexed a Reformatory Section, which dealt with the special subject of the treatment of criminals, and a General Average Section, for the discussion of the draught of a code prepared by the International General Average Committee. An Agricultural Section was added to the department of Economy and Trade, to which was referred the subjects of statute hirings, the sale and transport of cattle, &c. In order to concentrate attention on the principal points to be elucidated in the different sections, three definite subjects were assigned to each, and thrown into the form of questions. In the Economy and Trade Department, for example, the questions discussed were—1. What are the effects upon trade of the existing laws of maritime warfare? 2. Is the granting of patents for inventions conducive to the interests of trade? 3. In what respects, and to what extent, should government security and supervision be applied to the provident investments of the working classes? Eminent men in the several sections were fixed upon to state the questions and open the discussions. The important department of Education was presided over by the Archbishop of York, who delivered an opening address; and among the subjects which engaged the attention of his section were—What improvements can be introduced into our public and endowed schools, and how can the peculiar difficulties attending the state of education in rural districts and small towns be removed?

The following were some of the most remarkable papers read at the Congress:—

An address was delivered by Edwin Chadwick, Esq., C.B., as president of the Social Economy and Trade Department—Lord Brougham presiding. The subject of his address was suggested by the vicinity of the Association to the most considerable manufactures in the world, and was "the chief social and economical questions which have arisen from the external civil war which has shaken our gigantic system of cotton textile production to its foundations."

Papers were read by Mr. J. G. Holyoake on the working of the co-operative system, especially during the cotton famine, showing that in the height of the Lancashire distress the stores prospered, and the working men connected with them were placed in a position of independence.

A paper was read by Mr. R. A. Arnold on the late cotton crisis, and one by Mr. Holmes of Leeds, on houses for the people.

Dr. Yeats, in an able paper on the National Exodus, showed the effects of emigration on the numerical increase of the people, on the just and natural relation that should subsist between the effective and the non-effective ages of the population, on the labour market, on our means of defence, and our future progress. He inferred that emigration was in excess already, and regretted to see the activity of agencies like the American Emigrant Company.

Mr. Rawlinson, C.E., read a paper on the public works being carried out in the manufacturing districts during the cotton famine.

A paper was read by Mr. H. Ashworth, President of the Manchester Chamber of Commerce, on "International Maritime Law and its Effects upon Trade."

In the Jurisprudence Department, where Lord Brougham presided, a paper was read by Mr. A. Stuart, and a discussion taken on the question whether any and what ameliorations can be introduced into the institution and conduct of public prosecutions, and the establishment of a public prosecutor was almost unanimously adopted.

In the Jurisprudence section, Mr. F. Stephen read a paper on the question, "On what principle should the law deal with questions of responsibility and mental competence in civil and criminal cases respectively?"

In the Reformatory section Sir W. Crofton presided, and read a paper describing the system pursued in Winchester jail, and also called attention to the great necessity existing for the assistance of ladies in the establishment of refuges for discharged female prisoners. Miss Carpenter read a paper on the "Non-Imprisonment of Children." A paper was read by Mr. J. P. Organ, on "Convicts without the Prison."

In the Health department Mr. W. D. Hasland, F.R.C.S., of York, spoke at some length on infant mortality and its causes. Mr. George Goswami, F.R.S., read a paper on "The Influence on Health of the Overcrowding of Dwelling-houses and Workshops, and by what means could such overcrowding be prevented?" Dr. Trench followed with a paper on "Infant Diseases in Liverpool." The Rev. D. Burns read a paper on "Vital Statistics in relation to the Use of Intoxicating Liquors."

In the Education department, presided over by the Archbishop of York, Mr. Ford, superintendent of the Society of Friends' School, York, read a paper on the progress of education, and the provision made for it among the Society of Friends. Papers were also read by the Rev. Ishmael Fish, for Miss Mary Simpson, "On the Life and Training of Farm Boys after School-days;" and by the Rev. F. Digby Legard, "On the Education of Farm Servants." The Rev. H. Sandford, late school inspector in the North and East Ridings of Yorkshire, read a paper on "Adult Education, Evening Classes, and the Associations for promoting them." Miss Carpenter read a paper "On the duty of Government to aid in the Education of Children of the perishing and neglected classes."

An Agricultural section met under the presidency of Mr. Holland, M.P., who read a paper on the effects and social advantages of steam cultivation.

Papers were also read on the improvement of cottages.

Mr. J. C. Burne, F.R.I.A.I., of 61, Harcourt-street, Dublin, has been appointed by the Lord Bishop of Meath as his architect for Commissioners of Improvement and Loan.

## THE PERSIAN GULF TELEGRAPH.

(Continued from page 183.)

REVERTING to our subject, the paying out of the Kirkham's cable proceeded smoothly at the rate of about five knots, until the fore tank was nearly empty. The anxious time for the engineers then arrived, the change from hold to hold would soon have to take place. The bight of the cable had to be carried up from the bottom of the hold, through the rings, and then through a narrow passage cut in the centre of the house on deck, and thence along the bridge, until it took up its new "lead" to the after tank. If the ship had the least bit too much way on her the bight would run itself up and along aft too fast for the men to handle it, and it would probably foul some projecting iron, or possibly jump itself into a kink. It was night; the first change of hold to be dealt with and the worst, as it was from the fore to the after tank, so that the bight had to run nearly the whole length of the ship. Besides this, to avoid cutting some of the Kirkham's beams, and to dispense with the removal of the permanent galley, only a very narrow well through the galley had been built.

When there were only a few flakes of cable left in the fore hold an experiment was made as to the time the ship would take to lose her way when the motive power was taken off her, or rather as to the length of cable that would be paid out between the stopping of the Zenobia's engines, and the moment when the Kirkham lost her way.

The Zenobia was eased and stopped, and the number of turns round the hold noted that passed out before the cable ceased to pay itself out. The paying out then proceeded until it was nearly time for the real change. As the time approached the watch below were called, and took their stations in the after tank, and on the bridge. Trustworthy and old hands were stationed to knock the pins at the proper instant out of the blocks in the loops of the rings previously described, to open the hawse pipe below the quadrant and to hand the bight up to the bridge, an operation that requires some skill and experience.

Sir C. Bright took his station on the fore-castle, to superintend the signalling to the Zenobia; Mr. Webb, on the lower deck, gave notice when it was necessary to ease and stop the ship, and gave orders as to the releasing or application of the brakes, and superintended the change generally; while Mr. Alexander took charge of the brakes themselves. All being ready, the Zenobia was eased, and then stopped, just when it was considered, according to the previous experiment, the cable would run itself out of the forehold by the time the ship had stopped; the brakes were at the same time released entirely. Gradually the cable swept round the hold slower and slower, then, stopping for a moment, would start into motion again, and surge out several turns round, until when, after about twenty minutes the cable stopped entirely, there was literally only half a turn left round the hold, so well had the time required to stop been estimated.

Not a word had been spoken during this time, and as the last movement of the cable ceased the silence was complete, and was then broken only by the order to "put the brakes hard down, knock out the pins in the loops, open the hawse, and hand the bight up, and haul down in the after hold," which was executed with great regularity and precision, the bight being carefully handed up the hatch by an experienced foreman, named Jackson, and along the bridge by another named Bishop. At the same time the men in the after tank hauled down the slack cable until, when the bight was thus all drawn down into the after hold, the cable lay fair in the fairleads from the after hold to the brake. The brakes were then eased up, and the signal made to the Zenobia to "go on," at 5:35 a.m., of the 5th. Thus the first change of hold ever executed in a ship under tow had been successfully accomplished.

The paying out then proceeded as before, with great regularity. At 7 p.m. of the 5th a long abstract of political news, just received at Bombay by the English mail, was received from the shore, through the cable, on board the Kirkham, and this was telegraphed on to the Zenobia, by means of the lamp telegraph with great rapidity. About 7:30 p.m., the change from the after to the main hold was executed, and owing to the size of the main hold, and its more circular form, and the design of the rings, cones, &c., being unfettered by any consideration of beams, the arrangements here were so perfect that the cable swept round with the most perfect regularity. The speed was increased to the greatest speed the Zenobia could attain, which, at times, reached nearly six knots.

At 10:40 of the 6th the cable was nearly all paid out of the Kirkham, and she was anchored, when about half a mile was left in the hold, off Ras Munderoney.

The Semiramis, with the Marian Moore in tow, soon hove in sight, and the signal was made from the Marian Moore, "anchor on our starboard bow," which was accordingly done.

The cable in the hold was then hauled up and coiled down on deck, and the end passed out of the stern sheave, and hauled by a hawser on board the Marian Moore; the bight of the cable was then carefully lowered over the stern of the Kirkham into a boat, and, when all the slack had been hauled in on board the Marian Moore, the bight was let go from the boat at about 4 p.m., thus freeing the cable finally from the Kirkham.

During the rest of the day some of the gear, stores, and men were transhipped to the Marian Moore. The next day, the 7th, the transhipment proceeded, and the splice having been made during the night, at about 8 p.m.; the Zenobia took the Marian Moore in tow, at 4 p.m. both ships weighed, and paying out was again resumed. At 4:25 a.m. of the 8th the change from the fore to the after hold of the Marian Moore was effected, and at 9:45 a.m. the ship was anchored and the rest of the squadron off Ras Jask, where it was arranged that the ships should stop till 6 p.m., so that the opposite coast and Malcolm's Inlet might be made at daylight the following day. Towards the afternoon the weather looked threatening, but, nevertheless, a start was made at 6:30 p.m., and, the weather resuming its favourable aspect, the paying out proceeded as before. At 11:10 p.m. the change from the after to the main tank occurred, and was executed with equal success to the previous changes, all of which, it will be remembered, occurred during dark.

About 9 a.m. Malcolm's Inlet was entered, and at 0:40 p.m. the Marian Moore anchored in twenty-eight fathoms, having about six miles left in the hold.

Preparations were then made by Colonel Stewart for erecting a temporary camp and station on the isthmus that separates Malcolm's Inlet from Elphinstone Inlet. The place originally proposed for the station was Kasab, a village on the coast, about nine miles to the westward of the isthmus, but, as no preparations for a station there had been commenced, it was determined to erect a temporary station on the isthmus itself for the present.

The isthmus itself is rocky, and steep, and high, and it required considerable labour and energy to drag all the necessary material of stores, provisions, and water for a station to the selected site. By the 13th matters were, however, sufficiently advanced to permit the landing of the end to be proceeded with, and this was accordingly accomplished by about noon, amidst salutes from the Zenobia, Coromandel, and Marian Moore. The water was deep for such an operation, and special precaution had to be taken. The usual hemp stoppers in the boats were replaced by two messengers rove through blocks in the bows of the sternmost boat, or "stopper boat." One of these was made fast to the cable, and then eased away by a turn round the tharnt, until the hitch was close aft, when the other messenger was bent on, and the first cast off, overhauled again in time to be made fast again by the time the hitch of the first reached aft. Thus all danger of a "run" was avoided.

After the cable had been properly entrenched ashore it was tested electrically, and found perfect, and the engineer's duty of laying the first section thus satisfactorily accomplished.

On the evening of the 14th the Marian Moore, with Messrs. Webb, Laws, and the rest of Sir C. Bright's staff, left in tow of the Zenobia, for Bombay, in order to see the Assaye and Tweed, which ships had arrived at Bombay, finally prepared before they were brought up the Gulf.

The Marian Moore arrived at Bombay on the evening of the 21st, and the next day she was taken alongside the Tweed, and all the cable that remained in her transferred to the Tweed. All the buoys, ropes, chain anchors, and gear, together with the men, amounting to about 54 in all, were then transferred to the Tweed, and finally all the cabin furniture was transhipped; and on the 26th the engineering and electrical staff shifted over to the Tweed. All the preparations of the machinery and holds in the Tweed and Assaye were finally completed by the 29th, and on the 1st of March the Tweed, in tow of the Zenobia, and the Assaye, in tow of the Semiramis, started for the Gulf.

On the 11th of March the Tweed brought up off Kasab, and on the 13th the Zenobia took her in tow into Elphinstone Inlet, and anchored her near a little island where the station had been established by Colonel Stewart in place of the isthmus, when it was found the native Arabs were rather troublesome, the link between the island and the isthmus having been supplied by a piece of india-rubber covered cable, laid by Sir C. Bright. This piece of cable was found defective, and it became necessary to replace it by a piece of the ordinary Persian Gulf cable, and, as a double precaution, two lengths of these were laid on the 14th and 15th.

The Semiramis and the Assaye had arrived on the evening of the 13th, and left to coal at Basidore on the 18th. On the 18th the end from the Tweed was landed on the island, and on the evening, at 5:30 of the same date, the second section was commenced, the Zenobia being still the towing vessel.

The paying out proceeded well all that night. On the evening of the 19th, however, the wind, which was from the westward, freshened, and retarded the progress so that the paying out was reduced at one time to 2½ knots per hour.

At night the wind dropped, and the paying out proceeded favourably. On the 20th two changes of holds were executed with the same regularity and success as before.

On the 21st, at 8 p.m., nearly all the cable in the Tweed was expended, and the vessel was brought up, being distant from Bushire about thirty-two miles. The Coromandel had parted company with the paying out ships off Basidore to fetch on the Assaye, in order to avoid the detention which would have taken place had that vessel waited for the Semiramis to coal. About midnight the Coromandel arrived, with the Assaye in tow. The next day the end was passed from the Tweed to the Assaye, and the shifting of gear, men, and staff, commenced while the splice was being proceeded with.

At 5 a.m. the Amberwitch, the little steamer that is fitted up for repairing the cable, commanded by Lieutenant Stiffe, joined the expedition.

At 2 p.m. of the 23rd paying out was again commenced from the Assaye, and at 9:15 a.m. of the same date the Assaye was anchored off the landing place near Bushire, Lieutenant Stiffe, in the Amberwitch, having piloted the vessel to her anchorage, which was nearly three miles distant from the shore.

On the 24th half a mile of cable was coiled into the paddle-box boats of the Zenobia, and two and a half into the Amberwitch; and at 5 p.m. the bight was let go from the Assaye, and the Amberwitch paid out the cable towards the shore, and anchored about half a mile from the beach. The remainder in the paddle-box boats was then paid out, and the end landed about 8 p.m., almost in total darkness. The cable was then led up the cliff, and along a trench, to a small camp prepared for the reception of the end, about six miles to the eastward of the town of Bushire. Thus ended the laying of the Mussendum and Bushire section.

The next day Lieutenant Stiffe was despatched in the Victoria, Lieutenant Arnot, to lay down buoys on the proposed route of the cable near Fau, where the Gulf begins to get shallow, and consequently required the selection of the deepest water that could be procured for the more perfect safety of the cable.

On the 25th the Assaye was towed by the Amberwitch to a position west of her previous anchorage, so that the next section might not overlay the part just laid.

The necessary length of cable was then paid into the Amberwitch and paddle-box boats, and at 5 p.m. again the Amberwitch paid out towards the shore, and anchored close in, and the first end of the Bushire and Fau section was landed at night, by lamplight.

On the 26th, 2:50 p.m., the paying out was once more commenced, the Coromandel being ahead, the Zenobia towing the Assaye, and the Amberwitch following.

On the morning of the 27th (Easter Sunday) the Victoria was sighted in position, and the various buoys laid by Lieutenant Stiffe were passed in succession, and at about 7 p.m. the Assaye, being in about four fathoms, anchored, thus ending all the paying out that was required from the large sailing ships between Gwador and Fau.

A grand lighting up of the Assaye with blue lights on every yard arm and mast head, and discharges of rockets, celebrated this stage in affairs. The next morning the difficulties yet to be overcome became very apparent. No land was visible with the naked eye, and with the glass only was it possible to discern a faint broken grey line which represented the shore, where yet had to be taken the cable. This shore was about nine miles distant, the bottom shoaling gradually the whole way.

On the 28th Colonel Stewart, Sir C. Bright, Captain Bradshaw, and Colonel Goldsmid started in the Coromandel and Victoria for Fau, to reconnoitre, and make arrangements for a portion of the land line, four miles in length, which was necessary to join Fau, a village on the Sbat-el-Arab, to the place where the cable was to be landed.

At noon of the same day Mr. J. C. Laws, the electrician, reported "no continuity" between the Assaye and Bushire, and the fault 92½ N. miles distant from end on board Assaye, the insulation being, at the same time, perfect.

Mr. F. C. Webb, in the absence of Colonel Stewart and Sir C. Bright, then immediately began to take steps for the repair of the line, and as it was no longer of any use to keep the cable hanging over the stern, requiring, as it did, very careful and arduous evolutions, with a kedge anchor, on the swinging of the ship at each change of tide (which ran here about four knots), the cable was cut and buoyed over the stern, and the ship allowed to swing freely to her anchor. The next morning (29th) at daylight the end was picked up, and the Assaye moved half a mile away from it, and the end then permanently buoyed with

two buoys. The Amberwitch was then hung to the Assaye, and prepared to take cable from the latter vessel.

In the mean time Colonel Stewart, and Sir C. Bright, having returned, and approved of all that had been done, the Zenobia was despatched to take Messrs. Laws and Lambert to Bushire, to corroborate their tests from that end of the section.

At 10 p.m. of the 29th hauling in from the Assaye, by means of the steam "picking-up" machinery in the Amberwitch, was commenced, and continued through the night without intermission, and at 11 a.m. of the 30th 21.5 miles of cable had been transhipped, which was considered ample for any repairs that might be required.

A great deal of spare machinery had then to be shifted from the Amberwitch, and afterwards the men, stores, and gear had to be shifted to the Amberwitch. This was all accomplished by midnight, in spite of a very dark night and very heavy tideway, and at 1 a.m. of the 31st Mr. F. C. Webb, at whose disposal the Amberwitch had been placed by Colonel Stewart, for the operation of repairing the line, accompanied by Mr. J. Woods, took passage in that vessel, and started for the locality of the fault.

At 4 p.m. of the 31st the Zenobia was met returning from Bushire, and Mr. Laws and his assistant, Mr. Lambert, took passage in the Amberwitch, having tested from Bushire, and found that the tests taken from both ends made the fault at 93.4 from the end in the Assaye, or a difference of only 0.9 from the single test. The Amberwitch was then run on until the Island of Karrick was approached sufficiently for the ship's position to be carefully fixed by angles to the objects on shore.

The distance and course out to the position of the fault was then run, and a buoy, having a lantern on it, moored at the spot, and dredging for the cable commenced at about 11 p.m. The cable was hooked at the second dredge, and hove up by the steam machinery, and cut, at 4 a.m. of April the 1st. The two ends were then tested, and the fault found to lay towards Fau, but quite close to. The end of the part leading to Bushire was then buoyed and let go, and the cable wound in towards Fau. When 2.46, N.M., were in, the cable was cut, and the fault found to be in the piece thus cut off. The new cable in the hold was then attempted to be joined on, but it was found that a difficulty, once or twice before experienced on other cables, here interfered with the joining of the gutta-percha. As soon as the soft warm gutta-percha was applied to the joint, the percha bubbled up, and thus prevented a perfect joint, showing that air was contained in the cable between the gutta-percha and the copper. About a third of a mile more cable was then hove in, and a second joint attempted, and no difficulty experienced. The splice was then made, and the new cable payed out towards the buoy on the Bushire end; but as it was night, and impossible to see the buoy, the cable was payed out until it was known that the two ends must overlap at least a quarter of mile, when the cable was cut and buoyed. On the following morning (2nd of April) the buoy on the Fau end was picked up, and the cable wound in until abreast of the buoy on the Bushire end. This end was then weighed, and the two sections being tested, and found perfect, the final joint and splice was begun, and let go at about 3 p.m. The flag buoys were then picked up, and the ship started to join the rest of the ships off Fau.

(To be continued.)

## GLASS PAINTING, ANCIENT AND MODERN.\*

(Continued from page 194.)

ONE great cause of the beauty in the works of the early artists is the equality of pains they seem to have taken with all parts of their design. It accounts for the harmony which prevails between their glass and the architecture to which it is made subordinate. In the earlier styles the artistic composition of picture subjects was made effective, and the groups of figures relieved from each other by contrasts of colour, rather than, as in more recent work, by opposing lines. Their shadows consisted of little else than lines, so that the glass was honoured throughout, and the right principle of a window was maintained as a thing of light. But as time progressed and the arts of mural painting and illumination became more realistic, glass-painting followed in the same strain.

There was one mode of composition often pursued throughout a window which has a most chaste and architectural effect. I mean the use of colour in the figures alone, or in the back-grounds alone; the other as it may be, being all of white glass, diapered, or relieved by strong lines and golden-yellow stains. The grand simplicity of this effect can hardly be surpassed. There is another admirable effect produced in white glass by keeping both figures and back-ground white. The relief of colour is given in bands and blots

of it in parts of the window not occupied by those compositions. The effect I mean is produced by keeping the figures in pieces of glass of a comparatively large size, marking their outlines and principal folds of drapery, and so on by very strong leading, the back-ground being equally of white glass, but cut up into little pieces of geometrical diaper. The relief is perfect. It would be admirable for domestic use where a single window, or perhaps at most two, would be treated in this way; but there is no relief in it by colour for the cold architectural masses of church walls. Where such are all polychromed this is precisely the style of glass for the purpose. There is a modern plan, lately introduced, with something of the same object, but it utterly fails: it attempts to be pretty, and loses all the vigour which makes work in glass worth a straw. I mean the plan of taking sheets of glass, and drawing in outline figure subjects, and putting in various back-grounds, all drawn exactly in the same way and on the same piece of glass. The drawing is sometimes very creditable, but the result weak and poor in the extreme. If the makers of such work would only condescend to use glass as glass, and not like great sheets of paper, and would bear to be told that leading is not a vulgar expedient all very well for the poor benighted Goths, who could not make such fine great sheets of glass as we can, they would then succeed where they now fail. It appears to me that it is the leading which gives consistency to a glass painting and vigour to its effect.

I was speaking of the improvements in the arts of painting during the fifteenth century. They were the first poison-drops which ultimately ruined the art applied to glass. Up to the end of the fourteenth century little harm was done. Shadows were used in the draperies, but they were used as they ought to be for glass. The folds were marked, as in the previous style, by strong and fine lines, the shadows in the fewest possible places so darkened as to save the rest from weakness. The points in the figure composition and the relief of the parts were maintained in the genuine spirit of glass-painting, by the contrast of colours and the shapes of the pieces, and pre-eminently by the reckless boldness of the leading.

Too much praise cannot be bestowed on the care that was lavished on the ornamental as distinguished from the pictorial parts. It is a great mistake to suppose that a high and refined sense of beauty can only be shown in figure-painting. Ornamentation is to art what the varieties in form and tint of leaves and flowers are to nature, and often expressive of its greatest beauty. It is a branch of art never despised by the really great artist. The principle of an arabesque, if only used in the right place, is admirable. The early Gothic and Norman arabesques were magnificent. There is just in them that legitimate place for wild fancy which is wanted somewhere—a sort of safety-valve for fun, which must break out somewhere, and might otherwise become dangerous.

About the middle of the fifteenth century the treatment of pictures in glass became more and more relaxed. The artists had hitherto been guided by the safe principle of difference to the architecture of which their work formed a part. After that time the architect's design seemed to be beneath the notice of the painter's condescension. He spread his picture over the whole window-space, regardless of all obstacles.

A little later than this a magnificent style of glass-painting was developed in Italy. Glass was treated pictorially, indeed; but, like most genuine artists as they were, the Italian designers of those pictures felt intuitively that the compositions and resources of other styles were unsuitable for glass. So they went in for light and colour like men; and designed, for breadth of contrast and vigour of effect, figures, architecture, fruit, flowers, animals; and then led them all together, regardless of atmospheric effects and perspective, and with an equality of colour throughout and relief in the detail just enough to save all the objects from confusion. The effect was the most powerful that glass could produce. It was flat, architectural, and grand in the extreme. The success of those windows consisted in this, that their designers were, first of all, consummate artists themselves, and then that they had the genius and wit to seize the true and complete idea of the materials they had to work with. There was the last blaze of that fine art for many a long year. Their successors adopted a new system by painting upon glass with enamel colours. The result was the rapid decline of the art. They would paint. The art of glass, therefore, was no more. Such was the fate of glass-painting south of the Alps. In the north much the same result occurred. Religious and political troubles, far and wide, confirmed it. But here and there, and more particularly in Holland and Flanders, the old vigour of the art was revived. But the taste of the times was coarse, and the idea of art was too realistic to be attained in glass, without straining it beyond its proper functions. Some grand effects were, however, produced by combining the inlaid system of the best times with the enamel-painting of the worst. The

inferior artists revelled, as usual, in violent effects. The public taste of their day was low, and was growing lower. There was no demand for good art, so there was no supply. And so the art dwindled away, till it fell, as I described at the beginning of this address, into the hands of the plumbers.

By this very sketchy review of the history of the art, from its earliest day to our own, and by our own personal observation of the works which remain of the various periods and styles, by the rarity of success and the frequency of failure, we must be impressed that there are somewhere, if we could but find them, some as certain principles for the foundation of all that is good in this as in any other of the fine arts; and that, for any hope of its successful revival, the first thing for us to do is to master those principles; and, further than that, to clear from our minds those obstacles which the very knowledge we possess of other arts may cast in the way of our comprehension and success in this.

I think that these principles are perfectly clear. The subject appears naturally to divide itself thus: 1, the treatment of ornamentation; 2, the treatment of pictorial composition. Of the first I will only say that it has met with too great indifference at the hand of modern glass-painters in general. Ornamentation is capable of taking a high position in the scale of art. The abstract beauty of form which is its very essence is comprehensible only to the most refined and intuitively artistic minds. It is a subject for glass painters especially, and worthy of the talent and the labour they can expend upon it. I hope they will do so. It involves quite as much the improvement of the material of glass and its variety (which we are all desiring) as its treatment.

To go, then, without further delay, to the second part of the subject, it is evident that the greatest difficulty lies in the treatment of pictures in glass. You have seen, in the slight sketch of the art, how, as the other arts advanced, the glass-painter was tempted to push his also forward, not perhaps so much for any ambition to rival them, as that, his eyes having become habituated to a more artificial and academic system, he followed onward with the stream of his contemporaries. But he found at last, with many other reformers, that advance is not always synonymous with improvement. In his time perspective had become a science. Theories of composition, of the balance of lines, of the balance of color, were taught as axioms of art. Pictures were no more suggestions or reminiscences, but actual representations, with all the natural effects of sun and shadow, night and day. And why was not all this to be effected on glass as well as on canvas or a wall? The glass-painter seems to have gone on asking himself this question; and now in our time people are asking it again. They are demanding pictures for their windows, family legends and local traditions for their halls, sacred subjects for their churches. How is the modern glass-painter to proceed? He certainly stands on the vantage-ground of experience. The successes and failures of past days are all before him. He has, with few exceptions, the whole array of materials for equal success: he has himself only to blame for equal failures. His difficulties are the difficulties of abundance rather than poverty. Style after style is open to his choice. Science is at his bidding. Galleries and museums are open to him everywhere. And the skill of the modern artisan sets him at ease about matters of technicality.

But is just in all this that his trouble lies. He is impelled by all around him to the idea of advance. The notion of accepting the principles of a less educated age is to him a notion of retrogression. And there are other rocks than these also for him to wreck upon. There is the pre-occupation of people, in all the absorbing objects of this busy age, which unfits them for the quiet atmosphere of art, and greatly disqualifies their judgment. Then there is the unsettled state of architectural taste, which keeps all the arts associated with it in the same unhappy condition. Then there is that most fatal commercial element to contend with—to which, indeed, be all honour and respect paid within the broad limits of its proper action for individual and national enterprise and wealth—not when it invades the realm of the arts and presses one of the finest of them, as it does now glass-painting, into its service: no loose stone in a foundation, no poison in the food, no worm in the bud, could be an element of more certain ruin than it.

I know that here I touch on a very delicate subject. If I give offence I regret it; but there are occasions when plain opinion and plain truth must be stated, and this is one of them. I know that the artist must live by his art. I know, too, that it will be replied to my objection that the artist is under great obligation to the man of commercial energy for giving him the means of constant employment. So far so good—we are quite agreed so far. The evil is not here. The evil does not lie in the man of commerce supplying the artist with the means of constant employment, but in the simple reversing of those words, that it is the artist who is pressed to supply the com-

\* By Mr. T. Gambier Parry. Read at the South Kensington Museum, on Monday, July 4th.

mercial man with the constant employment of his means. That is the evil, and a serious one. The very energy of the employer is the ruin of the employed. His talents are over-pressed—the fertility of his invention overtaken. Orders pour in—customers become impatient—work must be completed, or, in its commercial sense, “turned out,” in a specified time. The result is repetition, inferiority, and routine. But a still worse state of the case is this, and a common one—that the contract price keeps down the quality of the work—and quality is a matter of time, and time is money;—and thus a man's genius and high feeling are fettered and crushed because one breath more—one step further would not pay. The rich stream must be diluted down to the necessities of trade. Genius is become an article of commerce, to be sold by the pound, or to be measured at so much per foot. I assert that this is utter degradation of art. No art can live long in such an atmosphere; nor, certainly, could it rise above the most utter mediocrity. Thus far, indeed, it might rise, and for such a purpose the lower powers of art are not improperly applied. There are very many things, objects of universal use and trade, of which the value is very legitimately enhanced by a certain amount of artistic excellence. For such purpose let such a system prevail; for carpets, curtains, silks, and ribbons; tables, embroidery, earthenware, clocks, and ten thousand other things, in which dealers must deal, and which manufacturers must supply. The more they civilize and cheapen their wares the better. But there are occasions also here where a rather higher character of art is sometimes applied; as, for instance, in the painting of the finest porcelain. But I never heard of even that being degraded as our glass is. I never yet heard of a Sèvres vase, or a Dresden group, or Chelsea bowl, being sold by the measure of their surfaces, or by any other test of value but that of the excellence to which the artist, by all the powers he possessed, could press, to the very utmost of his perfection, the work of his hands. But the glass-painter stands on a higher level of art than he does. I know that the glass-painter must live by the work of his hands, and that they are but the fruit of his genius. The greatest men before him have done the same. The greatest architects have built for money; the greatest sculptors have modelled, the greatest painters have painted for money; but where was ever one such as they found who would yield for one moment to the bondage of the money for which they worked, or who would not, with poor old Palissy, have rather burnt the last leg of his last chair, and the last rail of his garden fence, than bear to fail in the full excellence of his work? If glass-painting in our day is to be submitted to such pressure as would have crushed the genius of a Raffaele, it has small chance of vitality, and none of perfection.

But I must not be misunderstood. I desire, by no means, to pass a sweeping censure against the combination of the commercial man and the artist. Our whole social state is changed since the days of those peaceful contemplative poets of art who began their work with prayer, and mingled their colours with devotion, making religion as much a medium of art as art a medium of religion—men who worked the live-long day, refreshing their spirits and their eyes on the tranquil and lovely scenery of Umbria.

But do you reply—“Yes, but those men often undertook great works on contract, and at a fixed price, and fixed time too?” Yes, they did; but who made the contract—who fixed the time? Not any commercial partner who had to make money out of the artist's brains. No; for no art can reach excellence—the complement of a man's full powers can never be attained—but in the freedom of undisturbed thought. If there is any vital element in art, it is that which is akin to poetry. It is a strange mixture in itself of delicacy and power,—qualities which in the execution of its work maintain and modulate each other. Delicacy would otherwise degenerate to weakness, and power swell into vulgarity. Art cannot live as a slave to commerce. When Perugino grew avaricious he prostituted his art. It was lucky for the arts, and for his reputation, that in his younger days he had said his prayers. In those days he had acquired a power of refinement and expression of the most exalted character, for which all after-ages have venerated his memory. He had been a poet—he had indeed been a poet; but when his studio was lowered to a manufactory, the volume of his glory closed.

I must repeat most explicitly that I by no means object to the combination of the man of business and the artist in an establishment for glass-painting. On the contrary, I think it would be one of the greatest service. I only demand that the two men should be in their proper places. I demand that their workshops—yes, call it boldly by its proper name, for in the highest days of art it always was the “bottega”—should be rather on the more dignified model of a school or a studio than that of a place of trade. I know most happily that there are such existing. There are very many details of such a “bottega,” in

which a man of business habits would be a perfect second right hand to the artist. There are orders of a common kind as well as of a higher, which must be supplied from such an establishment. There are works of ornamental art, which, when once well designed, may be many and many a time repeated, such as diapers, quarries, borders, geometrical work, and so on, in the various styles of architectural composition; for a really good thing had better be oftentimes repeated, than poor ones multiplied. I would even say that the repetition of a higher class of pictorial compositions is by no means to be decried, when the means at hand for purchase are limited. A good copy of a good work is more honourable than the perpetration of a bad original. The one thing I demand in such a partnership is, that the artist should be king of the establishment. There is plenty of work for both. Such a “firm” (I call it so because there must be some capital invested) should be like a body corporate, with its right hand and its left. I demand that the right hand should be the artist's—every finger of it his. It shall be for him to say that such a work shall be undertaken, and, with wisdom and honesty (not always practised now), that such another shall be declined. I beg you for a moment to look at the opposite picture, and to listen for a moment to such a by no means impossible nor improbable conversation as this. Head partner, managing man of the “concern” enters: “Well, John, how do you get on? You must push along a bit. We have got that order for the Last Judgment, for the east window of blank Church; and Hannibal crossing the Alps, for the Duke of Bareacres's staircase. You must manage to work off Honolulu Cathedral by next month, for the other big window is promised for Australia before Christmas, and the ship sails in about a couple of months.”

I ask you to conceive the utter state of prostration with which the artist partner flings himself into his arm-chair, poor fellow! if head partner allows him one; and to realise to yourself the utter prostitution of art submitted to such terms. I believe the scene to be by no means exaggerated, but to be only, in other words, of most possible occurrence. If art is to be a plaything, only let it be honestly sold in toy-shops. Let us have no more hypocrisy about it, no pharisaical nonsense about any height in its aim, any beauty in its motive, any divine gift in its genius. But if it be a noble thing, if these qualities and objects be really its own, let it be emancipated to the utmost possible to us weak mortals, from worldly pressure. Let the artist be at his own command,—at liberty to say yes or no; to live in and by the harmonious assistance of his invaluable commercial friend, but to fix his own work, his own time, his own price; to follow his glorious work in quietude, in honour to his art, in honour to his patrons, and in honour to himself. Commerce and art thus wedded together would be like body and soul to each other. Only let the right hand keep the keys (i.e., the power to ordain and to dispense), and the left hand keep the accounts.

It would be a rare case to meet with so perfect a little body corporate as this. There would be no fear for its issue; and, happily, we know of some founded nearly on this ideal. But, alas! for human weakness, it too often happens that the partner in poetry, though he knows he is overworked, cannot bring himself to say “no” to the glittering offer of a patron. Partner in business decidedly hopes he will not; and so the spirit too often succumbs to the infirmities of the flesh!

If there be one greater error than another that an artist can commit, it is in the transgression of the nature of his materials. The more evident, the more distinct, that nature is, the greater is his sin. Now, if there be any material at his disposal of which the qualities and resources are more clearly marked than any other, it certainly is glass. If in oil colour, they are those of depth and power; if of water colour, delicacy; if of fresco, sobriety; of glass, they are pre-eminently those of light.

I by no means infer from this, what I might be mistaken to mean, a garish, gaudy use of the raw material. But I certainly do mean that the degradation of so beautiful a material as glass to the condition of cardboard, as is done too often by the Germans, or into oiled calico as by the Italians, or into a very bad style of whity-brown paper, as is frequently done by the English and French, is simply an *abnegation of the art in glass*. As I said before, glass is a thing of light and colour, which calico, cardboard, and brown paper certainly are not.

The abuse, as we have seen, arose at the time (the fifteenth century) when glass was manufactured thinner and more clear. The painters now black it to hide its poverty. It is wanted for all varieties of effect; and, rightly used, it can be gorgeous without being gaudy, and solemn without being dull. The first step to its improvement for art purposes must be the work of the manufacturer. I do not pretend to be versed in the niceties of its manufacture; but it appears to me that the ruby, the green, and the white

would be better made thick, the blues more grey, the white very various in hues, and a more refractive and a rich translucent rather than purely transparent glass, made for them all.

(To be continued.)

## Railway Intelligence.

**RAILWAY BETWEEN ARMAGH AND KEADY.**—A meeting of the landowners, millowners, and others in the neighbourhood of Keady, was held on Wednesday, the 28th ult., for the purpose of promoting the construction of a line of railway connecting Keady with Armagh. Resolutions approving of the project were adopted, and a provisional committee was appointed. According to the estimate of Mr. Dillon, C.E., the proposed line will be eight statute miles in length, and the cost of construction upwards of £60,000. The district to be traversed is a very populous one.

**MIDLAND COMPANY.**—A few gentlemen (including Lord Clonbrock and Sir Thos. Burke, M.P.), who are shareholders in the Midland Railway Co., and are also connected with the county Galway, met last week for the purpose of having a conversation as to the course which should be taken at the next meeting of the company in reference to the guarantee by the company of the interest on the government loan with which the line from Athlone to Galway was made. The meeting was private.

**PORTPATRICK COMPANY.**—The ordinary half-yearly meeting of this company was held at Stranraer on Friday, the 30th ult.—Viscount Dalhymple, chairman of the board of directors, presiding. The chairman, in moving the adoption of the report said, it was not quite so favourable as they could wish, owing to the loss of the Irish traffic consequent on the withdrawal of the steamboat between Stranraer and Larne, a proof of the absolute necessity of the re-establishment of the steamboat service, for the line must depend more upon foreign traffic than local. His lordship then alluded to the parliamentary proceedings of last session, and said the expense of getting their principal act would have been much less had they not encountered the opposition of the Glasgow and South Western Company, which they had no right to expect. He regretted that the harbour works at Portpatrick were still in an unfinished state, seeing so large a portion of their capital expended on the branch to Portpatrick was lying unremunerative. He concluded by announcing that they had better prospects for the future, having come to an agreement with the Caledonian Railway Company for the working of their line on very favourable terms, which would shortly be submitted to the shareholders. They had also received the promised contribution of £10,000 from the London and North Western Company. Sir W. Dunbar, Bart., seconded the adoption of the report, which was agreed to without discussion.

**BORROWING POWERS OF RAILWAY COMPANIES.**—The report of the Lords Committee, appointed on the 27th of May last to consider what legislative measures might be desirable to restrain the directors of railway companies from borrowing in excess of their statutory powers, or from evading the provisions of their acts of Parliament, with the view that the validity and security of debenture bonds should be better established, was issued on Saturday. The report states that the Committee, having examined witnesses and considered the subject referred to them, are of opinion that a compulsory public registration of railway debentures and debenture stock will afford means whereby the directors of railway companies may be restrained from exceeding the amount of their statutory borrowing powers.

The Duke of Sutherland has agreed to take £100,000 worth of stock in the proposed Bonar and Caithness Railway. His grace is the largest holder of railway shares in Britain.

**A FEAT UNPARALLELED IN THE RAILWAY WORLD.**—We have the following from the contractor of the Atlantic and Great Western Railroad:—The first through train from New York to St. Louis, by the broad gauge, over the Atlantic and Great Western Railroad, reached its destination in forty-four hours, a distance of 1,200 miles, without change of carriages or break of gauge—a feat unparalleled in the railway world.

There are at present ten railways in India either opened for a portion of their whole distance or in process of construction, and some of these have branch lines. Two lines—the Scinde (114 miles) and the Eastern Bengal (114 miles)—are finished their whole length. The total length of line now open for traffic is 2,687½ miles, and 2,100 miles yet remain to be constructed before the system, as far as sanctioned, will be completed. Since the 1st of January, 1863, 358½ miles have been finished and opened up to January last. Last year 279 ships

carried out from this country 166,840 tons of goods, valued at £1,285,404, for the railways, while nearly a like quantity was sent during the previous twelve months. The shipments of railway materials to India from this country have altogether amounted to 2,764,781 tons, of the value of £15,128,856. Most of the servants of the companies are at present Europeans, of whom there are now 2,800; but it is thought that in process of time the natives may be brought to discharge many of the duties, which will tend greatly to facilitate the more economical working of the lines.

## Correspondence.

### SLIGO TOWN HALL.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—I beg to say that the Sligo Town Commissioners have neither answered letters addressed to them, or returned to unsuccessful architects drawings sent in in the competition for the new Town Hall. This was the more unaccountable, as the competition was in every respect as fairly carried out as could be desired.—Yours, &c.,

COMPETITOR.

[Our correspondent is not strictly correct in his statement above, as we know of some drawings that have been duly returned. But this negligence of committees and carelessness in returning valuable drawings is highly culpable. In the case of the recent "Bethel" Church competition the trustees had, after repeated applications and the lapse of nine months, to be threatened, in one case, with legal proceedings, which were just being commenced when they condescended to return them.—ED. D. B.]

### THE LATE MR. EDWARD M'ALLISTER, ARCHITECT.

It is with sincere regret we have the melancholy task of chronicling in our pages the melancholy death by drowning, while bathing at Clontarf, of Mr. Edward M'Allister, architect. The sad details are too familiar to our readers to require that they should be again repeated. The deceased gentleman, who has been thus suddenly snatched from the ranks of the profession at the early age of 28 years, was one of the last admitted fellows of the Royal Institute of the Architects of Ireland, and had already exhibited proofs of considerable ability in his profession. He leaves behind many friends won to him by his amiable disposition and unassuming manners, and we have a difficulty in expressing the deep sympathy which is felt for Mr. M'Allister (inspecting architect under the Ecclesiastical Commissioners) under the heavy affliction which has thus deprived him of, we believe, an only son of such qualities and early promise.

### PUBLIC AND PRIVATE WORKS.

David Malcomson, Esq., proposes erecting a terrace of houses of a superior class on the lands of Kingscourt, Tramore, Co. Waterford. Other improvements are, we understand, in contemplation at this favorite watering-place. We shall at all times feel a pleasure in chronicling such praiseworthy desire to afford employment as has been exhibited by this gentleman.

The foundation stone of the addition which the superior of the Christian Schools at Limerick, Mr. Walsh, is constructing, with the aid of the bishop, was laid on Thursday, the sixth inst., by the Rev. Mr. Brown, administrator. The addition to the schools is in the front, at the next end approached from town, and it will occupy nearly the whole of the space which remained vacant. The extension will be uniform with the pre-existing building along the road, and will comprise four spacious rooms, two on each floor, the lower, if not also the upper, of which will be divided by glass folding doors. Thus a lecture-hall adequate to the accommodation of a thousand boys can be constituted. The four rooms will serve for the instruction of four hundred boys, and, of course, will communicate with the rest of the edifice where others in corresponding numbers are taught. The new work will extend thirty-two feet in front, rising two storeys. It will be seventy feet in depth, comprising six large windows on the ground floor, and as many above. All the materials, with trifling exceptions, are derived from the long disused old College house that stood inside the gateway to the bishop's residence. The worth of the materials is equal to £600. The building, if erected of new material, would cost £800. The actual expenditure will thus be about £200.

Mr. Corry, of The Crescent, Belfast, has erected, at a cost of £500, a school-house in Ashmore-street, near the Falls-road, for the education of the children

of the working classes of that district. Attached to the main building is an infant-school. The buildings are tastefully executed, and are an ornament to the neighbourhood. The schools were opened on Monday morning, when 140 children were enrolled.

Considerable additions are about to be made to Dundalk barracks, by seven acres of ground being added to the space at present comprising the barrack square. Commodious as the barracks now are, in most respects the area available for a cavalry parade ground is somewhat limited. With the proposed additions, however, the Dundalk barracks will be amongst the finest, as they now are, perhaps, the healthiest in the kingdom.

Extensive improvements are being made at Monkstown-avenue, Kingstown, on the property of P. J. Kelly, Esq., solicitor.

Several sites have already been taken for the erection of villas and cottages. The new roads and various sites were surveyed and marked out by P. J. Byrne, jun., architect.

### CHURCH BUILDING, IRELAND.

On Wednesday last the foundation-stone of a new Presbyterian Mission Church, in course of erection on a desirable site in Jervis-street, was laid by the Rev. Mr. Rogers. The building will be in the Early English style of architecture, and, comparatively speaking, plain in appearance. The material for the front will be Co. Dublin grey stock bricks, with red and white bands and arches. The tracery will be composed of Bath stone, and of Portland stone in parts most exposed to weather. The interior will be of a simple but neat character. The plan comprises large school-rooms, which can also be used for lecture-rooms. The entire cost will be about £2,000. It is computed there will be sitting room in the church for 500 persons. The design is by Mr. Heiton, of Perth, the architect of the Rutland-square church. The builders are Messrs. Crowe and Son, of Great Brunswick-street.

Tenders have been received for the stucco work and internal finishing of Arklow Roman Catholic Church, H. Byrne, architect.

The new Roman Catholic Chapel at Raheny has been opened for divine service. It was completed under the superintendence of the above architect, from the drawings of the late P. Byrne, R.H.A. It is the intention, we believe, to replace the present lights in the chancel by handsome stained glass windows.

A new Roman Catholic Chapel, from the designs of Mr. H. Byrne, architect, is about to be erected in the vicinity of Wexford. Accommodation, 2,000. Style, Early Gothic.

A new chancel is in course of erection at Bantry church, with a stained glass window and new chancel arch. The floors are laid with Maw and Co.'s tiles, and nearly the whole of the cost is defrayed by the Rt. Hon. the Earl of Bantry. Mr. William Murphy, of Bantry, is the builder.

On Thursday, the 6th inst., the ceremony of laying the foundation stone of a Presbyterian church in Banbridge was performed by the Most Noble the Marquis of Downshire. The site of the new church is off the Ballydown road. The building will be in the Italian style of Architecture, of a plain substantial nature, attention being given chiefly to comfort and convenience in the interior. The length 77 feet, and the breadth 50 feet. The entrance will be by two doors leading into a vestibule. Above the doors will be a large double window, with cut-stone ornamental columns, and the front will be surmounted by a handsome cut-stone belfry. On the ground-floor 82 pews will be erected, capable of accommodating 450 persons; and there will be an end gallery calculated to hold 200. The ceiling will be panelled and ornamented, and an ornamental cornice will run round the walls. The pulpit will resemble a platform, the plan now becoming so popular. Special attention has been paid to ventilation, and light will be admitted through five large side windows and two wheel windows in the rere. The cost of the church is estimated at £1,400, and there can be little doubt that when finished it will be beautiful as well as comfortable. Messrs. Boyd and Batt, of Belfast, architects; Mr. John Jackson, Banbridge, builder.

### CHURCH BUILDING, ENGLAND.

The Bishop of Asaph has consecrated a church dedicated to St. Mary, and built from designs by Mr. B. Ferrey, at Cefn, near St. Asaph. The church has been mainly built at the expense of Mrs. Wynn, the widow of the late Colonel Wynn, M.P. It is built of limestone, quarried on the spot, and is designed in the Early Decorated style. It consists of a nave and chancel, with an octangular apse, a south porch, vestry, and gable turret. The chancel and apse are groined with stone, the ribs supported by vaulting shafts of polished local marble. The sides of the apse are lined with diapered encaustic

tiles, and the floor of the chancel is similarly paved. The church is seated throughout with open seats of stained deal. The nave roof is also of stained timber. The nave and single-light windows of the west end, as well as those of the chancel, are filled with painted glass by Messrs. Lavers and Barrard.

The Bishop of Chester has consecrated a church at Odd Rode, dedicated to All Saints, and built by Mr. Randle Wilbraham, in memory of his father. Mr. Scott was the architect.

The Bishop of Bangor has consecrated a church dedicated to St. Mwrog, at Llanfwrog, overlooking the Irish Channel. The church comprises a nave, a chancel, divided from the nave by a lofty stone arch, a south porch, a robing room, and a bell turret on the west gable.

Canon Guthrie has offered to contribute £500 towards a fund for erecting a chapel in connection with Clifton College.

The ancient church of Farrow, Northumberland, is about to be restored under the direction of Mr. Gilbert Scott, R.A. This church is one of the oldest in England, having been founded, as the curious foundation stone still in existence proves, in A.D. 681, and is best known as the church of which the Venerable Bede witnessed the completion, and afterwards by diffusing religion and learning throughout Christendom, gave a wide renown to this remote monastery of the Tyne. In modern times the nave was rebuilt, but in wretched and incongruous style, and original features of early architecture in the chancel were defaced or concealed by tasteless alterations. Mr. Scott reports the tower as in a dangerous state, the four piers on which it stands having partially given way, and huge rents in the arches and walls consequently follow. Besides putting new roofs to chancel and nave, an extension of the latter, by the addition of a north aisle, is recommended. In taking down the incongruous vestry which disfigured the north side, a curious low window which had been concealed was discovered, and a beautiful old priests' door has been opened and is to be restored. Arches now walled up, appear to have been opened from the chamber above the vaulting of the tower, eastward into the chancel, and westward into the nave, forming that chamber into a kind of rood-loft. It is proposed to restore and open these arches, and in this chamber to place the organ.

### ROMAN CATHOLIC CHURCH BUILDING, ENGLAND.

St. Cuthbert's Church, Berwick-on-Tweed, which had been recently cleaned, painted, and decorated, has been reopened. The walls of the sanctuary are decorated with monograms of the Virgin Mary and St. Cuthbert, patrons of the church, interspersed with shamrock leaves emblematical of the Trinity, and commemorative of St. Patrick, and of the conversion of the Irish nation, all the work of the church decorator, Mr. Henderson, Newcastle-on-Tyne. The celebrated painting of "The Agony of Our Lord in the Garden," which was presented by Charles X., of France and Navarre, to the late James Grieve, Esq., Orde House, and bequeathed by that gentleman to St. Cuthbert's, was inaugurated on the occasion.

Some Augustinian friars, resident in Ireland, desirous of re-founding their order in London, have purchased the house No. 18, Hoxton-square. It is of a very plain exterior, and dates as far back as the time of Elizabeth, who, it is said, sometimes visited it. It was also a resort of King Charles II. A curious discovery was made by the workmen who have been employed by the brethren to dig the foundations for the chapel. They found a subterranean passage, which led from the house to habitations at some distance. This passage, some parts of which are in a fair state of preservation, is two and a-half feet wide and seven feet in height. The floor and roof are laid with tiles, while the sides are covered with rough stucco. On the floor were some tobacco pipes and bottles. The brethren took possession of the house on the 14th ult. They at once converted two of the upper rooms into a temporary chapel. At one end an exceedingly plain and simple altar was erected, having a wooden handrail in front. To the left a small image of the Virgin and Child indicated the position for a chapel to the Virgin. The only decorations of the place were a few rough pictures of the life of Christ. At the top of the staircase two or three doors which had been removed from other parts of the place, were fastened together, and served as a confessional. A gentleman named Walker bought the house for £1,500 and gave it to the order. It has been determined to build a small chapel in the garden at the back, and the first stone was laid by the Very Rev. Dr. Hearn, V.G.

The foundation stone of a new church for the accommodation of the Roman Catholics at Barnet has been laid. It will be built to accommodate about 200 persons; the length being about 50 ft.

by a breadth of 32 ft. The architects are Messrs. Willson and Nicholl, of London.

Another Roman Catholic church has been opened at Waltham.

This week new churches have been consecrated at Sheerness, mainly for the soldiers, and at Stourbridge.

The site of the old workhouse at Oxford has been purchased for the Roman Catholics, who are about to erect upon it a college on a grand and extensive scale.

One thousand pounds sterling has been given by a nobleman at Padua to the church of St. Peter, Hatton Garden.

#### FINE ARTS.

The Commissioners recently appointed on the Wall Paintings in the Westminster Palace have issued their report. They have to state that, in consideration of the time (six years and a-half) spent by Mr. Herbert on his picture of "Moses bringing down the second Tables of the Law," and of the adoption of the water-glass process under the sanction of the Fine Arts Commissioners, whereby the artist had to cancel a quantity of his work, they feel justified in recommending that a further sum of £3,000, in addition to the £2,000 he has already received, should be paid to him on account of that picture. They are of opinion that the contract for the remaining eight works should be cancelled, and that if those works are to be proceeded with—the desirability, by the way, of which, notwithstanding Mr. Herbert's great success, they in no wise urge (!)—it ought to be under a new contract. As regards the similar case of Mr. Maclise, the Commissioners recognise the painter's great diligence and energy, and the fact that he has foregone the larger emolument he might have received from private commissions, and therefore recommend that he should be paid £10,000 instead of the £7,000 it was agreed he should receive for his two vast water-glass pictures in the Royal Gallery—"The Meeting of Wellington and Blücher after Waterloo" and "The Death of Nelson." They advise also that Mr. Maclise's contract for the remaining pictures should be cancelled, and if renewed that it should be on more equitable terms. They further recommend that Messrs. Cope and Ward shall be requested to complete their several series of pictures in the corridors, and that each should receive an additional £800 on the whole. The Commissioners conclude by expressing their "strong conviction" that in future there should be no deviation from a contract entered into, believing that nothing would more effectually discourage the Government and Parliament from giving important commissions than a loose and indefinite system of payment.

Mr. Holman Hunt's picture, "The After Glow in Egypt," exhibited this season in Hanover-street, London, is to be engraved in the pure line manner, and under the superintendence of the artist, by M. M. Morelli, the size of the plate being such as will render it a pendant to the engraving from "The Light of the World," by the same painter.

Messrs. Day and Son are about to produce, under the care of Mr. Staunton, photo-lithographic copies of about twenty of the quarto editions of Shakespeare.

A room just completed for the open board of brokers in New York is richly frescoed, the centre-piece representing the goddess of Fortune emptying a salver of coin upon the heads of a bull and a bear—the latter hugging the pieces to the earth, while the former tosses them in the air.

In accordance with the usual practice of the South Kensington Museum in receiving valuable works on loan, a collection of choice pictures of the Dutch school, 56 in number, has been lent for exhibition by Mr. Walter, M.P., and is now arranged on the walls of the gallery from which the Mulready pictures were lately removed. The collection consists of works by Berchem, Both, De Hooze, Du Jardin, Gonzales Coques, Hobbema, Maas, A. Ostade, J. Ostade, Paul Potter, Ruysdael, Van Stry, Weenix, and other celebrated masters.

#### ARCHÆOLOGICAL.

The neighbourhood of Driffield is remarkable for its Celtic, Saxon, and Danish remains, and for the mediæval relics which are constantly being found. In excavating a chalk quarry belonging to Mr. William Clark, in the outskirts of the town, several interesting fossil and antiquarian discoveries have, at different times, recently been made. At the depth of thirty feet fossil bones—including what has been described as a human hand—shells, sponges, and other marine and vegetable productions have been found. Some of these were completely converted into chalk, and others into oxide of iron, and so much resembled that metal that it was the remark of one of the workmen on making the discovery, that the quarry must at some time have been an ironmonger's shop. The most in-

teresting objects, however, which have been brought to light are the handiwork of man. Whilst one of Mr. Clark's workmen was employed breaking up the large pieces of chalk which had been dug from the quarry into smaller portions for the purpose of being burnt into lime, he was somewhat startled on taking up one of the pieces to find that it bore upon it a striking, but rudely sculptured human face. This figure was found amongst the chalk which had come from a depth of thirty feet, and corresponded in character and appearance with the chalk amongst which it was found. The man who made the discovery was positive in asserting that the chalk upon which the face was cut was part of that which came out of the quarry. It presents the appearance of age, and of having been in the earth for a great length of time. This discovery was soon followed by a still more interesting relic being brought to light under the same circumstances. This article appears to have been a model for casting a fibula or brooch. It is neatly and clearly executed in chalk, and is circular, running off in a band or strap, ornamented with lozenge-shaped figures. It is larger than a crown piece; and in an indented or concave border is an inscription in antique characters. The words when written at length are, "Jhesus Rex Judeorum miserece," which may be rendered "Jesus, King of the Jews, have mercy upon me." There is no question about this being a genuine production of the period to which it belongs, which was about the middle of the 15th century. Brooches similar to the above model are not of an uncommon type. The writer possessed one which was ploughed up in a field nearly adjoining the above quarry. It was of brass, but had not been cast. It had evidently been cut out of a solid piece of metal, and was about the size of half-a-crown. It bore the inscription, "Jesus Nazarenus Rex." Similar ones have been found in different parts of the kingdom. One was dug up in a field near Hitchin, in Hertfordshire, and was also of brass, and the inscription on it is referable to about the year 1450, and may be read as follows:—Jhesum Nazarenum, "or, Jesus of Nazareth. Both these have pins extending from one side to the other. In 1830 a silver brooch of the same character, with a moveable pin, and about the size of a five-shilling piece, was dug out of a grave at Coventry. On one side was "Propter me hodie;" and on the other, "Cras dabor non." In character with the customs or the above period a map of the five wounds of Christ was instituted in the same city in the year 1464, and a bell was put into the steeple of St. Michael's Church, with the inscription upon it of "Jesus of Nazareth, King of the Jews, have mercy on me."

We learn from the *City Press* that the following antiquities, fossil remains, &c., discovered in the progress of the main drainage works, have been presented to the British Museum by the Metropolitan Board of Works:—Human cranium, of the brachycephalic type; one of the cymicephalic type; and one of full oval type, with frontal suture persistent, as in most Frankish skulls; portions of skull and horn cores of bos primigenius; two crania of bos longifrons, or primeval marsh ox; scapula, a portion of humerus and astragalus of bos; portion of cranium and of upper and lower jaws of horse; lower jaw, with one molar tooth of elephas primigenius; articular head of femur of ditto; portions of antler of large reindeer (*Taxandus prisca*); left ramus of lower jaw of bottlenose whale (*Hyperoodon bidens*); portions of right and left scapulae of two different whales; six fragments of ammonites multipostatus (*Lias*); *Bellovacina* (*Woolwich sands*); mass of *osrea* and *cyrena cuneiformis* (*Pliocene*); *nautilus imperialis* (*London Clay*); a plain Roman sarcophagus of Purbeck marble, three Roman leaden coffins and some fragments of pottery, all found in Eash Ham, in Essex. Two Roman horseshoes of peculiar form, a flint celt, fragment of Samium, inscribed "Julius," as well as a number of miscellaneous fragments of Roman and mediæval pottery.

#### Miscellaneous.

AN ANNUAL "FEAT."—On the 28th ult., James Matthews, a workman in the employ of Mr. Frederick Richard Fisher, builder, of the High-street, performed his annual feat of ascending to the summit of Salisbury Cathedral spire, for the purpose of oiling the vane. The spire, as is well known, is upwards of 400 feet high; but notwithstanding this altitude, Matthews with the utmost possible coolness mounted the cross above the vane, and turned the latter round with his foot as he sat upon it. The ascent from the weather door is accomplished outside by means of 20 or more small iron handles, firmly fixed in the spire.

FALL OF THE CEILING OF A CHAPEL.—On Monday evening 26th ult., a few minutes before ten o'clock, the ceiling of the Primitive Methodist Chapel, Boston, fell with a tremendous crash. There had been service during the evening, and the congregation left about eight o'clock, at which time all appeared as usual.

The ceiling joists had been separated from the cross timbers of the roof, owing to being inefficiently fastened in the first instance. The chapel is a spacious building, and was erected about 25 years ago.

A plan is said to be under discussion for supplying Paris with sea-water, through a metal tube about a foot in diameter, to run parallel to the railway from Dieppe to this capital. To accomplish this, a column similar to that in the Place Bretil, in Paris, about 180ft. high, would be erected at Dieppe. It is estimated that a 20-horse power steam engine would suffice to raise water from the sea to the top of such a column. On its arrival in Paris the water would be distributed among bathing establishments in the 20 different *arrondissements*.

The Turkish government has declined to acknowledge the award of the Emperor of the French relative to the Suez canal, and fallen back on its original plea, the repudiation of the concession. Meanwhile, however, the works are going on.

Eighty-one magnificent painted windows have been placed in Glasgow Cathedral within the last eight years.

AN ENORMOUS IRON PLATE.—Messrs. John Brown and Co., of the Atlas Works, have succeeded in rolling an iron plate, six feet by seven feet, and thirteen and a-half inches thick. The idea of manufacturing so enormous a plate originated, we believe, with Captain Inglis, of the Royal Engineers, with a view of ascertaining if it would be desirable to protect casements with such a powerful covering. The plate has been forwarded to Shoburness, where it will be exposed to a very trying test.—*Army and Navy Gazette*.

A GOOD SUGGESTION.—A proposal has been made to the Hull Waterworks Committee by their engineer to make the lamp-posts of the town into columns of water pipes. These could be connected with the mains beneath the surface, in the same manner as the ordinary stand-pipe. Provision could be made at the top of the lamp for the fixing of a long metal jet, and a tumbler cock could be fixed at the bottom for the turning on of the water. The keys could be kept at the nearest house to the water lamp-post, and in case of fire, instead of search having to be made for the plug, the jet could be brought out, affixed to the top of the pipe, and a supply of water be at once brought to bear on the flames. The passage of the water would thus be facilitated, the resistance met with in the hose done away with, and the supply of water in a given time be increased one-third.

The *Times*, September 15, speaking of Benson's modern and antique watches in the exhibition, says—"As affording the most striking contrast, Mr. Benson shows with these a fresh exhibition of modern watches, with cases made from prize designs at the South Kensington Museum, some of which are fine specimens of engravings." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watch-making, with descriptions and prices, from 3 to 200 guineas each. It serves as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

#### TO CORRESPONDENTS.

P. J. B. (we believe the Institute meet in November. Council have had a meeting. You will, of course, receive notice by circular.) J. W. (we will endeavour to ascertain the heights you desire.) M. B. (in our next).

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

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As several mistakes occur through correspondents not giving their CORRECT POST-TOWNS, it is requested that parties writing to the publisher will be particular in this respect.

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## THE CORPORATION AND PROJECTIONS IN THE STREETS.

IT is a curious phenomenon that we all of us continue to expect measures of an intensely wise character to flow from the collective wisdom of all corporate assemblies, although the experience of several centuries and sundry corporations ought to have inspired us with a very contrary feeling. We remember a Northern city where the "canny" inhabitants take a less trustful view of corporate wisdom. The great pride of their little borough is a certain ancient gate of a dilapidated character; and, as they point out this remnant of their departed greatness to the stranger, they inform him in a manner in which most religious faith in their tradition is combined with a strong sense of security, that the said gate "can never fall until there is a wise man in the corporation;" and apparently these shrewd calculators of human weakness do not apprehend the fulfilment of the prophecy at any very early date. We presume that the solution of the enigma is, that at some future day some alderman, councillor, or Burgess, of a Louis-Napoleonic turn of genius will burst upon the easy-going, decaying little city, like the handsome prince upon the Sleeping Beauty in the woods, and obtain a local act for the better regulation of their streets and buildings, and that one of the first acts of his "little brief authority" will be to proceed to demolish this ancient "obstruction" through which, some sixty years ago, a handful of raw recruits and some sturdy citizens drove the only foreign foe that has been seen on the shores of Great Britain and Ireland since the days of the Conquest. What right have such petty considerations as ancient historic memories, picturesqueness, or archaeological interest, to weigh against the march of progress, and which, in such a case as this, would put the chance wayfarer to the disagreeable inconvenience of passing to and fro under an old gateway, frowning, dismal, dilapidated, and dirty, all moss and ivy-overgrown, with crumbling brickwork, not even worthy of a "wigging," or presenting surface enough to hold a coat of lime stucco neatly jointed and coloured in imitation of stone, and, worst of all, obstructing the public thoroughfare to the extent of eighteen inches and a half, including both sides.

But our little tale of the borough which dreads not the advent of the wise man into the corporation, has led us somewhat away from the matter in hand. Our city has found its "wise man," or wise men. It is not for us to say whether the wisdom which at present "uttereth its voice in the streets" is to be found among the members of the corporation or the servants thereof; but the state of the case is that numerous complaints—too numerous for us to notice each individual case—have reached us of the arbitrary and unreasonable conduct of the authorities with reference to projections of and from buildings. Notices have been served in an indiscriminate way upon shopkeepers and others to remove signs and other unobjectionable projections, and on builders engaged in the erection of

buildings in the public thoroughfares, to remove the hoarding essential to the safety of the public, leaving everyone not gifted with supernatural acuteness utterly at fault to conjecture the reasons, motives, or pretexts which have dictated such a course.

In theory it is most desirable that corporate authorities should be armed by law with the most ample power to protect the community from injurious projections into the public streets, and encroachments on the public rights; but this arbitrary application of the corporate scissors after the manner in which hedges are trimmed on the country roadside is quite another matter. "There is reason," we are told, even "in roasting eggs," and why not in the application of the law of projections and so forth to our public buildings? It is most desirable that a sudden and summary check should be given to a man who, for his private ends, encroaches injuriously on the public highway, or, in his audacity of bad taste, obtrudes some monstrosity into the very noses of the passers-by; but if the powers vested in the corporation are carried out in such a manner as to reduce all our street fronts to a Quaker-like uniformity, without projecting portico or porch, bay window, or quaint sign, bold cornice, or airy balcony, these powers become a social nuisance and annoyance, instead of a boon, and we may bid farewell to any hope of seeing our future street architecture either bold, striking, or picturesque. Our readers would scarcely credit some of the cases in which individuals have been noticed to remove projections from their houses, and temporary obstructions, such as the hoarding, erected for the protection of the public, enclosing new buildings in course of erection. For some time there has been a good deal of dissatisfaction among architects about the unreasonable restrictions being put, and likely to be put on them in carrying out their designs in the thoroughfares of the city, and the comments of both builders and architects have, in such cases, been, we regret to say, expressed not unfrequently in rather unconventional language, which it would scarcely be advisable to transfer to our pages.

In our columns we reprint a letter addressed by a photographer to a contemporary, complaining of an unreasonable notice served on him to remove the sign from above his door. We are at a loss to understand what useful purpose can be served by a crusade against the time-honoured, once universal, custom of indicating to the public by a projecting sign the nature of the trade, calling, or occupation of the owner who dwelt under its shadow. We most of us have a liking for these oddities; they do no one any harm, and are often amusing, and at present there is as little likelihood for us in one sense, as there is no necessity for us in another, to knock our heads against them. Many a one of these old staring, flapping signs has old stories and associations connected with it which it has served to keep alive; and who knows which of those erected in our day will not have its story for our children and great-grandchildren. With regard to the trammels put upon architects and builders by arbitrary and ill-considered straining of the act in its application, we would suggest that those who suffer from its operation should place statements of their individual cases in the hands of the Secretary of the Institute of Architects, as probably a discussion of the question, and a remonstrance from a body of their weight and influence addressed to the authorities, whoever they may be, would have the effect of bringing about a less whimsical administration of the powers vested in them.

## MONUMENTS.\*

WITH the reigns of Queen Elizabeth and her pedantic successor, passed away all usages, and the traditions of that school of art, whose birth, life, and death had filled, we may say, all the preceding centuries of the Christian era. Looking at the question simply from our architectural point of view, we would at first sight be inclined to fix on the revolution of religious ideas in England as the primary cause of the overthrow of preceding art, which had been heretofore almost solely and exclusively in the hands of, and under the patronage of the Church, and whose highest efforts had been ever dedicated to the services of religion. That this was an important agent in bringing about this gigantic revolution is undeniable, but it was far from being the only one. We have seen ere this that Gothic art had fallen upon evil days, days of senility and decline, and was already bowed for the fatal blow that was too surely to descend and crush it; and there were other agencies active as well as passive at work, no less potent than the one referred to above. The spirit of the age of chivalry, so wrapped up with mediæval thought and art, had had its dying brilliant flicker at the field of the cloth of gold and gone out for ever. The discoveries of new worlds, and the wonders of these and others of a mythical, and to this day undiscovered character, as set forth by daring explorers, and circumnavigators—the brilliancy and fertility of whose imaginations is by the way in this age of the world beyond all admiration—had set England, in common with all Europe, in a blaze with a love of travel and excitement, and of novelty and change to which most European nations had been previously strangers. There is no necessity for alarm. It is not our intention to harass our much-enduring reader with the hackneyed themes of Caxton and "the Press," the "sunrise of knowledge," and the birth of the realm's "fourth estate," and all the time-and-public-dinner-honored claptrap ever associated in his mind with the very mention of Printing. Caxton and his press were no insignificant actors in this revolution nevertheless, but our business is not so much with primary causes of change, as with the accomplished fact that here is sudden, great, and total change, whatever may have been the several agencies at work. Before Gothic art had fairly expired or slept with its predecessors, Classicism had usurped its throne, and placed its foot upon its rival's neck, and we at once find ourselves in that period of art which embraces all the 18th and a portion, happily not all, of the 19th century; a period not without certain epochs of change and superficial differences of phases of thought, but none of which are sufficiently distinctive to mark the flight of time as it goes, or to prevent our ignoring the insignificant landmarks, and grouping all in one school of art.

If the middle ages stand out in strong contradistinction to these our days in the matter of individual glorification, and as such are entitled to any commendable superiority, the fact has one disadvantage for us, in that they have left behind but few models for our imitation in the way of open air monuments, in which our age delights. We have said few; but we might have limited the number to three only (for the wayside crosses at sacred spots, and at the entrances of churchyards and elsewhere are scarcely types of what we refer to); and these three are the survivors of those twelve memorials which Mr. George Gilbert Scott has called "the most touching memorials ever erected by a sovereign to his

\* See p. 203, ante.

consort;" those so-called crosses by which King Edward the First reverentially marked the spots where the bier of his devoted queen rested, on the long funeral procession from Harby, in Nottinghamshire, where she died, to her last worthy resting-place in the abbey church of Westminster.

In the ages which followed the Gothic period, the taste for public monuments, which has broken out into a statue-monument-and-memorial-mania in our day, properly had its rise; and it is worth our while to consider what successes we have achieved, if any, and what disastrous failures we have made. It is a melancholy result that, after spending the revenues of many a petty kingdom year by year in such things, the list of the former is but meagre indeed, and of the latter so innumerable that were an architect or artist convicted of crime and condemned, by way of an exquisite punishment, to visit, describe, and catalogue them, he would fail to do so in an hundred years, if he survived the task for half that period. There is no distinction between secular ones and religious ones, in the church or out of the church, the same mode of treatment appears to have been considered equally suitable and edifying in both positions. Statues on horseback—and such horses too—and on their legs, stolidly and complacently regarding the passers-by, in the most stupendous of draperies, in the public square or street, or extravagantly attitudinizing and addressing audiences, as it were, in the cathedral nave, where they had no business to do so; or else where they might be considered to be of neither one class or other (the most extraordinary eccentricity of all in which the age indulged), perched upon the top of lofty columns, say a couple of hundred feet at least, from the spectator, where they might be seen, like Sir Boyle Roche's celebrated French fleet, "just out of sight." It is unnecessary to go through the weary catalogue with which all are familiar from their youth up, and of the accessories of these things: fat, puffy boys balancing themselves upon impossible projections, generally speaking with either knuckle in their eye, as suggestive of shedding infantile and crocodile tears; curious anatomical studies in the way of cherubim consisting only of heads and wings; and of winged angels, whose apparent remotest intention was that of flying; and of the Pagan surroundings and locations of these huge mausolea hanging up on the walls, supposed to contain the ashes of the deceased, and eminently suggestive of being at least three inches thick; together with tea-urns and all manner of urns, and inverted torches, and wreaths of an abnormally horticultural character, and other well-known "properties" of a character too miscellaneous to mention.

True it is that the genius of such as FLAXMAN, BACON, CHANTREY, and ROUBILLIAC, and many others, of many living sculptors of our day and country worthy of any age or nation, has placed their stamp upon monumental art in exceptional cases—it could not fail to do so—but we appear never yet to have reached that school of monument-building which would completely satisfy. Perhaps in the nature of things such a consummation is unattainable, that what we desire in a great monument is too perfect, too *complete*, for us to accomplish well and thoroughly, but we hope not practically so. All great and noble designs are but more successful strivings towards that perfection which mortal abilities can never attain; and there is nothing to discourage in this, for we have never yet found the limit to which we may soar and no farther.

The exertions of our sculptors, both good

and bad, and the incongruity which has resulted from the divorce of true architectural and sculptural taste, is no where exemplified so strongly as in Westminster Abbey, where the practice of a past age has transformed the noble church into an unsatisfactory statue gallery, and the reverence which should be felt for the mighty names which these erections commemorate, or the admiration for individual instances of excellence in the sculpture, will not much mitigate the feeling of annoyance and irritation, with which the architect sees the noblest vistas blocked up, and the finest effects of the building marred. As for St. Paul's, the bad effect may not be here so apparent, as there is less dissonance and incongruity between the sculpture and its surroundings; but still the same process is at work; and, while it is the shrine of many works of true art, it is a melancholy reflection that in it many of England's proudest names are disgraced instead of honoured, by statues of intrinsic unworthiness beneath contempt, and that the greatest metropolitan church of the Empire should contain some works at least bad enough to be the laughing-stock of artistic Europe.

Turning into the streets, or the streets of any of our cities, in how many places could we find successful monuments, particularly where any elaborate composition has been attempted what one is there at which the finger of scorn has not been pointed? Take, for instance, the Guards' monument in Waterloo-place, that, with many great and striking merits, and some noble sculpture, has become a laughing-stock from the failure in general effect and outline, suggestive of Victory "playing at quoits;" or take such instances as the Duke in the highly galvanic attitude, on the highly galvanized steed, on the highly elevated position, on the top of a very high arch, and the ludicrous outline thereof, and the wonderful equestrian statue of King George III. adjoining Trafalgar Square, or even our own King William III. in College Green, with the steed of such wonderful anatomical development; these are perhaps cases too extreme to quote as fair instances, but the fact remains the same: as yet we have not been very successful. We seem to require a more happy union of architecture and sculpture; architecture which will pile up pleasing masses, gaining varied and broken outline from the sculpture, and lending to each and every figure, suitable positions, back-ground, and an avoidance of the exposure of that view of a figure which no sculptor has succeeded in rendering pleasing in such statues we have been treating of: the back-view, where is usually presented a dreary expanse of bronze or marble, in more or less clumsy drapery. The English National Memorial to the Prince Consort has been a step in this direction, but few, we think, will call it a wholly successful one. Mr. Scott has been more happy in a less pretentious one—the monument in front of Westminster School to the Westminster boys who fell in the Crimean war.

Never was there a time in which so many of this class of monuments were before the architectural public. Several important ones are open to competition, one of which, possessing for us most local interest, is the O'Connell monument. It is well to be of a trustful disposition, hoping for the best; and, in spite of past failures, we will hope to see something worthy of the purpose, some monument designed upon architectural principles, which will lend dignity to, not detract from, the statue of the Liberator, which will be of course its central feature of interest; "a thing of beauty" which we may point to with pride

and enjoy in our daily passages to and fro, and not pass by with averted head, as we do those three late most unfortunate memorials—Moore, Crampton, Dargan. May three such others never meet again in any civilized town, much less in our well-beloved city.

#### KILKENNY AND SOUTH-EAST OF IRELAND ARCHÆOLOGICAL SOCIETY.

THE October meeting was held on Wednesday, 5th ult., in the Society's apartments, William-street, Kilkenny.

The Very Rev. the DEAN OF OSSORY, President, in the Chair.

The following were elected members:—

Sir Ed. Courcy, Bart.; Francis A. Leigh, Esq.; Laurence Waldron, Esq., M.P.; J. Thomas MacSheehy, Esq.; Edward de la Poer, Esq.; Bernard E. Fitzpatrick, Esq.; Thomas Elliott, Esq., J.P.; Rev. P. R. Young, R.C.C.; Rev. Arthur Eden; William Hague, jun., Esq.; Henry Brawster, Esq., C.E.; Robert Cochrane, Esq., C.E.; R. Pape, Esq.

The secretary exhibited an engraving of Langton's house, and the Butter-slip, with other illustrations, for the April part of the Society's Journal. He explained that some unavoidable delay had taken place in getting these engravings ready, which had prevented the issue of the number in proper time, but it would be out very shortly, and that for July would soon after be in the hands of the members of the Society.

#### PUBLIC RECORDS OF IRELAND.

The Rev. James Graves reported that the memorial to the Lords of the Treasury—praying that they would cause the Records of Ireland to be collected into a safe repository and placed under the care of competent officers—adopted at the January meeting, having been duly signed by the president and committee, was presented by Colonel Dunne, M.P. He (Mr. Graves) had since received a letter from Colonel Dunne, stating that Mr. G. A. Hamilton had communicated to him the reply of their lordships, to the effect that "any suggestion from the Kilkenny Archæological Society was sure to receive the consideration of the Treasury."

#### GOVERNMENT PROTECTION OF NATIONAL MONUMENTS.

Mr. Graves said that although the injury done to the sculptures at Clonmacnoise had been most lamentable, yet that the steps taken by this Society to enforce the statute passed for the preservation of public monuments had been productive of most beneficial results. Not only had it been made publicly known that such Vandalism could not be committed with impunity, but, the attention of the Irish Government having been called to the subject, the following most important order had been issued to the Constabulary Force throughout the country:—

#### "INJURY TO PUBLIC MONUMENTS.

"The practice of defacing and injuring public monuments having been brought under the notice of the Government, it is most desirable that the attention of the Force shall be called to the provisions of the 24 and 25 Vic., cap. 97, and section 39. It is to be understood, therefore, that it is the duty of the Constabulary to interfere for the protection of all such monuments, and to use their best endeavours to bring to justice the parties guilty of such misdemeanor.

"H. J. BROWNIGG.

"Constabulary Office, Dublin,

"7th September, 1864."

It now remained for the public to aid the officials in carrying out this law, by reporting to the police every case of wanton injury to any sculptured monument, ancient or modern, whether in the old churchyards or elsewhere exposed to public view, in order that the law might be put in force. He had no doubt the members of the constabulary, a large number of whom—as the transactions of this Society bore witness—were much interested in the subject of national antiquities, would themselves most willingly evince their readiness and anxiety in carrying out the spirit of this most excellent enactment.

#### PRESENTATIONS TO THE LIBRARY AND MUSEUM.

The secretary laid on the table a number of books and periodicals presented to the library by several individuals and kindred societies.

Mr. R. Malcomson, hon. local secretary, Carlow, presented a large and valuable collection of coins and antiquities, comprising the following articles:—Seven bronze Celts, of which four were plain, two with step-ridge and side-flanges, and one socketed and with side-loop; several of these objects were of rare type; two flint arrow heads from the Antrim coast; a curious bronze boat-shaped vessel, 2½ inches long, with a bronze spoon five inches in length, the former being what is known in the Roman Catholic ritual as the "boat" used for the purpose of holding incense, the accompanying spoon being used to place the necessary portion on the

thurable—they were purchased by Mr. Malcomson from a man who stated that he found them in the Queen's County, not far from Carlow, but would give no further information about them; an unpublished token, struck in 1667, by William Joy, of Waterford, of which city that person was sheriff in 1670; a silver groat of Edward IV., found at Staplestown, county Carlow; another groat of the same type, one also of Henry VIII., half face, and a rudely-struck Spanish dollar.

Mr. Malcomson also presented, on behalf of Mr. Alexander John Humfrey, Ardriston, a finely polished stone celt, and of Harman H. Cooper, Esq., four silver coins, found at Shrule Castle, consisting of a penny of one of the early Edwards, a groat of Philip and Mary, and two groats of Elizabeth.

The Very Rev. the Dean of Ossory presented the following antiquities recently found in St. Canice's Cathedral, in the course of removing the modern fittings of the choir, and opening the arches. They comprised three iron keys, one 8 inches long, the second 4½, and the third 4½, the bows of all formed alike, but the wards of various patterns; a very small clay tobacco pipe, about the age of Charles II., and iron stamp bearing the figure 1, and a number of encaustic flooring-tiles, one of which was inlaid.

Mr. Graves observed, that the keys were at all events as old as the fourteenth century, as the largest of them was found near the bottom of a wall which had been erected about the year 1360, across the arch in the north wall of the choir.

Mr. Robertson presented a token struck by A. Hall, in Carrickfergus, bearing for a device a town gate, and on the obverse 1d. with the letters A. H. Mr. Robertson also exhibited four flint arrow heads, and a curious French jetton.

Mrs. Wade, St. Canice's Cottage, presented, through the Dean of Ossory, a penny of one of the early Edwards, and exhibited a number of Mexican coins.

E. B. Taylor, Esq., Gowran, presented a shilling of Queen Anne.

Mr. John Dunne, Garryricken, presented a brass Dutch tobacco box, entrusted to him for the purpose by Mr. Peter Creagh, late of the Killamory constabulary, but who has since emigrated to Australia; in the possession of whose wife's family the box had long been, but was originally brought from the East Indies. It is curious that it is exactly of the same type as the Dutch tobacco boxes brought into this country by the troopers of William III., many of which have been brought under the notice of the Society. Mr. Dunne also presented, on the part of Mr. Joseph Lawrence, of Pouleacapple, a horn of the primæval cattle of Ireland, known as the *bos longifrons*, which was discovered last summer in a turbary in the Marquis of Ormonde's bog at Pouleacapple, at a depth of 14 feet below the surface. The finding of the actual horn is curious; the skull and core of the horns often occur. The length of the horn now presented is six inches.

Mr. Richard Preston, of Tilbury-place, presented a carved stone, found in the walls of a cabin, which was undergoing rebuilding, near the Black Abbey. It represented the Virgin and infant Saviour, and had evidently formed part of the side support of an altar tomb of the sixteenth century.

Mr. H. Coulahan, Piltown, presented a large unfinished distaff weight, the central orifice marked out for boring, but left unfinished. It was found by a man earthing potatoes in a field adjoining a moat, at Rogerstown, not far from Piltown.

Dr. Long, Arthurstown, sent for exhibition, through the Rev. James Graves, a brass Dutch tobacco-box, obtained by him from a poor woman, who said her father or grandfather had been a sailor, and brought it from abroad. The box was covered with emblematic carvings, amongst which seemed to be a representation of the Good Samaritan. The ornamentations are more elaborate than usual on the Dutch tobacco-boxes which have come under the notice of the Society.

#### KITCHEN MIDDENS.

Mr. Graves, with reference to the kitchen midden at Clare Island, Bannow, county Wexford, the discovery of which, by the Rev. John Lybery, had been brought before the last meeting, reported the results of an investigation since made by Mr. Lybery and the Rev. Mr. Eden. A trench had been cut through the heap, and a large mass of bones examined, but no implements or ornaments of iron or bronze had been discovered. The fragments of a coarse earthen vessel were found amongst the bones of which principally the deposit was formed. Dr. Boxwell, of Wexford, to whom some of the latter were shown, declared them to be principally the bones of deer, with some oxen and swine. A horn core of the *bos longifrons* was amongst the specimens forwarded by Mr. Lybery, who also sent the fragments of the urn. It was intimated that a large portion of the refuse heap still remained unexamined.

#### THE EXTINCT TOWN OF BANNOW.

The Rev. John Lybery reported that the wall which surrounds the ancient church and burial-ground of Bannow, having fallen a good deal, it became necessary to put it into thorough repair. Some excavations having been made outside the burial ground, in a south-westerly direction, not only were the thick slate slabs used in roofing discovered, but also the walls of solid, substantial houses. He saw the squared granite stones, forming the entrance to a house, in process of being removed, and a few yards to the west of the churchyard wall was discovered a stone, a portion of which had been broken off and lost, but what remained showed a fragmentary inscription as follows:—

. . . . . illi fitz  
re. buid. this.  
howse. in. the. yeere of.  
owre. lord. 1598. and.  
Marion. Snout. his. wife.

This stone had been carried away to a farm-house a couple of miles off. It is eighteen inches in breadth. Mr. Lybery sent an excellent photograph of the stone and inscription, executed by his brother. This discovery is interesting as showing that houses of considerable pretention were built in the now obliterated town of Bannow, so late as the close of the sixteenth century.

#### CURIOUS MONUMENTAL INSCRIPTION.

The following paper was read by Maurice Lenihan, Esq., Limerick:—

"Among the many objects of antiquarian interest with which the historic Cathedral of St. Mary, at Limerick, is crowded, there is not one of them that has challenged so much attention as the tombstone of Galfridus or Geoffrey Arthur, who had been treasurer of the cathedral, and who died A.D. 1519. He was a member of a remarkable family, which had been closely identified for very many ages with the ecclesiastical, the corporate, the professional, the mercantile, and the parliamentary history of Limerick, in which, according to the Arthur MSS., in my possession, the family have held a high position since early in the twelfth century. Dr. Thomas Arthur, the writer of the MSS., was the friend of Sir James Ware, of Archbishop Usher, and of many of the eminent men of the seventeenth century. His MSS. are full of important matter relative to the city, of which he was an ornament, and to the great men with whom he came in contact; and I have drawn copiously on them for my forthcoming History of Limerick. With respect to the tomb of Geoffrey Arthur, it was originally placed in the wall of the chapter-room of the cathedral. In 1862, however, it was removed from its old place, during certain alterations and restorations. It is to be regretted that any change should have been made in the position of the monuments—such at least as to those of Arthur, of Fox, and of Creagh, each of whom was a dignitary of St. Mary's, and each of whom had a curious tombstone. This Arthur monument is now located in the wall of the north transept, and close by it is that of Dean Fox, who, however, is not mentioned in the records, or in Cotton's *Fasti Ecclesiæ Hiberniæ* as having occupied any station in the cathedral. Fox's tombstone is about the same size as that of Arthur; but it is not so puzzling, so elaborate, or so curious. Both tombstones are fashioned of limestone, now black with age. The carving on that of Arthur may be judged of from the rubbing which I have taken of it within the last few months, and of which the engraving prepared for the Society's Journal is a perfect *fac simile*. The inscription had been for a very long period of time a complete mystery to all sorts of persons. Scholars, antiquaries, &c., were at a loss what to make of it. To prove this the more clearly, I may remark that in the first edition of Ferrar's History of Limerick (1767), though the inscription is strangely called 'a curious plain' one 'which very few gentlemen can make perfect as it is greatly abbreviated, and cut in old English character,' Ferrar made an effort to copy it, but it was a very lamentable failure on his part. Here it is:—

'Hic jacet in tumuli fundo  
Galfridus  
An. Dni. MDXXIX.'

Nothing can more clearly demonstrate the absence of all knowledge of the inscription than the above. In his second edition he endeavours to mend his hand, and he states that it is an old inscription in monkish verse, and greatly 'abbreviated,' and he gives it as follows:—

'Hic jacet in tumuli fundo  
Sublatus a mundo,  
Galfridus Arthurus  
Thesaurarius quondam istius ecclesie  
Decima sexta luce Maya  
Requiescat in pace perpetua.  
A.D. 1519.'

"One is nearly as bad as the other; in its point of fact the misrepresentation in the latter of the character of the numerals is not the gravest error into which Ferrar fell. He adds—'There is another line on the stone relative to singing requiems for his soul, but antiquarians are not agreed as to his explanation of it.' Thus was the subject treated a century ago, and thus did it remain until A.D. 1826, when Fitzgerald and Magregor, authors of another history of Limerick, made an attempt to decipher the inscription, and to give to their readers a translation of it in very poor verse, scarcely a line in which tells in reality what the inscription really means. The 'Latin original,' as given by Fitzgerald and Magregor, is copied by Dr. Cotton into the first edition of his *Fasti* (1847); but in the second edition of Dr. Cotton's most useful and interesting work the 'original' is given as it was transcribed, and contributed to Dr. Cotton by the Rev. Arthur W. Edwards, who had been attached to the cathedral some years ago, and who, according to Dr. Cotton, 'has made all plain with the exception of one or at most two words.' In order to make so debated and misrepresented, and, as it has become, so important an inscription, quite plain, it was suggested to me by the Rev. James Graves, the excellent secretary of our society, and editor of the *Archæological Journal*, to make the rubbing which was some time ago presented to one of your meetings by him, and from which this beautiful engraving is cut. I feel obliged for the opportunity that has been afforded me of aiding in throwing light on a subject which for over three hundred years has been a serious puzzle to many. The true version of the inscription is as follows, with its contractions expanded:—

'Hic jacet in tumuli fundo sublatus a mundo Galfridus Arthurus thesaurarius quondam istius ecclesie xvi. luce Maya requiescat in pace perpetua Anno crucifixi domini 1519. Tu transleas cave qui hic dice pater et ave.'

"It is unnecessary further to dwell on this matter, except to say that antiquaries, as well as others, often make mistakes, and that historians such as Ferrar, Fitzgerald, and Magregor, when alluding at all to the subject of Geoffrey Arthur's tomb, should be better acquainted than they appear to have been with an inscription of which the first-named evidently blundered very much. The following is the literal translation:—

'Here lies in the bottom of the tomb, removed from the world, Geoffrey Arthur, formerly Treasurer of this Church. He rested in perpetual peace on the 16th day of May, in the year of the Crucified Lord, 1519. You who pass by, take heed that you here say a Pater and Ave.'

Mr. Lenihan exhibited one of the Arthur MSS. above referred to, a book comprising, amongst other curious matters, the entries of the fees received by Dr. Arthur during his professional career, extending from 1618 to 1660. He seemed to be a medical man of much eminence in his day, and the record of fees received from Archbishop Usher, Ireton, Fleetwood, the wife of Henry Cromwell, and many other remarkable personages. Mr. Lenihan, at the request of the members present, promised to lay before the Society at an early meeting a paper descriptive of the full contents of this extremely interesting manuscript.

#### DISCOVERIES AT ST. CANICE'S CATHEDRAL.

The Rev. James Graves said, that since they last had met, some important discoveries had been made at the Cathedral of St. Canice, which illustrated the history of the fabric. On the removal of the woodwork put up by Bishop Pococke about the year 1760, as fittings in the choir, the suggestion which he (Mr. Graves) had put forward in the "history" of the cathedral published in conjunction with his friend Mr. Prim, namely, that the original plan included choir as well as nave aisles, was proved beyond dispute. The researches made early in the year by Mr. Deane, the architect of the Dean and Chapter, had shown the existence of one arch in each of the side walls of the choir, richly moulded, and with discontinuous impost; it also appeared from the existence of a credence and piscina in the north and south chapels, that each of these had been furnished with altars, and were originally distinct chapels, although all record of their dedication was lost. It had been suggested that this discovery indicated the existence of a procession path round the church. The altar screen was supposed to have stood west of the two arches, and the more eastern part of the chancel was conjectured to have been the lady chapel. This theory seemed probable at the time; but the recent discoveries completely upset it. The wainscoting and galleries were removed, and the interior walls of the chancel exposed; the architectural history of this portion of the building was clearly indicated. It became evident that the original plan included side aisles to the choir with arcades of two arches each, and transeptal arches corresponding to those of the naves. We know from the annals of Clyn, a contemporary and a native of Kilkenny, who probably saw the catas-

trophe, that in June, 1332, the original tower of the cathedral fell, carrying with it, in hideous ruin, the fore part of the chapels and great part of the choir (magna pars chori et vestibulum copellarium). This catastrophe evidently was not repaired till late in the century, when the two eastern piers of the tower were entirely rebuilt, and the transeptal arches of the choir aisles, together with the two arches of their arcades next the tower, being looked on as sources of weakness, were not restored; hence the solid walls (one of them in the north transept pierced with a door of the period), which we now see in the eastern sides of the transepts, and in the choir adjoining the tower, save only that in the latter instance the lower parts of the square piers which represent the two choir-aisle arches remain perfect, and indicate plainly the original design. A greatly increased buttress support was thus given to the new tower, and in order to increase their resistance to lateral thrust, the two remaining arches were built up solidly with a screen wall for half the thickness of the wall to the spring of the arch;\* two doors with a large roll moulding and other details of the end of the 14th century being inserted, and the arches being left open above. These doors were furnished with a long bolt hole, to hold a wooden bolt, which, when drawn, secured the doors at the choir side. The doorway at the south side is perfect; that to the north had been removed, all, except a portion of one jamb, at a later period, and then bricked up. When inserting these doorways, the original jamb of the arch was put to use up to the height of the door; and a notch cut into the soft Caen stone to take the voussoirs of the door-head, which latter is acutely pointed on the side of the chapel, and has a drop arch towards the choir. The arcades of the choir aisles having thus lost one of their arches, it was thought useless to retain their darkened western ends as appendages to the chapels for which they served; and so, at the north side a wall was thrown across from the west jamb of the remaining arch, and an upper and lower chamber formed. The lower chamber probably served as the vestry and treasury, and the chamber above as accommodation for the official whose duty it was to watch the valuables in the church. This last arrangement has been suggested by the existence of a small round-headed window still partly existing, the external face of which looks into the south chapel, and, through the remaining arch, commands a view of the choir. In this north chapel, the original credence and piscina are, as already observed, extant; the credence very much larger than, and distinct from, the piscina. In the south chapel the credence and piscina are a couplet of niches separated by a small solid pica. The piscina has lost its drain, but in the stonework above remain the sockets of the rail (probably of iron) on which the towels used in cleaning the sacred vessels hung. That this chapel was also about this period, or shortly after, shortened like its northern fellow, is also apparent, but instead of a covered apartment a small yard, with stair turret leading to the choir roof, was formed. The original weathering of the roof and passage for getting at the valley between the roof and choir walls, still remain visible in this yard, and show the first design. The stair turret and present vaulting of the chapel seem to be contemporary, and most likely are of the same date as the small doorway leading from the lady chapel to this side chapel, and the vault which Bishop Hacket, in the fifteenth century, erected in the tower.† The vault of the south chapel is partly of the barrel shape and partly quadrupartite, and is of plain rubble masonry, without groins. It abuts against the mouldings of the remaining arch, and cuts the head of the original eastern triplet of the chapel. Contemporary with the stair turret and belfry vault are the four windows which at present pierce the western ends of the wall of the choir. Their heads exhibit a curious flat flamboyant bi-foil. Their jambs and sills, however, follow the original plan, and range with the six other lancet-headed clerestory windows which remain in the walls of the choir although built up. Thus the original design of the choir included, besides the group of nine magnificent lancet lights collected together in the east end and side walls, ten clerestory windows piercing the side walls over the arches; an arrangement the grandeur and beauty of which cannot be fully appreciated till all are (it is intended) restored according to the plan of the first builders. Mr. Graves went on to observe:—It is plain that the ritual choir of the cathedral

originally coincided with the structural one, for the mouldings of the aisle arcades terminate at about five feet from the ground, leaving the lower part of the arch piers plain. This indicates that the stalls of the dignitaries and canons were placed along these arches, commencing at the west end of the chancel—a supposition rendered more certain by the position of the triple sedilia which formerly filled the yawning chasm that has been discovered in the south wall east of the remaining aisle arch—whilst opposite to it is an oggee-headed niche, which probably was erected to hold the effigial monument of that active (though turbulent) prelate, Bishop Richard de Ledrede, who having died in 1360, was (according to Ware) buried in the gospel side of the high altar. The details of this tomb much agree in date with the inserted doors between the chapels and choir, and the oggee-headed door leading from the north transept into the chapel at that side. Indeed it is probable that the work of re-edification must be placed to the credit of de Ledrede. The style agrees with that in vogue during the latter part of his episcopate, and we know that he compelled William Outlaw of Kilkenny, who was convicted of complicity in the celebrated Kilkenny witchcraft case forming the main incident of Ledrede's life, to cover with lead the chancel and the entire of the cathedral eastward of the tower, as well as the lady chapel. It is plain that the tower and forepart of the choir and chapels which fell in 1332, must have been rebuilt before this could be done, so that my conclusion seems well founded. To the east of what I suppose to be Bishop Ledrede's tomb-niche is the original early English aumberry; it was double, and probably pointed at top, but that portion is now gone. The remains of a central shaft against which the doors shut, and of two hooks for hinges, one in each jamb, show the original arrangement. Round the choir, at the level of the eastern group of lancets, ran a stringcourse. This has all been most industriously hacked away to allow the oak wainscot to lie close to the walls; some fragments, however, discovered in the debris, show its design—indeed it must be deemed fortunate that there are ample indications left to guide the architect in all the restorations about to be undertaken. Scarcely any colour or decoration has been traced. I observed, however, on the original plastering of the choir wall, in the upper chamber formed in the west end of the south chapel, some plain masonry pattern, black on a white ground. This has since fallen away. Some old English letters—black on a white ground between red lines—appear on the back of the tomb-niche already described; but of this only the word "[requi]evit" can be guessed at, as the letters come away with superimposed whitewash. Some of the original tile pavement has also been discovered, *in situ*, in the choir. Immediately behind the high altar, in the east wall of the choir, was found a square recess, about eighteen inches every way. In this were placed about a third part of a human skeleton (the cranium being amongst the absent portions). The bones were exceedingly light and porous, their weight in the hand being scarcely appreciable. This fact, combined with the dryness of the position, would seem to indicate great antiquity; so that perhaps it may not be thought improbable that in this recess were deposited some relics removed from Aghaboe when the cathedral was transferred from thence to Kilkenny,—perhaps a portion of the bones of St. Canice himself, the remaining portions being amongst those burned by Fitzpatrick in 1346. The greater part of the stone used in the nave consists of a soft yellow freestone. I sent specimens taken from several samples to Mr. Du Noyer, one of the most experienced geologists on the Government Geological Survey, and received the following satisfactory reply:—

"Castlepollard, 2nd October, 1864.

"MY DEAR GRAVES.—The specimens of the stones from the newly-opened arches of the choir of St. Canice's Cathedral which you forwarded to me are, undoubtedly, Caen stone; but of that variety in which the oolite granules are not so perfectly rounded as in general. The sandy matrix predominates; and I should say that the stone would be specifically lighter than that in which the granules are more fully developed."—Geo. V. DU NOYER."

In conclusion I may be allowed to express my great regret that it does not seem to be the plan of the dean and chapter to carry out fully the original arrangement, and reserve the structural choir as the actual or ritual one, devoting the transepts and nave to the congregation. Every English ecclesiologist who has been consulted on the subject is in favour of retaining this arrangement, and it seems to me that both propriety and the convenience of the congregation also demand it. Let the architect do

what he can; the space eastward of the tower is narrow and confined; and even with the addition of the choir-aisles it will be impossible to secure a desirable arrangement; whilst the position of the stalls, rendered necessary by the contemplated design, will necessitate the obliteration of the tomb-niche and sedilia already described.

A paper was read from Thomas O'Gorman, Esq., on an important Ogham inscription discovered by him on one of the stones which formerly supported a cromlech, now fallen, at Castlederg, in the county of Tyrone. This paper was illustrated by rubbings and drawings, and will be published in the Society's Journal.

After a vote of thanks to the donors and exhibitors, the Society adjourned to the first Wednesday in January, 1865.

#### A NOVEL MAN-OF-WAR.

A BOLD and novel scheme, involving a revolution in the construction of vessels of war, has lately been submitted to the Admiralty by Mr. A. M'Laine, a naval architect, of Belfast. Its main feature is the abandonment of broadside guns and even revolving turrets, and the substitution of fore-and-aft guns, "to fire only on the line of the keel." The advantage alleged to be gained by the adoption of this expedient is twofold. In the first place, a ship thus armed and carried into action would present to the enemy her breadth only, instead of her length—that is, a front of some 50 ft. instead of some 250. She would become, as Mr. M'Laine contends, "five times more difficult to hit, and where hit (owing to the difference in the angle of impact) perhaps five times more difficult of penetration. In the second place, her aggressive power would be proportionably increased by the enormous weight that might be given to guns mounted on the new principle. The practical limit to the calibre of broadside batteries is the range of their "lateral training;" but Mr. M'Laine proposes that his guns should have no training at all, in the ordinary sense. They would be incapable of firing, except in one direction; and while the elevation of each would still be regulated by the captain of the gun, it would be virtually pointed by the steersman. The effect of this system, if it should realise all the hopes of its inventor, would be to solve two great difficulties by one stroke—the difficulty of making efficient seagoing vessels with invulnerable sides, and the difficulty of making such vessels of such a form as to carry, not only 600 pounders, but the still more Titanic artillery which engineers assure us will soon be forged. Having explained the ends which Mr. M'Laine sees before himself, we must now describe the means by which he promises to accomplish them. A commander may intend to fight his vessel "end on," but his antagonist may baffle him as Admiral Farragut's fleet baffled the Tennessee. A ship may be mounted with guns of fabulous calibre on the fore-and-aft principle, but without elaborate mechanical arrangements she may be quite unable to use them. To meet the first object, Mr. M'Laine advocates the universal employment of twin-screws in ships of war, which would "enable them to be turned on their keels and kept in the strongest position for defence." The only objection which he recognises is the supposed inferiority of the double screw in respect of the speed, and this he undertakes to overcome "by suitably designing the after end of the vessel," and especially by keeping the screws deeply immersed. He does not, however, rely exclusively on the screws for rapid turning, since he suggests the use of a centrifugal pump at the bow to act as a supplementary motor. To effect the second object—that of making guns "of unlimited weight" perfectly available for attack—he contemplates the suspension of them on fore and aft railways, supported on stanchions or diagonal framework, and so laid that the gun could not be capsized by a roll of 70 degrees each way. For this purpose the rails must be wide apart and incline inwards, while the wheels of the gun carriage must be deeply grooved, and the gun itself must hang low. The recoil could be received on a hydraulic cylinder, and the captain of the gun—who would be the acting captain of the vessel, as he would have to control the steersman—would be provided with a seat behind the gun, and would oscillate with it forwards and backwards. The loading would be performed by machinery, and Mr. M'Laine indulges the belief that two or four guns, at most, thus handled, "with their muzzles depressed over an invulnerable bow," would sink the strongest ship afloat in one discharge. How they would be secured against the effects of pitching during a naval action, travelling as they would along rails which would favour that motion, he does not state; but it must be admitted that, when not required for service, they might be carried amid ships and there lashed with great facility. It should be added that Mr. M'Laine has designed a vessel of war, on this theory, the estimated speed of which is 15 knots an hour.—*Times*.

\* Identical with that on the door to north side chapel already alluded to.

† A loop for borrowed light opens from the stair turret into the chapel.

‡ Provision for a "decorated" vault would seem to have been made when the tower was rebuilding in the fourteenth century, but the idea appears to have never been carried out. The grounds for this supposition are founded on the existence of vaulting shafts attached to the rebuilt eastern piers of the tower, which at present are useless, and totally unconnected with Hacket's vault.

§ Except portions of the eastern and western jambs, and some mutilated Caen stones which formed the head, nothing has escaped the ruthless destruction of Pooole's time. Enough remains, however, to show that the sedilia were triple; that they were pedimented in front, and that the seats were separated by detached shafts, from the capitals of which stone transoms passed backwards, and supported the heads of the niches.

## GLASS PAINTING, ANCIENT AND MODERN.\*

(Continued from page 212.)

THE next step, the artist's, is not so easy to describe. If the right kind of glass could be got, there would be little need of veiling it at all, to enrich its poverty or to tone its garishness, beyond the broad lines of the drawing, the lightest possible indication of shadow, and so on. Such, indeed, I feel, should be the law of the glass-painter. But as in severer matters, the best of laws are sometimes more honoured in their breach than in their observance, so it is with glass. And here it is, I think, that might come in the right use of enamel colours. Their exclusive use has two great objections—one the costliness of their production in the perfection of the little cabinet examples, from Nuremberg and Munich; the other, their weak effect when used on any considerable scale, and from the number of bakings required for the different colours, a process often attended with fracture of the glass. But the pot-metals, toned with discreet moderation, as they have done especially in some of the Dutch and Flemish examples, would have at once a mellow and a rich effect—a good deal preferable to the choice between brown paper and blacking.

But now, having progressed so far, comes the great question. How is he to treat his pictures? There can be no real difficulty in this, but in the practice of humility and self-denial. The first thing for the artist under such circumstances is to make up his mind that he is, in truth and in deed, a "glass-painter." If only he is quite sure of that, half his difficulties are over.

Now let us for a moment compare the characteristics of a picture on canvas, and a picture on glass, and the conclusion will be obvious. In the first place, then, the element of form is common to them both, and equally within their reach. Then chiaroscuro, the whole law of which runs in the simple sequence of "high light, half tint, shade, reflected light, and cast shade," is also equally within the reach of both, for glass can be blackened as black as night, and high lights filled out as bright as the sun. Then "colour;" that, too, is common to them both. Where, then, is the difference? I answer—Mainly in this, that, although all things may be possible, all things are not expedient.

But now look at the opposite view of the case. Take two subjects only, those of "roundness," and "atmospheric perspective." The way in which our artist produces the effect of roundness is by modification of colour and by loss of outline. These are amongst the most powerful means in the hands of a painter, to produce to the eyes of others the effects of nature, and among the most favourite resources of his art.

These two, his primary essentials, are simply and entirely impossible to the glass-painter, because his outlines must be marked by lines of lead, and his colours can only be tempered by the coarse expedients of mere light and shade, or, at best, by enamels, which must injure the brilliancy, and can only darken, without in truth modulating, his colours.

There can be no modulation of colour in glass. I must not be mistaken. Of course glass may be ground into semi-opaque white, and painted on in many ways with water and oil colours modulated as you please; but that is not glass painting in what is (without any quibble about words) really meant by it. It can also be effected by enamels; but that is glass enamelling, not glass painting, and very objectionable for the reasons (only with the favourable exceptions) I have mentioned. So then truly there can be no modulation of colours on glass. How can the painter get the grey between the light and the purpled shadow of a ruby-coloured drapery? How can he get the thousand and one tints of sky and earth into its reflected light? How can he soften off its edge?

Then take the effects of "atmospheric perspective." These are mainly producible by the same processes. Things in nature are cleared from each other, not by any means so much by their colours as by the air between them. There is nothing more delicate than this in all painting. But these are unattainable by the glass-painter. He can only approach them by the ingenious use of forms, and by suggesting (however untruly in a realistic point of view) the idea of proximity by strong colours, and distance by the more delicate.

In spite of all these limitations to which he is subjected, I do not feel that his art is lowered, for art does not depend on perfection of representation. Such perfection would at once be the loss of all its poetry. I believe that each art has its distinctive genius and capabilities; that there is a something which each can do the best; and that, failing that, the fault lies rather with the artist than with his materials.

Michelangelo would be as great in terra cotta as in the finest marble. What, then, is the glass-painter

to do? I am confident that the secret of his success lies in this, that his designs must be made entirely with reference to the powers and limits of his art—that the designs of Michelangelo himself would be utter failures unless made unreservedly upon such a model. An idea is prevalent that copies may be made from great old pictures, or that designs may be obtained with great advantage from the leading artists of the day. But I am confident that it would be an injury rather than an advantage that artists, however great in figures, landscape, or genre, should be so employed unless they do it with a thorough knowledge of the peculiar qualities and limitations of what they work for; that in their pictures they may revel in the poetry of shadow, but that in glass they must design for the effects of light; that their canvases may be a broad, open space to work for, but that glass (even for the common purpose of its safety) must be broken up into small pieces; that every form must be definite from the mechanism by which those pieces are joined; and that the light, even of the most mellow glass, is too great for the eye to bear it long; so that his composition should be broad, clear, sculptural, rather than pictorial, but beautiful, delicate, or powerful, to the utmost of his art. What, then, unreservedly are these powers and limitations of the glass-painter? His powers? He has the whole beauty of the rainbow and the whole power of the sun at his disposal. What are his limitations? They resolve themselves into two—the impossibility of colour-gradation and the rigid obligation of severity of outline in the use of his leads. The result, therefore, is that his works are characterized by a certain flatness of effect, more in the character of a bas-relief than the atmosphere of a picture. This peculiarity is by no means peculiar to the essentially Gothic art of glass-painting. At a period of Classic art in Greece, perhaps unequalled by any other for refined purity of design, wall-painting was constantly executed in this manner. Figures, and even groups of figures, were thus painted with no more than sometimes a mere faint line to stand upon, and without any accessories of background. It is impossible to imagine the science of design put to a severer trial, or a more perfect and pure ideal of painting in connexion with architecture. And I adjure him not to disguise this essential peculiarity, and so to falsify his art. It would be as unreasonable for a composer to complain that his instrument had not the power of an orchestra, or a sculptor that his marble was debarred from the accessories possible to canvas, as for a glass-painter to complain of his glass. But, above all things, let him remember this, that before he can be an artist in glass, he must first be in verity an artist.

In respect to the variety of styles, the Classic, Gothic, Renaissance, and Modern, which is most intimately connected with the subject of glass-painting, there can be no doubt of this, that to reduce everything to the mere dead level of modernism would be to deprive the world of that invaluable means for expressing the many phases of beauty which depend entirely upon the characteristics of particular styles—that they are, in fact, the expression of the widest range of human feeling; for, excepting literature, all that remains to earth of the hearts and souls of the best men is in their arts.

The objection is made, "But why copy them?—Why bind down your wider knowledge to the limits of their comparative imperfections?" I can only say, in reply, Who in his senses would ever, or what man with a spark of genius ever could, advocate such a course? The objection is one of those bugbears which gentlemen of certain opinions are constantly raising—gentlemen whose judgment seems to be a good deal affected by temper and a little by prejudice.

The imperfections of old art are most patent and followed only by those who know, and are capable of, no better. But I hold that there is a latent beauty beneath the crust of those imperfections that you have failed to perceive; that there are there more than the vigour of strong feeling and the earnestness of purpose, which even you in some sort allow; but that there is a perfect sense of the relation of one art to another, a most genuine poetic sense in their employment, a modesty in self, a keen perception of the fitness of materials, and of the appropriateness of the character of their design to all the qualities of them, to be found as the guiding principles in those works, which it is impossible to overrate—guiding principles, which, if some modern had equally perceived, they would have succeeded where now they have failed.

I grieve at the discredit that has been brought upon old art by the atrocities committed by incompetent imitators. To them the mere archaisms and exaggerations of expression have been the low ideal of those arts. They have missed the latent beauty, and made bad copies of the crust. Those artists of old days felt of beauty as we do, though they had no academical rules for its display: they felt all the poetry of human passion as we do, though they had no axioms for its embodiment in art; and, under their exceeding disadvantages, with no rules to guide, no

experience of the past to enlighten them, it is *less* their fault that they expressed their strong feelings faultily, than it is ours that we are so blind—eye-blind and heart-blind—to perceive them. Neither do I perceive at all that the modified flatness of representation necessary to glass deprives it of the means of aiming at and of obtaining a very high order of art. For what is high art? Surely the greatest art is that which expresses the greatest idea; and, as I believe that this great result overrides all technicalities of material, I see no reason why its attainment is not as possible for the glass-painter as for them who find expression for the yearnings of a big heart in the other poor and weak resources of stone or marble, of metal or of paint. And I would that the glass-painter would lay such an ideal before him; that, even if it were possible, glass-painters could form themselves into a guild, and exclude those unworthy pretenders who do but poison public taste, and dishonour the credit of a noble profession. But such a happy result would be disallowed by the axioms of modern liberty, which sanctifies by its licence all things bad.

The only other hope for the elevation of this beautiful art lies in this—that those who have power should refrain from its abuse; that in all the honourableness of self-discipline they should put quality before quantity; and then (pardon me for adding) work for the high aim in their art, rather than for high balances in their ledger.

With such sentiments, then, as these would I close this address to all the artists and amateurs interested in this beautiful art. Let the glass-painter do honour to his glass! Let there be no hesitation about it—no wretched condescension to mislead those who gaze upon it. Let it be glass without mistake; parading nothing, pretending nothing; but honoured even in its weakness, and treated with justice, even to its defects. Why envy the qualities, or even the excellences of other arts?—or, why dread the genuine light of day, the open sun and passing cloud (which are as death and destruction to the oil-painter and the fresco-painter)?

Have you not gems to play with—a very flood of gems to toss about, and to let your thoughts revel in? Do you fear their gayness and vivacity? What if the diamond, ruby, or emerald have a fire which no art can equal, except yours alone? Have you not also the mellow richness of the jacinth, the softness of the chrysophsan, the tenderness of the pearl? If you use them, use them and glory in them! but use them within the limits of an educated sense. Treat them with that mingled modesty and confidence which have ever been and ever must be the characteristics of disciplined genius. You have entered the temple of the arts with the most precious jewels in your hands. Ignorance and self-conceit are sacrilege here. Sordid motives are sacrilege here.

It might have been well for the great men of former days to have played with their art—confident in their principles, but modest in themselves. But glass-painting is no easy and light matter. The mere material itself is so beautiful that the eyes of the vulgar are dazzled and deceived by it; but it needs the utmost tact in its management, and genius, and labour long and hard, for its success.

Let, then, no wilful, no untrained hand meddle with it—let no vain spirit of self-taught genius intrude upon it; for such a one who thus violates the sanctity of the art will cut the throat of all his hopes and reputation, as surely as the glass will cut his fingers.

The *Times* of June 11th, 1862, speaking of Benson's great clock in the Exhibition, says:—"As a sample of English clock work on a large scale, the works of this are probably the finest finished that have ever been seen in this country; no chronometer could be fitted with more perfect and carefully adjusted mechanism." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bed room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15.—33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock-maker by special warrant of appointment to H.R.H. the Prince of Wales.

\* By Mr. T. Gambier Parry. Read at the South Kensington Museum, on Monday, July 4th.

## THE STONECUTTERS' STRIKE.

IN reply to the observations which appeared in the columns of our last number, the following communication has been addressed to us by the Secretary of the Stonecutters' Society, on behalf of that body:—

SIR,—An article which appeared in the DUBLIN BUILDER of October 15th, noticing the present strike in our trade, is most unfavourable to the parties engaged in it, inasmuch as it states that architects are beginning to look about for other materials to substitute for cut stone in ornamental work, in consequence of the stonecutters seeking for the privilege of setting their own work; but this statement the stonecutters consider a mistake, and scarcely fair, as they conceive they are only endeavouring to regain a right too long withheld from them. Any architect will allow that it is the place of a stonecutter to finish his work by setting it in the place assigned to it; and, impressed with a conviction of the justice of this, the stonecutters some time since gave notice to the builders of Dublin, by circular, that if they, the builders, would give them the setting of the cut stone work, the stonecutters were prepared to supply them with competent setters from their body, in accordance with the system pursued in England, Scotland, and the North of Ireland, and at the same time pointed out to the builders the fact that many ancient buildings in Dublin were executed and set by stonecutters, such as the Bank of Ireland, the Custom-house, Trinity College, the Four Courts, the Royal Exchange, and many other buildings in the city, as it was formerly the universal practice for stonecutters to set their own work.

In a short time after the issue of these circulars a deputation from our trade waited upon the several builders to obtain their opinion as to who should for the future set their cut stone work; and the opinion generally expressed was, that the men who worked at the stone should set it, or at least some member of their trade, as there is no necessity for all the trade to be setters, and one stonecutter would be quite capable of setting the work of a dozen men engaged at the bench.

Were there no difference of opinion or contention, there would be no necessity for strikes. One builder of this city would not agree to the proposals of the stonecutters, and accordingly the men in his employment struck work upon the 8th of September, and remain out until the present time.

Should the public consider the stonecutters in the wrong in seeking to coerce any employer in his opinion as to this question, we beg to state the following in vindication of our acts:—It was then, and is still, evident that the stonecutters could only obtain what they desired by striking for it, and where should they strike but in the employment where they met with a refusal of the favour they asked? It is true that all sensible men would denounce strikes, and prevent them so far as in their power; but they are sometimes a necessity, to obtain what is only just; and, as a proof of the justice of this case, the stonecutters are at present engaged in many places in Dublin in setting their own work, and have been since the strike commenced, and no one can desire more than they do, for the sake of both employer and employed, to bring this matter in dispute to a speedy termination.—GT. BYRNE.

There is evidently a misapprehension on the part of the stonecutters as to the object and intention of the few observations in our last number. It was not intended to convey that architects, as a body, were inclined to pronounce an opinion unfavourable to the justice of the stonecutters' case, but merely that, finding themselves put to a certain amount of inconvenience by an unsettled state of the trade (whether rightly or wrongly, is another matter), they would naturally direct their attention to other materials, the employment of which would be less liable to interruptions. This is only to be regarded in the light of a general observation, which is not intended to incline the scale towards either of the contending parties, as was also the enunciation of the general principle, that any movement of a trades' union which would coerce a builder into expending his money in a manner distasteful or injurious to himself is a tyranny, and this observation may be made with reference to a movement of bricklayers as well as stonecutters or any trade in the world. The last observations which, we trust, we may be required to make on this unhappy subject are these, and which appear in substance to be those of most disinterested people:—That the whole question should justly turn upon the point of competency. Some people hold that a stonecutter is, by the education of his trade, more adapted for dealing with the niceties of setting than his brother the

bricklayer. There is an old and true proverb that "the proof of the pudding is in the eating," and by all means let us have the proof if it will restore harmony—but that remains to be seen. We do not see that there would be any sacrifice of principle in an employer acceding to the request—observe, not submitting to the demands—of the stonecutters to give members of their body a fair trial in setting stone, and abide by the issue, even if unfavourable at first, until at last they could present men for employment in this capacity, fully competent for their work, and superior to any other trade; and we say of the body of bricklayers, that, if they take umbrage at such a trial—we trust they have more discretion—it is their conduct that becomes tyrannous to the employer, who should be untrammelled by coercion, but ever accessible to reason. The question does not turn upon mere empty or imagined "rights" of the trade so-called, but upon the merits of the men and capacity for the work. If the stonecutters have lost this privilege, as they consider it, by degrees, and if they would win it back from the bricklayers, it must be by degrees, and by honourable exertion to surpass them in skill. Builders are not, as a body, indifferent to their own interests, or blind to the merits of the work which pays best. No reasonable man can object to the stonecutters having a fair trial where it can possibly be conceded to them, and to this difference being allowed to die out by the best qualified trade being left in the majority; and we say "Let the best man win."

THE following letter has been addressed to us on behalf of the body of the Incorporated Brick and Stonelayers:—

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—A struggle, the most unnatural that has occurred in Dublin for many years, is now being carried on between two bodies of the building trade. Hitherto, when Labour rose in defence of its rights, the issues lay between employers and their workmen. The present one is Stonecutters *versus* Bricklayers. The former, owing chiefly to the importation of English and Scotch stone, and with it English and Scotch workmen, have determined to adopt the custom of setting stone, to a certain extent existing on the other side of the channel. This the brick and stonelayers are determined to resist as an aggression, and an attempt to deprive them of an inherited and inalienable right—that of setting cut and hammered stone.

The principal buildings of Dublin, a list of which is too long for repetition, were set by bricklayers of a past day, the stone for which was prepared with great accuracy; but this did not preclude the necessity for fitting by stonecutters—a custom so established that, though the contractors in some cases were Scotchmen, they did not attempt to upset the custom of the country. Established usage is, as it were, a bye-law forestalling the wisdom of parliaments, and binding on all civilized nations, and exercising its protection in all classes of society; demonstrating that, within the laws of government, society holds together by bonds supplied by instincts and wants beyond the ability of the civil power to legislate for or understand. As the conflict has now assumed a public form, the employers should take care that, in the event of the new system being adopted by them, they will not regret the hostile collision which must inevitably ensue between two classes of workmen whose interests, after all, are identical. So also with the public bodies who dispose of contracts, and munificent individual employers, who, like Benjamin Lee Guinness, lend nobility to legitimate trade by an expenditure and liberality unprecedented in past or modern times. On the collective wisdom of the United and Amalgamated Building Trades much will depend to avert what now threatens a fatal disunion, which involves the suicidal policy of taking away from the few comforts to be secured by honest labour, in maintaining a strife, not against capital, but of brother against brother. As an instance which illustrates where the competency lies in the matter of setting, I may observe that, when the King's Inns building was in course of erection, Mr. Forrest, one of the contractors, a stonecutter, instead of putting men of his own trade to set, selected brick and stonelayers, giving them eight pence per day in advance of stonecutters' wages. The general public, with folded arms, may not care to inquire which is in the right: the employers will lean to the side of self-interest; but our trade will keep in view the vital question, that a deep and lasting injury may lurk at the bottom of this novel trade reform, which, if permitted to develop itself in Dublin, may initiate a gradual importation of foreign

workmen, supplanting not only the bricklayers, but other important branches of the building trades.

Oct. 22, 1864. JOHN M'CORRY, Bricklayer.

[We beg to state that unless some change occurs in the features of this strike which we do not anticipate, it will not be in our power to give insertion to any further correspondence on the subject.]

## SCOTTISH NATIONAL MEMORIAL TO H.R.H. THE PRINCE CONSORT.

WE are glad to see that the committee for this memorial have re-considered their absurd dictum as to the scale on which the drawings were to be made. In their last advertisement they state that, "In answer to numerous communications which have been addressed to the Committee of Advice, intimation is hereby made that models and drawings of designs for the Scottish National Memorial may be furnished on any smaller scale than that of one inch to the foot which an artist may prefer, in those cases where adherence to the scale prescribed would render the model or drawing excessive or inconvenient in size."

[We venture to say a good many artists will find "adherence to the scale prescribed excessive and inconvenient."—ED. D B.]

## PROJECTING SIGNS.

TO THE EDITOR OF THE IRISH TIMES.

SIR,—Your well-known liberality induces me to lay before you a case of very sharp practice, added to gross injustice.

I have for some eighteen months had over my hall-door a "Golden Palette," at a cost of somewhat over five pounds. On the 19th of September last I was served with a notice from the Corporation of Dublin to the effect that if "I did not remove the said palette and irons from over my door within 14 days after the service of same notice, I should be fined five pounds, and to a further penalty or forfeiture of forty shillings for every day during which such projection continues after the expiration of such 14 days from the time I may be convicted of such offence; and proceedings will be taken against me in such events for the recovery of such penalties with costs." On the day of service I was given to understand several of my neighbours, whose names were mentioned, had notice to the same effect. These parties I called upon, and in every case was informed no such notice had been served on them. I wrote to the Town Clerk; a friend waited on him respecting the injustice of my being singled out; the matter rested for a few days, when I received a letter from Mr. Reynolds, stating "that the committee cannot interfere to prevent the prosecution of the proceedings already instituted." On receipt of this letter I had the unpalatable palette (to the Corporation) removed.

Perhaps, sir, you can inform me if there is any law which sanctions favouritism. Projecting signs are daily being put up in Grafton-street, and no notice taken but of the offending "Golden Palette." Apologising for infringing so much on your time and space,—I am, sir, yours obediently,

EDGAR ADOLPHE.

75, Grafton-street, Dublin.

## BUILDING ACCIDENTS.

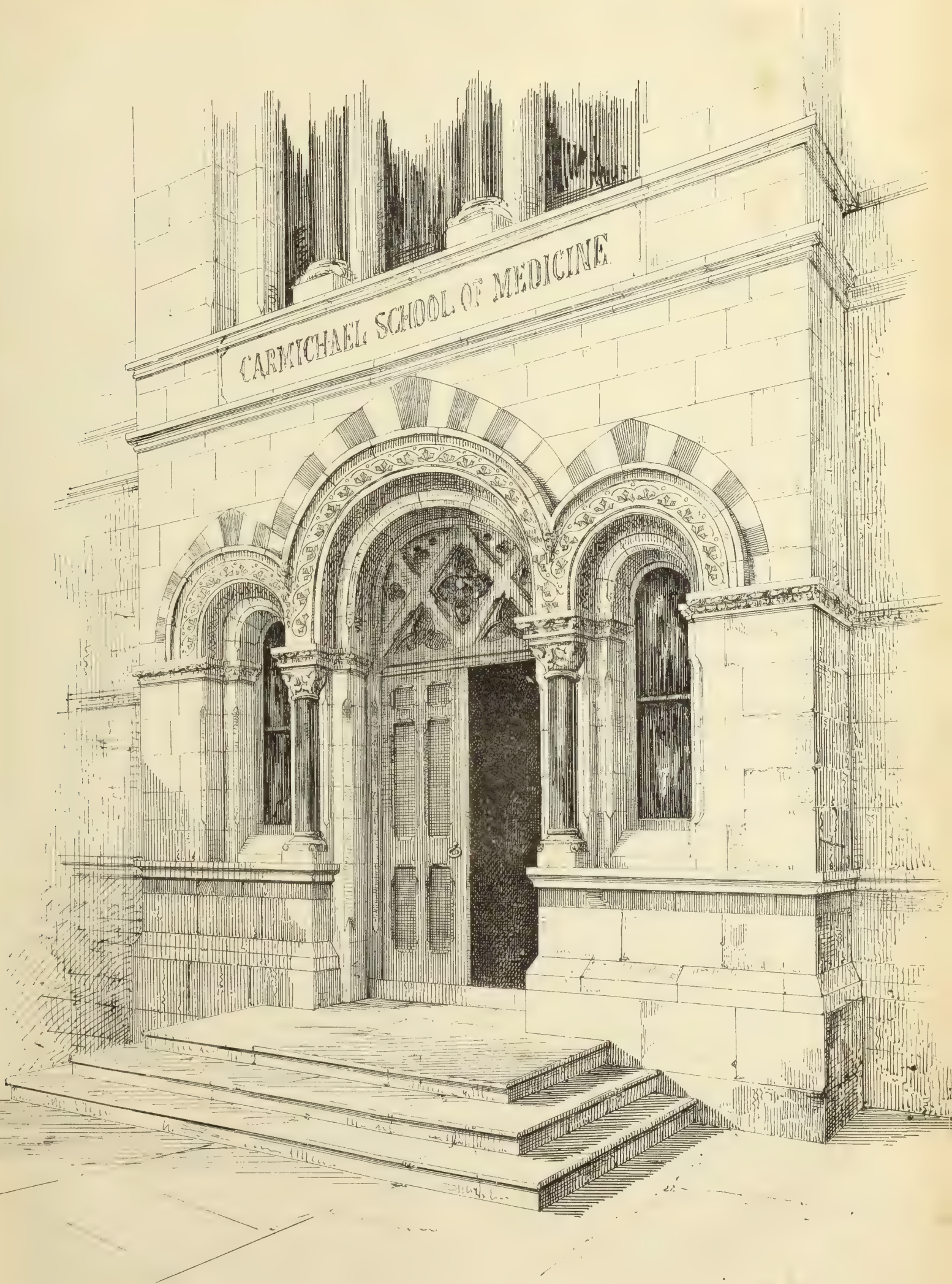
FALL OF A CHURCH TOWER.—We have been informed that the tower of a church in course of erection at Woodside, in the neighbourhood of Magherafelt, Co. Derry, under the superintendence of the architects to the Ecclesiastical Commissioners, has fallen, but the cause of the accident has not reached us.

FALL OF HOUSES.—On the night of the 24th ult. the front wall of four houses and the end wall of a fifth, in course of building, at Blackrock, Co. Dublin, fell in, having become loosened by the torrents of rain descending at the time, the building of the edifices not having progressed so far as to be roofed in.

A MARTELLO TOWER SHAKEN.—No. 3 martello tower, near Bray, has been found shaken in the foundation, having been sapped by the seas running in along the coast during the recent gales. It is considered to be in an unsafe state.

FALL OF A HOUSE IN GRAFTON-STREET.—The house of Mr. Mansfield, dressing-case maker and photographer, Grafton-street, fell on Saturday morning, 22nd ult. As the event was expected some hours previously, the employés left the house, and the traffic of the street was stopped, and in consequence of the precautions adopted no injury resulted to any person. The neighbouring house was burned down about a year ago, and arrangements were being made to rebuild it. The gable wall, which was a party wall very old and decayed, bulged out, and fell at half-past eleven o'clock, and the floors and roof fell about the same time. The front wall is still standing.

On Wednesday evening the back wall of the house 18, Longford-street fell, carrying with it a portion of the roof. A female who was in a back room received a severe shock, and was removed to hospital.



ENTRANCE DOORWAY. NEW CARMICHAEL SCHOOL.

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## ARCHITECTURAL DRAWING COMPETITIONS

THE following sensible remarks on the subject of architectural competitions are extracted from the correspondence columns of the *Art Student*, a notice of which appears in another part of our present number:—

Continuing my comments as to the hardships inflicted upon architects by competition as at present managed, I may point to the utter want of consideration frequently shown by calling for designs in a hurry, as if it were some life or death matter, and then, perhaps, after worrying competitors almost to death, allowing the whole matter to go to sleep. Of such wisdom *a la Laputa* we have, among others, had a notable instance in the Government Offices competition, when only after *six months* being afforded for the study of such an important and exceptional subject, more than six years were dawdled away in doing just nothing. That some competition might have done good, by setting an example of honest straightforwardness, openness, and sincerity, by publishing a full and faithful report of all that passed in committee.

A natural presumption is that something like discussion, or an attempt at it, takes place on similar occasions; and surely all those who have given their time and labour in preparing designs have a right to learn something more than the bare result of a competition—even the reasons which led to the decision. Hardly is it to be supposed that, be it whatever it may, the decision is uniformly a unanimous one; consequently, it is highly desirable that we should be made acquainted with some particulars. In one respect, indeed, strict secrecy may show discretion, yet it is anything but a pledge for perfect integrity, directed by more than ordinary taste and intelligence of architecture. The respectability of those who sit in judgment—at least in *conclave*—upon designs submitted in competition, may be assumed to be unquestionable—nay, even invulnerable. What then? So-called respectability and social status, however high, do not confer any more superior knowledge of art than of mathematics. In buying pictures, people do not trust to the judgment of those who, for whatever else they may be distinguished, cannot boast of their acquaintance with paintings. Yet we blindly confide the choice of a public building—perhaps an important, at least a conspicuous one—to those who, however well educated otherwise, may be said, without any great breach of charity, to be taught than particularly well qualified by previous study to examine critically the complement of drawings requisite to describe satisfactorily, in its entirety, even a single design. Not at all amiss, then, would it be were more regard had to *ability than respectability*, and could some test of their possessing a due quantum of the former be exacted from those who preside over architectural competitions—that is public ones, in which all writing themselves architect are invited by public advertisement to engage.

With private or limited competitions it is somewhat different, because in such case the disappointed are but few, perhaps not more than four or five, and in some instances not so many; and the fewer the designs asked for and sent, the more likely are all of them to obtain something like diligent examination. It may, too, be presumed that when architects are applied to individually by direct invitation, besides having the compliment paid them of being singled out as worthy to enter the lists, they may reckon upon being treated with more of courtesy and consideration than can perhaps always be looked for when a competition is thrown open to all comers.

Putting aside all the rest, and confining myself to the main question as regards the interests of architecture, I boldly give it as my opinion that in its character of a fine art it is the one least understood; yet, in one respect, almost the most important, inasmuch as its more pretentious productions cannot be concealed, but stand forth to the universal gaze either for good or evil repute. Such was the view taken of it by Sir Charles Eastlake, at the last annual banquet of the Royal Academy, in a speech that ought to win for him the gratitude of all lovers of architecture, and that was the more remarkable and impressive as coming not only from the president, but from one who is not an architect by profession. Our failures in other arts may be concealed; if not always sent up to the garret, mediocre pictures, or so-called *dabbs*, are not paraded *coram populo*; but buildings—conspicuous perhaps for their ugliness—cannot be thrust aside out of sight. Be they ever so great eye-sores, once erected they must remain; wherefore far more thoughtful consideration should be given to *designs* for them than is now done.

To recommend that architectural instruction should be provided for those who are not architects will, no doubt, be met with ridicule by very many, and by secret disapprobation by some who belong to the profession, and who have the uncomfortable assurance that the less other people know of architecture as art, so much the better for such members of the profession

as themselves. Still, it would be well if there were, henceforth, some initiation into the art of architecture, if nowhere else, in all our higher public schools. Should the question *cui bono?* be put to me, I could answer it offhand; but, as to do so would take some time, I must be permitted here to lay down my pen for the present. M. S.

## ROMAN DISCOVERY.

RIGHETTI, a wealthy commoner of this city, has lately purchased an old palace for an old song, being in one of the dirtiest parts of Rome, called the Biscione; it is close to the Piazza Campo dei Fiori and not far from the Farnese Palace. Extensive repairs were indispensable, for the building was in a most rickety state, and, on setting people to work to dig for a foundation, they came upon a pavement composed of large slabs of that marble called "Porta Santa," which is a dull, veined marble, of a reddish hue, which comes from the Island of Iasus, in the Archipelago, and is properly called "Marmor Jasseuse"; it is, however, better known by its modern name, which it derives from its forming the jambs of the jubilee door at St. Peter's. This pavement was found thirty feet below the present level of this part of Rome; and here, likewise, they came upon a massive wall, near which they found a piece of building somewhat resembling a Noah's Ark without the boat: the sides were of brick and the roof was formed of large blocks of travertine resting upon these walls, and uniting with bevelled edges at the top ("rigging" as they call it in Scotland). There were two gable ends, each formed of one huge block of travertine; on several of the blocks are seen, large and well cut, the letters *R C S*, which, as yet, the archaeologists here cannot explain. Great difficulty was encountered in consequence of the hole continually filling with water, and preventing the work going on; but a steam-engine was procured to work the pumps, which are now plied night and day. On opening the "ark," it was found to contain a magnificent gilt bronze statue of a youthful Hercules, fourteen feet high, but lying on his back, or, as the Romans graphically describe it, "*panza per aria*." In Art, this statue equals the finest that ever Greece produced, and the careful manner in which it has been hidden and the means taken to protect it, argue that its value was known and appreciated. I suspect it must have been hidden in the fourth century to prevent its being carried off to Byzantium by the son of Constantine, who made off with everything he could lay his hands on in the shape of works of Art, to enrich and adorn the city which henceforward was to bear their imperial name. It is interesting to know that the coins found in and about the statue were those of Domitian, Decius, and Maximinus, commonly styled the *Herculean*. There were likewise coins of the Lower Empire. Over the gilding, which is very thick and bright (and the *patina* of which is still perfect), is a rough calcareous incrustation, which must be carefully removed before the beauty of the statue can be thoroughly enjoyed. It was found imbedded in marble-chips, such as form the sweepings of a sculptor's studio, and also wedged in by masses of architectural fragments. Inside the figure was found a very pretty little female head, sculptured in Parian marble. The back hair is gathered up in a net, much in the style as worn by ladies in the present day, and which fashion prevailed from the time of Heliogabalus down to Constantine, as we see by referring to other statues and busts. The period of Art to which this little bust belongs is that of Constantine, and therefore inferior. Other relics may yet be found in the statue, which is far from empty. On the first indications of this discovery, much speculation arose as to whether it were equestrian or not, and whether it might not prove to be a portrait statue of Pompey the Great, since the place where they are excavating is on the site of Pompey's Theatre, which was the first ever made of stone in Rome; and that its size was considerable is known from the fact that it accommodated 20,000 spectators. These speculations as to what it is are now pretty well at rest, as the statue speaks for itself; at the same time, as there is a deal of that incrustation above-mentioned adhering to the features, there are some who insist that it is a portrait of Domitian represented as Hercules. It has been raised to within ten feet of the surface, and men are busy exploring, in the hope of finding one of the feet, which is missing. The club has come up in three pieces, and the lion's skin, which has hung over the shoulder (similar to that of the Theban Hercules in the Vatican), and which has evidently been cast separately, is especially interesting to us moderns, as showing the mode in which the ancients executed their work of casting. Hercules being the tutelary deity of Pompey the Great, it was natural that his image should be chosen to adorn the building he erected. As a work of Art, this statue is far superior to that found in the Forum Boarium, which is also gilt bronze, and is now in the Capitol. It has evidently been executed by artists in the time of the

Empire, and stood in the Temple of Hercules in the Forum. The beautiful marble statue of Hercules bearing Telephus, which adorns the "Pio Clementino" in the Vatican, was found in the Campo dei Fiori, and placed where it now stands by Julius the Second. It should be remembered that the noblest fragment of antiquity existing was presented by that same pontiff to the Vatican; it is a portion of a Hercules, and if I am not mistaken, I have seen a drawing by Flaxman, in which he restores it from an ancient gem representing Hercules and Hebe. This fragment was also found in the Campo dei Fiori (Pompey's Theatre), and is known as the Torso of the Belvedere.—R. Macpherson, in *Athenaeum*.

## STRIKES IN THE BUILDING TRADES.

IN an address to the Liverpool Architectural Society, recently delivered, Mr. Joseph Boulton said:—The great changes which in late years have been made in the hours of labour and the rate of remuneration have largely augmented the cost of erecting buildings, and tend to curtail our professional practice. All present, I believe, desire that the operatives should enjoy every advantage consistent with the common weal; and so long as the general prosperity can bear the increased cost there cannot be any economical reasons against either the rate of wage or the hours of labour, provided these are wholly dependent upon the natural operation of supply and demand. All attempts to interfere with this natural operation can be only temporarily successful, and those who make them usually suffer by the reverse that follows. Probably as working men acquire more experience and intelligence they will be ready to relax some of the restrictions their unions have imposed. I do not dwell, however, on these features of the subject, but rather upon the difficulties arising from caprice and insubordination. The basis of all legitimate trade, beyond simple barter, is an acknowledged or implied contract between the parties interested. The master workman engages to construct a certain building in a specified manner and period for a specified remuneration; and the operative workman engages to give a fair day's work for a fair day's wage. Unfortunately, however, there are persons in both those classes who are willing to fulfil these engagements only so far as may be agreeable to themselves. In the first illustration, the master workman is usually bound by specific written agreements that the most careless or dishonest may be compelled to fulfil his engagement; in the second illustration, both parties seem agreed that the engagement shall be as lax as possible; so much so that I am informed the method recently introduced of calculating wages by the hour has been taken advantage of, and the tools packed up and the jacket donned almost at a moment's notice. Conduct of this kind, by whichever side adopted, tends to frustrate all calculation as to rate of progress or of cost. The remedy is to make the engagement by the week or month, even though the wage be calculated by the hour: the master or man who violated this engagement would be amenable to legal consequences. This appears to be exactly what neither party desires; each suffers from an ignorant impatience of that mutual subordination which is an essential feature in all well regulated communities, and the absence of which, I suspect, has been very instrumental in producing the distraction which now prevails in North America. From the reports of travellers it has been notorious that there every man wished to be master and to owe no man anything, utterly ignoring those relations of interdependence from which the race has made many but always fruitless efforts to escape. As far as I can learn, great advantages would accrue to masters and men as well as to the community, if the relations between them were more permanent and less subject to the accidents of caprice and temper, and if more care were exercised before that relationship was entered into; that it would be very beneficial to both parties, and especially to the operatives, if before entering into an engagement the workman produced from his previous employers testimonials of character and ability. Nor need he feel it derogatory to do so; it is required in all other classes of society, especially from those who aspire to offices of trust and position; and the neglect to require such proofs of fitness is really a slur upon the working classes as a whole. It implies that they are merely hewers of wood and drawers of water; they are not to have any trust reposed in them; or that the engagement is so very temporary the character they bear is immaterial, as they will not have much opportunity of doing ill, and the employer will take that risk. Whether these views are well founded or not, it must be admitted that some change is needed which shall ensure more regularity and punctuality in the execution of work. As matters are, a building may be making satisfactory progress upon Saturday at noon, and the following Monday or Tuesday, sometimes even Wednesday, all the work may be at a stand, because the bricklayers or the plasterers, or their labourers, have broken loose, and cannot settle to again until they have exhausted all money and credit.

## THE PERSIAN GULF TELEGRAPH.

(Continued from page 211.)

On the 3rd the Amberwitch approached the Coromandel, with the signal flying, "Damage is repaired," which was answered by the signal from the Coromandel, on board which ship Colonel Stewart was, "Accept my best thanks."

The fault had, in the meantime, been reduced, and cut out of the portion of cable picked up, and found to be a clean fracture in the copper, which must, from its appearance, have existed for a considerable time. The ends must, however, always have remained in metallic contact, as their separation would, of course, have been detected (as it was) the moment it occurred. It would appear that even the strain required to lay the cable was not sufficient to separate them, since they were in perfect contact for twenty-four hours after they were submerged. As the cable cooled down to the lower temperature of the water at the bottom of the sea, the copper wire contracting, caused the two ends to separate, thus causing the loss of continuity, without any loss of insulation, to take place twenty-four hours after the cable was laid—a very unusual circumstance.

With regard to the reason of the fracture, it must be observed, firstly, that this, in all solid conductors, is an old evil, caused by the wire becoming burnt, and thus rendered brittle by the flame impinging on it during the process of annealing. The compound segmental wire used for the first time on the Persian Gulf cable was at first open to this same danger, since it was annealed after all the segments were placed together, and the portions first manufactured were thus open to a certain extent, though in a less degree than a perfectly solid conductor, to this old danger.

As the work of manufacture proceeded several improvements in the mode of annealing were introduced, and it is believed that the latter portions manufactured are entirely free from this possible source of danger. It was in some of the very first portions of the cable manufactured that the fault in question occurred. As it was the fault was rather a happy incident than otherwise, since it demonstrated the rapidity with which the cable could, under proper management, be repaired, proving at the same time the exactitude of the electrician's tests, the care with which the course of the cable had been plotted off by the surveyors, and the completeness of the fittings and machinery of the Amberwitch.

During the time that the Amberwitch was thus employed, four miles of cable had been taken round in the Comet steamer to the Shat-El-Arab, and landed at Fau, where, under the energetic superintendence of Lieutenant-Colonel Goldsmid and Commander Bradshaw, R.N., it was stretched across and entrenched in the low, flat, muddy ground from Fau to the place where it was intended the cable should be landed.

On the 4th the Amberwitch, taking all the boats that could be spared from the different ships, steamed towards the landing-place, but even she could only approach to within about three and a quarter miles of high-water mark; and owing to the absence of any objects ashore to take angles or bearings to, it was believed that this distance was nearly four and a-half miles. At 7 p.m. she anchored, and all that night was devoted to coiling five miles of cable into two paddle-box boats and two barges. The next morning, the 5th, the landing of the end (perhaps one of the most curious cable landings ever effected) was commenced. A string of seven boats, looking like a kind of sea-serpent, started at slack water to pay out cable from the Amberwitch to the barely visible shore.

First came a gig towing a life-boat, which, in its turn, towed a heavy cutter, to which hung a paddle-box boat full of cable, then another paddle-box boat, then a barge full of cable, and, finally, another barge full of cable. Every boat, even those containing cable (except the last from which the cable was paid out) was manned with men pulling. As one boat was emptied of her cargo of cable she was removed and returned to the ship and the next one began; and so slowly, but surely, the little fleet of boats, lessening in its number, gradually approached the shore until at last, when two barges had been emptied, and nearly the whole of a paddle-box boat, the whole grounded on the mud. The shore (if a waste of damp mud can be called shore) was still distant about three-quarters of a mile and, from its extreme flatness, looked much further off still. After a hasty lunch in the boats, finding no help come from the shore, it was determined to attempt to drag the bight across the mud by the force in the boats; boots, trousers, coats, &c., were dispensed with, pocket books and purses were left hastily in charge of the boat-keepers, and watches and pipes stuffed down between the neck and the neckcloth, and all then with a "burrah" made a dash into the mud, each sinking nearly to the waist and throwing themselves on their hands and knees to avoid sinking altogether, each separate plunge being followed by roars of laughter at the ludicrous appearance of his comrade in mudiness. On went the whole party wallowing, crawling, sinking, and gasp-

ing like turtles, and every now and then turning round and sitting fairly in the mud to rest for a moment, or laugh at the violent contortions of some struggling individual in the rear. At last the somewhat solid ground was, to the great relief of all, reached. A storm was now brewing, the sky became suddenly overcast, and it came on to blow and thunder and lighten, and the change of temperature was so great that literally many were glad to sit down in the water with which the cable trench was filled in order to keep themselves warm. Dark, the flowing tide, and a flood of rain, compelled the men to relinquish the bight and make for the shore as fast as possible. Four miles of walk across hard and soft mud, briers, and stubble in a storm of thunder and lightning and rain completed the day's work and brought the whole to the Coromandel and the Comet lying in the Shat-el-Arab, when a hearty dinner and roars of laughter over the day's work finished the day.

The next morning (the 6th) many were knocked-up and ill by the previous day's work in the sun, mud, and rain, &c. Sir C. Bright, Mr. Laws, and Mr. Webb, with about four or five men alone gained the Amberwitch, and at 2.30 commenced paying out from her towards the end of the Bushire sections, buoyed near the Assaye in the Core Abdullahs; and passing the buoys on this end the cable in the Amberwitch was cut and buoyed. At slack water this end was picked up at the bows, and afterwards the buoy on the "sea end" (or end of the portion leading to Bushire); the two ends being on board, and both portions having been tested and found perfect, the final splice was made, and the bight let go at 2 a.m. of the 7th of April, thus completing the line of cable between Gwador and the head of the Gulf.

There remained one or two splices to make ashore to complete the land portion from the landed end to the floating office at Fau. These were all completed by the evening of the 8th, and at 5.30 p.m. of that date, Fau spoke through to Bushire, and thus Fau and Bussorah could telegraph to Kurrachee and Bombay.

There remained yet the section between Gwador and Cape Mons (near Kurrachee) to lay, and as the sea bed is excessively steep there, deepening from twenty or thirty fathoms to five or six hundred in the space of half a mile, it was one requiring special care; besides which the cable remaining in the Assaye, together with all the main cable in the Cospatrick, was eventually expended on this section without reaching Cape Mons, so that two ends had to be buoyed.

The unsatisfactory state of the land lines between Bussorah and Bagdad, and the complication of political affairs connected with it, required the presence of Colonel Stuart and Sir C. Bright at Bagdad, and the operation of laying this last section was, therefore, entrusted by Colonel Stuart and Sir C. Bright to the superintendence of Mr. F. C. Webb, Mr. J. C. Laws being in charge of the electrical department.

On the 12th, all arrangements having been made, and all the necessary official orders issued, the Coromandel, with Colonel Stewart, Captain Stewart, Sir C. Bright, Colonel Pelly, and Colonel Goldsmid, left for Bussorah. On the evening of the 18th the Zenobia, with the Assaye and Said in tow (to save coal) steamed for Bushire, the Amberwitch having started the same day. On the 15th the Assaye reached the Bushire Roads, and started again on the 16th, and arrived off Luiga on the evening of the 18th. The Zenobia then went to Bassidora (distant about seventeen miles) to coal, and left Luiga on the 24th, with the Assaye in tow, calling at Mussendom, and arriving at Gwador (East Bay) on the 28th. In the meantime the Amberwitch had preceded her with Mr. Webb on board, and arrangements were made for the landing the end.

The shore end for this section was on board the Amberwitch, which ship was accordingly anchored about half a mile from the shore, and cable coiled from her into the paddle box boats. A heavy S.W. swell rolled now round the point into the bay, causing the Assaye and Zenobia to roll very heavily, and it was not until the 30th that the latter vessel could attempt to coal. On the 30th, at daylight, the Amberwitch was moved nearer to the shore, and the shore end paid out from the boats to the shore and safely landed. The Amberwitch was then steamed out towards the Assaye, paying out cable as she went, and then hung stern to stern to the Assaye, which ship was three and a-half miles distant from the beach. One mile and a-half of shore end was then turned over on board the Amberwitch, and the next morning (the 1st of March) this was cut, and the end passed on board the Assaye, and joined on, by means of a taper and two splices, to the cable on board the Assaye, the whole of this one and a-half miles was then hauled on board the Assaye, and coiled down on the tops of the rest of the cable, and the bight let go from the Amberwitch at 4 p.m., thus leaving the Assaye with five miles of shore end spliced on to her main cable, and the end safely landed. This was the first case where the shore end of a section

about to be laid was paid out from the shore to the large ships, instead of *vice versa*. The necessary arrangements had then been made between Mr. Webb and Lieutenant Carpendale (the senior naval officer) Commander Bradshaw, R.N. (surveyor), Lieutenant Stiffe and Mr. Young (surveyor), as to the buoying of the course. The Amberwitch was to go on ahead and take up certain positions indicated on the chart, hoisting a blue ensign at the main when in position by day, and burning blue lights and exhibiting three fixed lights at night.

The hour of departure was arranged to be 4 p.m. of the 2nd, in order to make a dangerous rock near the course of the cable by daylight, but this was altered to 4 p.m. of the following day (the 3rd), on account of some operation to the land line which had to be performed on the shore.

On the 3rd, at 4 p.m., the Zenobia took the Assaye in tow, and at 5 p.m., paying out again commenced, the Amberwitch having started several hours before and gone on ahead to take up her position, No. 1. At about 10 p.m. the blue lights of the Amberwitch, in position No. 1, were sighted, and the Zenobia steered out towards her.

There was a good deal of swell on, and as the ships pitched the cable jerked as it generally does in shoal water when there is any sea on. A little after daylight Astola Island was sighted, and the Amberwitch took up position No. 2, which was passed about 8 a.m.

The Amberwitch, in position No. 3, was passed about noon, No. 4, about 4 p.m., and she was sighted taking up her position, No. 5, about 6.30. During all this time the paying out had proceeded beautifully, the cable sweeping grandly round the tall cone in the middle of the magnificent main coil of the Assaye.

And now came one of the most exciting incidents of the whole cruise. About 7 p.m., with very little warning, the ships were struck by a tremendous squall from the W.N.W., accompanied by rain, lightning, and a fearful quantity of fine sand, which enveloped everything in the most solid darkness. So intense was the obscurity, that although, from the Assaye being driven nearly on to the Zenobia, that ship was close under the bows of the Assaye, not a vestige of her lights could be perceived from the Assaye. Just before the total eclipse as the squall came, the message "Webb to Carpendale—Don't get blown into deep water," was sent, and then all signalling was at an end, and everything total darkness. Both ships "broached to," and headed in for the land in spite of their helms being hand up. The full force of the wind came on them thus right on the beam. The awning of the Assaye was caught underneath by the wind, and belling up in an arch nearly as high as the mizen top, carried away with a report like a gun, snapping all the stormy and heavy iron stanchions to which the ridge-chain was secured, carrying them up right over the paying-out gear, and dashing them down on the deck, but most fortunately without doing any injury to life or limb. The break was completely buried in the wreck, but was fortunately cleared without any rope or chain getting foul round the cable, or being carried into the revolving machinery, although for some time the ridge-chain was actually resting on the drum of the break, which was revolving at the rate of forty-five revolutions a minute, indicating that the ship was driving along at the rate of eight and a-half knots an hour, and the cable paying out at that rate. This was a pretty good test for the mechanical arrangements, which continued to act, however, as perfectly as if the ships had only been going three knots. The wind lessened a good deal by about 8 p.m., and it became possible to speak to the Zenobia by the telegraph lamps. The first question from the Zenobia was, "Have you cast off your hawsers?" and the answer, "No, and we don't intend to." The necessary arrangements were then telegraphed from Mr. Webb, in the Assaye, to Lieutenant Carpendale for rounding the ships to, head to wind, previous to buoying the end. The first blue light from the Assaye was to indicate, "Only one mile left in the ship," and the Zenobia was then to starboard her helm, and round the ships to, head to wind, so as to have the ships under command as to speed. The wind nearly all died away, however, by 10, and what little there was left had shifted to N.E., so that it required a very slight alteration of course to bring the ship's head to wind. When about half a mile only was left, the Zenobia was signalled to ease, and then stop, and the foresail of the Assaye was dropped, so as to check the way of the ships. When nearly entirely stopped, the breaks were lifted, and the break-wheel handed round by main force, so as to slacken the cable over the stern, and then the breaks were put down for a moment, and the stray-chain leading to the mushroom anchor bent on to the cable, and the anchor and buoy let go, another blue light announcing this to the Zenobia. The ship then had way given her once more, and when only a few turns were left in the hold, she was again eased, so that when she finally stopped, the end was close to the break. The stray-chain of the next

buoy was then attached to the cable, and the end, anchor, and buoy let go in succession, a rocket from the Assaye, at the same instant, announcing to the Zenobia that the end was safely buoyed. A flag buoy was then let go, as the Amberwitch, which was to have done this, had parted company with the other ships in the darkness during the squall.

Thus ended the laying of the Assaye's portion of the Guador and Currachee section, about 159.81 miles, leaving the end about twenty-seven miles eastward of Osmarro. The ships then steered for Osmarro, going slowly, in order to make the bay only at daylight; and the bay was entered at 8 a.m. of the 5th of May, by the Zenobia, Assaye, and Amberwitch. This was the rendezvous appointed for meeting the Semiramis, with the Cospatrik and the Sind, which ships were to bring stores from Kurrachee. The Sind arrived that same day, and during the day all spare pieces of cable were transhipped into the Amberwitch from the Assaye, and the machinery of the Assaye was pulled down, and struck below.

On the 7th the Semiramis arrived at 8.30 a.m., with the Cospatrik in tow, and that day was employed in preparing the latter vessel finally for the reception of men and stores, &c. On this evening another very sudden and heavy squall, with heavy rain, was experienced. On the 9th Mr. Webb, in the Amberwitch, proceeded to sea, to find the buoys on the end, it having been arranged that the Cospatrik should be brought out by the Zenobia on the following morning (the 10th), and anchored near the Amberwitch, so that the end of the submerged cable might be passed by the Amberwitch to the Cospatrik, and then spliced on to the cable in that ship. The flag-buoy and buoy on the bight, were found by the Amberwitch on the 9th, and the ships anchored near them; but the buoy on the end was gone. On the morning of the 10th the buoy on the bight was weighed, and the short piece between this point and the end buoyed and let go, and sufficient cable wound into the Amberwitch to veer and haul on. Meantime the Zenobia had brought out the Cospatrik, and that ship was anchored near the Amberwitch. The Amberwitch was then steamed up under the stern of the Cospatrik, paying out cable from her bow sheave as she went, and then hung by a hawser to the Cospatrik. The end was then passed in at the stern and sheave of the Cospatrik, and the Amberwitch cast off. The joint was then attempted, but the same difficulty which has been alluded to before, as having occurred when attempting to make the joint during the repairing expedition, was here experienced, and it was found impossible to make a joint. The end was accordingly passed back to the Amberwitch, as "picking up" cable was commenced at 8.30 p.m., in the hope of finding some place where the gutta-percha was more docile. At 10 p.m., the Amberwitch was anchored, and picking up resumed the next morning at daylight, until 11 p.m. of the 11th, when ten miles having been picked up, and the cable cut every half mile, without any success, a consultation was held, when Mr. Laws suggested the following plan for overcoming the difficulties, which was employed with success. It was evident that the air which forced the warm gutta-percha into bubbles came from whatever minute spaces existed between the copper and gutta-percha, and that the air was forced up by the hydrostatic pressure, acting on the submerged gutta-percha. If, therefore, the core could be choked or strangled, as it were, close to the part to be joined, so as to confine the air within the cable, the difficulty would be overcome. The plan proposed by Mr. Laws was to put two grooved clasps of wood round the core, and by binding them tightly together so as to squeeze the gutta-percha tightly against the copper conductor for a space of four or five inches. The plan was tried, and answered perfectly, and an experimental joint was made to test it. The next morning (the 12th) some more cable was wound in the Amberwitch to veer and haul by, and the Cospatrik was anchored on the starboard beam, and the end once more passed on board the Cospatrik. A joint was then begun according to Mr. Laws' plan, and accomplished without any difficulty. The splice was then commenced, and at 4 p.m., all being ready, the Zenobia anchored ahead of the Cospatrik, and passed hawsers. At 5 p.m. the ships got under weigh, and paying out commenced again. This proceeded throughout the night of the 12th, the ship going over the ground, when the tide was with her, at the rate of 6.27 knots an hour, the Amberwitch keeping ahead and on the bow of the Zenobia, and sounding constantly, and signalling to the Zenobia the depth. About 8 a.m. of the 13th nearly all the main cable available in the Cospatrik (eighty-six miles) was expended, and the necessary arrangements for rounding to and buoying the end telegraphed from the Cospatrik to the Zenobia. At 9 a.m., all but about a mile being expended, the Zenobia was rounded to head to wind, which was from the westward. The foresail of the Cospatrik was then dropped, and thus the vessel was completely under command. The bight was first buoyed, and then the end buoyed and let go, about ten miles from

the landing-place at Cape Moiree. About this time the Sind arrived from Currachee, having on board Sir C. Bright, who had, with Colonel Stewart, arrived at Kurrachee from Bagdad in the Coromandel the day before. The Zenobia then cast off the Cospatrik, which ship was then taken in tow by the Sind, and towed to Kurrachee; Sir C. Bright, Mr. Laws, Mr. Webb, and Mr. Woods, taking passage in the Amberwitch, to complete the section by landing the shore end, and paying out cable to the end just buoyed. The Zenobia and Amberwitch then steamed to Cherna Island (an island a few miles from the proposed landing-place), and anchored under the lee of the island for the night, and during the night the shore end was coiled from the Amberwitch into the paddle-box boats.

On the morning of the 14th the Amberwitch was taken opposite the landing-place, and anchored. A good bit of swell rolled into the bay, and the wind being from the westward, made the beach where the end was to be landed a dead lee shore.

The two paddle-box boats, filled as usual with cable, and towed by a cutter, started about 9 a.m. for the beach, paying out cable as they went. The swell at the entrance to the bay was considerable, and threatened every minute to dash the paddle-box boats against one another. This was only prevented by holding on to the telegraph cable, by the stoppers at each "send," and then slacking away at the proper instant. At last one boat was emptied and cast off, and the other was soon afterwards beached and the end safely landed.

With some difficulty all the boats were got back safe to the ships. The Amberwitch was then got under way, and paid out cable for four miles out, and then anchored to finish splicing up some more cable, which it was thought would be required to reach the buoys on the end buoyed from the Cospatrik.

On the 18th, at 7 a.m., paying out towards the buoys was resumed from the Amberwitch.

When the buoys were reached, the Amberwitch was anchored, and the cable passed forward, and in at the bow and heave. The ship was then again got under way, and the buoy on the sea end picked up, and the end brought on board. The final splice of all was then commenced and let go at 4 p.m., thus completing, for the present, the Persian Gulf Telegraph Cable.

On the 16th the Amberwitch came into Kurrachee. On the 17th a dinner was given on board the Cospatrik, at which were present Sir C. Bright, Colonel Pelly, Captain Stewart, Commander Bradshaw, R.N., Lieutenant Carpendale and lady, Lieutenant Stiffe and lady, Captain Elmslie and lady, Mr. Young, Dr. Adair, Mr. F. C. Webb, Mr. Brasher, Mr. Alexander, and many others. Col. Stewart, having unfortunately a previous engagement, was unable to be present, and Mr. Laws, Mr. Lambert, and Mr. Woods were also unfortunately absent.

On the 18th Colonel Stewart, Sir C. Bright, Mr. Laws, and Mr. F. C. Webb, and the rest of Sir C. Bright's staff, started in the Coromandel for Bombay, where they arrived on the evening of the 20th.

On the 24th, Sir C. Bright, Mr. Laws, and the rest of Sir C. Bright's staff, excepting Mr. F. C. Webb, started for England. The latter gentleman remains on the part of the Government, in engineering charge of the line until June, 1868, and during that time it is proposed to lay a very heavy double wire shore-end cable off Bushire instead of the present separate single cable, and it is possible that the station at Mussendum may have to be shifted to some other locality, as it is feared that the extreme heat of Mussendum will be too much for the clerks employed. Colonel Stewart left by the mail on the 24th June for Constantinople. The Cospatrik discharged all her cargo of miscellaneous cable, consisting of the Bushire heavy shore-end, and various pieces of ordinary shore-end, main cable and experimental cable into the tank built for that purpose at Kurrachee, and arrived under sail at Kurrachee on the 16th of June, and is now the only vessel of the five sailing ships that has not been yet discharged from Government employ. The Assaye having gone out of dry dock on the 5th, and discharged from Government employ on the 6th. The Amberwitch is still at Bombay, but will shortly return to Kurrachee.

The Persian Gulf cable was commenced in Feb., 1863, and the whole work has, therefore, lasted about sixteen months.

Nothing could be more satisfactory than the way all the arrangements for laying the cable have succeeded, and in giving credit to those who have had the management of it, it should be borne in mind that no very long cables have before been successfully laid from sailing vessels in tow, although several times before the operation has been attempted; and many who are supposed to be the very best judges in such matters prophesied utter failure.

The whole work was carried out by the Government, through Colonel Stewart and the civil engineers, Messrs. Bright and Clark, and naval officers appointed by him, without letting the laying of the cable by con-

tract to large contractors, and thus the large premiums which would have been paid to contractors for taking the risk of laying has been saved, at the expense of a few thousand pounds to a firm of civil engineers, who provided the whole of the staff for testing the core and superintending and testing the cable during manufacture, designing the machinery, fitting out the ships, coiling the cable on board, and finally laying it. But in addition to the actual saving to the Government, the work, there can be no doubt, has been done in a much more satisfactory manner, as regards its permanence, than if it had been done by contract, in which case the saving of expense to the contractors is the principle that rules the whole proceedings.

It was also remarked by all those who, as engineers or electricians, have often been engaged before on large works of this description let by contract where the ships and all are under the contractor, that there was, during the whole work, an entire absence of all those annoying party feelings and business quarrels which have invariably taken place on the previous expeditions, where the contractors' electricians have been at loggerheads with the Government or company's electricians, and both sets of electricians have been perpetually sneering at the engineers, and *vice versa*, while the contractor himself, setting all Government engineers and electricians at defiance, and being in his own ships, and consequently, as it were, on his own territory, manages to make everybody in general tolerably miserable and uncomfortable.

On the Persian Gulf expedition none of these disagreeables were experienced, and as all, including naval and military officers, civil engineers, and electricians pulled together with only one interest, viz., the success of the work, and acting as they did under the authority of an officer at once skilled, courteous, considerate, and patient, the whole work, though quite as arduous as any other, was rendered so free from the annoyances common to most previous expeditions that, few we think, will remember the time they were employed on the Persian Gulf cable expedition with feeling but that of pleasure.

#### MONUMENTS, STATUES, ETC.

The new statue to the celebrated philosopher, Immanuel Kant, has been erected in Königsberg.

Mr. R. A. Kinglake has commissioned Mr. Papworth to execute a bust of Captain Speke for the Shire-hall, Taunton.

Steps have been taken for the completion of the subscription to the Manchester memorial to the Prince Consort by means of a voluntary rating of the inhabitants to the extent of a penny in the pound on their assessment to the poor-rates.

No monument that we are aware of had ever been erected to the memory of a pig. The town of Luneburg, in Hanover, has wished to fill up that blank, and at the Hôtel de Ville in that town there is to be seen a kind of mausoleum to the memory of a member of the swinish race. In the interior of that commemorative structure is to be seen a glass case, inclosing a ham still in good preservation. A slab of black marble attracts the eye of visitors, who find thereon the following inscription in Latin, engraved in letters of gold:—"Passer-by, contemplate here the mortal remains of the pig which acquired for itself imperishable glory by the discovery of the salt springs of Luneburg."

The cabmen of Edinburgh are about to erect a memorial to the late Miss Catherine Sinclair. A subscription list has been opened.

It is proposed (says the *Albion*) to subscribe for the erection of a statue to Mr. Gladstone, as a permanent recognition by the men of Liverpool, apart from all political complexion, of the great services he has rendered to the town and to the country.

A monument to the late Lord Massereene is shortly to be erected in Antrim Church. This memorial is at present in the studio of the sculptor, Mr. Kirk, R.H.A., and will soon be completed. It is in the mediæval style of sculpture. The deceased nobleman is represented in a recumbent position upon a couch which lies within a canopy, on the front of which are engraved the escutcheons of the family. The memorial will be placed against one of the walls of the church. The material is Caen stone.

THE CLARE MONUMENT TO O'CONNELL.—The *Munster News* says:—"We believe the controversy is at an end. A sum of £200 having been recently tendered to Mr. Cahill, and refused, the gentlemen engaged in the proposed arrangement have entered into conditions with Mr. Farrell for the production of a statue of the Liberator, which, six months hence, will complete the noble column in Ennis. It will be nine feet in height, and the material of Portland stone."

It is resolved by the tenantry on the Powerscourt estates to collect, by subscriptions, upwards of £800, to have full-length portraits of Lord and Lady Powerscourt executed by some eminent Irish artist. A more graceful or appropriate presentation could not well be made to his lordship.

## Books Received.

*The Art Student, an Illustrated Monthly Magazine of the Fine and Industrial Arts, and Guide to their Principles and Practice.* London: Hall, Smart, and Allen, Paternoster-row, Dublin: M'Glashan and Gill. Edinburgh: Menzies. Glasgow: Murray and Son. September and October, 1864.

THE *Art Student*, the ninth and tenth numbers of which are before us, has not remained so long unnoticed and unacknowledged by us because we appreciated it little, but, inasmuch as we appreciated it so highly, that we considered it worthy of something more than a mere passing acknowledgment. If there is one subject more than another which everyone wishes to dip into, one topic which the professional conversationalist likes to ventilate over the dinner-table as a safe one, and likely to look impressive in the eyes of the vulgar, it is Art gossip. A visit to the Exhibition of the Royal Academy, and a dip into one or two of the reviews for opinions thereon, is invaluable capital to such a man from May-day to May-day. To him a number of this magazine would be well worth a golden sovereign, instead of the moderate silver sixpence for which it is to be had—an unexhaustible mine of Art chit-chat,—but we are doing it a gross injustice in even insinuating that it is meant only for such readers as this. It is impossible to speak too highly of the painstaking, honestly laborious manner in which each number is made up; the papers of which it is composed are of a thoroughly good stamp and original, and the painter, sculptor, architect, engraver, and photographer are all treated with even-handed justice in the rations of food provided for them. To the architect, as a matter of course, the sayings and doings of all the arts are of interest, but he will find that this modestly-entitled magazine is no less an organ of his profession than it is of the others above mentioned.

We, students in the school of architecture, naturally attempt to carry our heads high, and speak with becoming dignity of “our art” as one in comparison with which all others “pall their ineffectual fires,” and a very laudable and becoming endeavour we think too, but we may as well acknowledge the truth so far as we are personally concerned,—it is with a feeling of no small satisfaction and pride we find our profession in such good company as it is in the *Art Student* among the painters and sculptors, and treated as of the fraternity as we should ever be, not, it is a melancholy truth, as we deserve to be from our past conduct. In all the past evil days of mannerism and false taste, from which we are now emerging, painting, sculpture, and music managed somehow to keep some spark of the true fire of art burning here and there on all but uncared-for altars; but architecture—poor architecture—went most astray, and wandered, prodigal-like, into strange countries, without even such apologies and extenuation on its side as youth and foolishness would furnish, for it had grown very old, very imbecile, and very feeble. But art is undying, and we have lived to see architecture, with its youth renewed and once more in its infancy of regeneration, striving to be worthy of its place as a fine art, and we once more joyfully join hands with the fraternity of art. True it is that we must present to the public another aspect—a business-like one—and we are occasionally told our position is an anomalous one. We at once deny it. It is not, we hope, incompatible with the pursuit of art to have habits of business and some practical tendencies—what we want is to separate them; let us search our *Builder* or *Building News* for information of a practically technical character, but if we wish to remember that we are artists, let us take up the *Art Student*.

The illustrations of the two numbers under notice are good. Photography is taken advantage of to the fullest extent, and the illustrations of life studies carefully engraved from photographs are exceedingly useful, as correcting errors common among artists in truth of drawing. The illustration in the No. for October, a photograph of a fine athletic model arranged and posed as a “Study of St. Sebastian,” is very good and spirited. There are some practical lessons in photography appearing monthly in a continuous series, calculated to be of great advantage to an amateur. The remarks and letters on architectural matters are full of interest and common sense, particularly one on competitions, which contains some sensible well-expressed opinions. The weekly proceedings of a society, rejoicing in the name of the “Art Quibblers,” are both entertaining and interesting. It seems, after talking of the *Art Student*, an absurdly abrupt and eccentric proceeding to direct our attention to

*The Grocer,*

A weekly periodical—our readers may naturally ask what have we to do with such a paper—well,

we are asked to notice it. We do so cheerfully if it can be the slightest advantage to introduce it to architects and builders. Some may take a keen interest in the market prices of groceries both edible and drinkable, particularly the last; and let no one suppose that “groceries” are a subject undignified by great associations. Tea, for instance, lost Great Britain her greatest colony, and involved her in a war in which she came off but second best for the first time almost in her history, and many who think of the great increase in the importation of this now essential article of consumption, and the inverse fall in its price, will remember the days of the *Spectator*, and Steele mollifying his wife by the gift of a pound of the unenebriating “raw material,” then a gift more costly than a costly brooch or bracelet fresh from the jeweller’s shop. By the way, there is a short article on “barter” in the number before us concerning a gentleman who proposed to pay for his advertisement in the paper in Yarmouth bloaters, which is worthy of *Punch*.

The information on trade subjects appears to be most complete, and is certainly very copious; but we admit that we don’t thoroughly comprehend this part of the business, and we will be excused, after so candid a confession, from saying more on the subject.

## Railway Intelligence.

ENNISKILLEN, BUNDORAN, AND SLIGO.—The following is the directors’ report presented at the seventh half-yearly ordinary meeting of this company, on the 26th ult.—The directors, with great satisfaction, inform the shareholders that, under the energetic action of Messrs. Brassey and Field, their line is in rapid progress. Mr. Field, on a late visit, having expressed his confidence in being able to open the line to Bundoran early in the ensuing summer, the necessary additional plant, a large quantity, is being rapidly transferred to the works. The agreement of this company with the directors of the Irish North-Western Company for the haulage of the line, entered into at the formation of the project and upon the faith of which your directors have relied in all their negotiations, will be immediately brought before the proprietary for ratification, and your directors feel confident that in the spirit of commercial rectitude the act of their board will be confirmed. The directors, alive to the great want of hotel and house accommodation at Bundoran, are happy to say that the chairman has given a site for an hotel, that the plans are in the hands of an eminent architect, and a considerable sum subscribed. The tourists’ requirements will also be provided for by an hotel on the west banks of Lough Erne. The directors have under their consideration the immediate necessity for action in case of the extension to Sligo, and have taken measures to keep alive the powers under their act. Lord Palmerston, instantly appreciating the vast benefit to the district, and *bona fide* nature of the undertaking, has given more than nine miles of the land, as well as a large pecuniary subscription; and your directors have received the support of other proprietors, thus enabling your directors to promise an easy contract for this necessary and important portion of our project. In accordance with the company’s acts, the following directors retire by rotation, but are eligible for re-election. The Rev. George N. Tredennick, Lonsdale Bradley, Esq.; John Elliott, Esq. The retiring auditor, J. B. Kennedy, is also eligible for re-election. The directors refer the shareholders for further information to the engineer’s report and the accompanying statement of accounts. *Engineer’s Report*—I have now the pleasure of reporting that the works between Irvinestown Junction and Bundoran are throughout in active progress. Messrs. Brassey and Field, the new contractors, have been making considerable additions to the working plant on the line, and are fully prepared to complete the contract within the specified time. The rails and sleepers being already on the ground, and the whole of the land being, I believe, now in hand, I think there can be no more apprehension of any difficulty that could interpose in the completion of this portion of your undertaking. The station buildings have not yet been provided for, but there will, I trust, be sufficient means found to execute them on an economical scale. With regard to the extension from Bundoran to Sligo it is necessary that something should be done soon, as the power to take land will expire next autumn, unless the plans and valuations, notices, &c., are previously deposited and published. If other landholders on this extension would follow the liberal example of Lord Palmerston, who gives nine miles of the land free, there would be a good chance of making a contract for the works at once, but otherwise, I can only advise in the present times that the powers of the company be kept alive, and that a more favourable opportunity of

carrying out this extension (22 miles in length) be patiently waited for.

KILKENNY JUNCTION.—The trial trip over the line from Kilkenny to Abbeyleix took place on Monday, the 17th ult., and was most satisfactory. It had been only intended that the company’s engineers should make the trip with the contractor, Mr. Oughterson, for their own information and satisfaction, no train having previously run the entire way; but as the directors wished to be present, matters were arranged to accommodate them. The Waterford directors and officers arrived by special train from Waterford in the forenoon, bringing with them the special carriage of the directors of the Waterford and Limerick Railway Company, which was admirably suited for the occasion. The journey over the 19 miles to Abbeyleix occupied an hour, owing to the occasional stops to make inspections of the works finished or in progress; and the few miles of the line through the bog near Abbeyleix was a particular point of interest. The opinion given by the engineers was that as soon as it becomes consolidated by a little traffic, this portion of the line, supposed to present the greatest difficulties, will be the best and most satisfactory of all.

MIDLAND GREAT WESTERN.—The adjourned special meeting of the shareholders of this company was held on the 20th ult. John Ennis, Esq., M.P., in the chair. The object of the meeting was to take into consideration the deed of agreement entered into by the chairman of the company, Mr. Boyd, deputy-chairman, and Sir Percy Nugent, on the 18th of June, 1858, with Sir Thomas Burke, Mr. Gregory, M.P., and Lord Dunkellin. The chairman entered at length into the consideration of the question, and explained that the only issue before the meeting was the adoption or rejection of the agreement. He stated that, in entering into it, he and the other gentlemen were solely actuated by a desire to benefit the company, and he denied that the agreement had been purposely concealed from the shareholders. Lord Clonbrock addressed the meeting at considerable length, charging the board with want of faith in refusing to complete the agreement which they had made with the Galway gentlemen. Mr. M’Evoy Gartlan proposed a resolution, which declared that the shareholders refused to ratify “the alleged agreement,” it having been entered into by Mr. Ennis and the other two directors on their own responsibility, and without the sanction of the company or the board. The Hon. Captain Gough proposed an amendment, which, while repudiating the agreement, censured the conduct of the directors, and called on them to resign. The chairman declined to put the amendment, and, after a lengthened discussion, the resolution of Mr. Gartlan was put, and declared carried. The Hon. Captain Gough demanded a poll, and, scrutineers having been appointed, the meeting was adjourned to Thursday last, for the purpose of receiving the votes of the shareholders. At this meeting Mr. Gartlan’s resolution was defeated by a majority of 2,689, and after a prolonged and stormy discussion, a further adjournment until that day fortnight was carried.—*Express*.

## ENGLISH NEWS.

His Royal Highness the Duke of Cambridge has opened the new buildings, just completed at Dalston, for the German Hospital. The structure has been erected upon the grounds of the old building at Dalston, and is in the Elizabethan style of architecture, and capable of receiving upwards of 200 in-patients, together with accident wards and out-patients’ departments. The building also contains a very commodious chapel, the beauty of which is greatly enhanced by a stained glass window by Messrs. Baillie. The approaches to the hospital are very well arranged, and a lodge of a neat style of architecture adorns the entrance. The entire cost was about £16,000.

It is expected extensive works will shortly be commenced at the Stack, Milford, in order to render that rock a valuable addition to the defences of the Pembroke-shire coast.

In addition to the renovation and beautifying the interior of the Temple Church, which has just been completed, the benches of the Inner Temple are making great improvements; the interior and exterior of the hall and library are being re-decorated, and the first-named building ventilated on an improved principle. An immense stack of buildings, faced with white stone, has been erected on the vacant ground beyond Crown-office-row, facing the Temple-gardens and Fig-tree-court. The buildings are very extensive, and are intended for chambers; there are three entrances from Crown-office-row.—*City Press*.

The new railway bridge at Blackfriars is almost completed. It consists of four lines of railway; those on the west side are finished, the others are laid, though the filling is not quite so far advanced. Messrs. Kennard Brothers, of Crumlin Ironworks, near Newport, Monmouthshire, were the contractors, and Mr.

Friend French the practical engineer. The bridge is 939ft. long, 56ft. wide, and the lattice girders at the sides and along the centre are 15ft. high. The total weight of the iron in this portion of the bridge alone is 3,000 tons, and the exact number of rivets fixed in it is 603,682. Three hundred men and boys have been constantly employed on it from the 29th of January last to the last day of September,—a few days before the time allowed by the contract. A new feature on this bridge, when altogether finished, will be that along the tops of the cross elliptical braces on both sides of the railway 20 lines of telegraphic wire on each side will be fixed, making 40 in the width of 56ft., thus making a kind of curve overhead, which will have a very pretty and unique appearance.

The new road from the Houses of Parliament to Buckingham Palace, along the Birdcage-walk, now in course of formation under the direction of the Commissioners of Woods and Forests, is advancing rapidly towards completion. The portion set apart for a carriage thoroughfare, to be added to the old causeway, is already finished, and on Monday last was rendered accessible to the passage of vehicles. The other alley, under the shade of the trees, reserved for the use of equestrians, is in a very forward state of preparation. The stonework for the fixing of the iron fence is laid throughout the length of the route, and a considerable extent of rails has been placed in position.

An extensive system of sewerage it about to be carried out at Whitehaven, at a cost of thirty thousand pounds.

A writer in the *Builder* suggests the formation of a Builders' and Contractors' Bond or Guarantee Company, as being highly remunerative to the shareholders and a boon to the building world, as enabling the honest and independent contractor to secure a guarantee by the payment of a small premium, and thus free himself from obligation to his merchant, to whom he may have to pay a higher rate.

A new theatre, the property of a public company, to be called "the Prince's Theatre," has just been built in Manchester. The area is 840 square yards, with a frontage of 60ft. The style of the façade is Italian, freely treated. On the ground floor, in the centre, a triple arch gives access to a vestibule, 18ft. by 11ft., where a wide stone staircase leads to the dress circle. The principal dimensions of the interior are: from the front of the dress circle to the curtain line, 39ft.; from the footlights to the back of the stage, 56ft.; the greatest breadth of the pit is 54ft.; and the proscenium is 25ft. wide, by 24ft. high. The capacities of the several parts of the building are: dress circle, 250 seats, with standing room behind for 120; private boxes, 32; pit, 470; pit boxes, 16; stalls, 38; amphitheatre stalls, 130; gallery, 600; total, 1,656. The style of ornament adopted is the Nes-Grec. The proscenium is framed in gold relieved with black, and there is a handsome cornice above. The ceiling consists of twelve panels, radiating from a ventilating shaft, 8ft. in diameter, from which the sunlight is suspended. Each panel will have a head painted in white on a maroon ground, and an ornamental design. The fronts of the circles are decorated with a delicate light pink and grey ground, relieved with maroon and festoons in gold, beneath the loops of which are shields adorned with classic heads. The arrangement of the interior is such as to make it appear larger than it is. The front of the upper tier retires, and the building thus seems to widen from the floor of the pit upward. The building has been erected under the superintendence of Mr. Salamons, architect. Contractors, Messrs. Metcalfe and Waterson, Strangeways; for the gas-fittings, Mr. R. Heyworth, Faulkner-street; for the ornament in relief, Mr. Parby, Rathbone-place, London; for the painting, including the decorative work, Messrs. Ward and Harwood, Strangeways; for the gilding, Mr. Heap, Ray-street, Ardwick; for the seats and upholstery, Mr. Lyon, King-street, Holborn, London.

At a late meeting of the Bristol Society of Architects and Builders, the following resolution was unanimously passed:—"That this Society, having understood that it is the practice of many builders in Bristol, Bath, and adjoining towns, to prepare plans and give estimates to their employer thereupon, to the prejudice of properly qualified practitioners, and the respectable class of builders, thinks it necessary, in order to stop such mischievous practices, to discountenance such builders, and will consider it derogatory to the professional character of any of its members who, after the name of any such builder shall have been laid before the council, employs, or allows to be employed, such builder upon their works."

A writer in the *Builder* suggests the revival of the old custom of having seats on bridges, where an aged or delicate person might sit down, or a porter rest his load.

M. Winterhalter, the painter, is at Vienna, for the purpose of taking a portrait of the Empress of Austria.

## CHURCH BUILDING, IRELAND.

The contract for building the District Church at Clooney, Waterside, near Derry, has been taken by Mr. Alexander M'Elwee. The design is by Messrs. Lanyon, Lynn and Lanyon, and is to accommodate 450 persons. The Ecclesiastical Commissioners have granted £3,000, and the remainder is to be made up by donations.

A church, to cost about £7,000, is to be built on the Crumlin-road, Belfast; and a plot of ground at the corner of West-street and Millfield has been taken, on which to build an episcopal chapel of ease.

## ROMAN CATHOLIC CHURCH BUILDING IRELAND.

The new church and cemetery at Killeavy, Co. Armagh, were consecrated on Sunday, the 23rd ult.

Lord George Quin has given additional ground to the chapel-yard, at Cratloe, Co. Clare, in order to afford room for the enlargement of the chancel.

Lord Clermont has granted off a site (free) for a parochial house, and will subscribe largely towards its erection, for the newly appointed parish priest of Ravensdale, Rev. Mr. Hughes.

## CHURCH BUILDING, ENGLAND.

Plans have been approved for building in the extreme east of London, in the vicinity of the East India Docks, a church to contain 1,300 persons, all the seats being free, at a cost of £7,000, and a parsonage to be built at a further cost of £1,500.

The foundation-stone of the church of the Holy Trinity, Louth, has been laid by the Rev. F. F. Goe. The parish church of St. Breward, has been reopened by the Archdeacon of Cornwall.

The new chapel at King's College, London, a very handsome structure in the Byzantine style, after the design by Mr. George Gilbert Scott, is completed.

It is with the greatest regret we learn that the ancient church of Selsey, Sussex, is to be demolished because, as alleged, it is two miles from the congregation. It is a thirteenth century church, and remarkable for containing stone benches round the nave of the church.

The parish church of Great Whisford has been reopened by the Bishop of Salisbury, after a complete restoration by Mr. T. H. Wyatt, principally at the expense of the Pembroke family. The altar-table, which is of oak, was the gift of the Bishop of Salisbury. In the centre north aisle is a three light window, the gift of Lady Herbert.

On Monday the Bishop of Lincoln consecrated two new churches at Nottingham, one dedicated to St. Saviour, and the other to St. Anne. The first-named church, which was consecrated in the morning, was built from designs by Mr. R. C. Sutton. It consists of nave, aisles, and chancel, and the proportions are very good. It will seat 731 persons, but is said only to have cost £3,100.

Winchester Cathedral which claims to be the longest cathedral in England, has just been accurately measured by Mr. Colson, F.R.I.B.A., who states that on the outside, from east to west, it measured 555ft. 8in. But St. Albans Abbey Church refuses to allow Winchester this precedence, and claims on the authority of the *Encyclopædia Britannica* to be 556ft. long—only, however, 4in. more than Winchester.

## FINE ARTS.

A handsome tankard has been manufactured at Coventry by the Skidmore Art-Manufactures Company for the Duke of St. Albans, who intends to give it as a prize to be competed for annually by the Nottingham (Robin Hood) Rifle Corps, of which his Grace is the honorary colonel. In this example of art-workmanship Mr. Skidmore has departed from the ordinary character of such designs, and boldly produced, avoiding mere "prettiness," a grand and massive effect. The body of the tankard is of iron, lined with silver. Externally it is decorated with massive ornaments of silver and gilt bronze, which are saw-pierced, enamelled, set with precious stones, and elaborately engraved. Filigree is also used to enrich the gilt bronze surroundings and setting of the precious stones. The domelike cover is surmounted by a noble crystal, and crystals likewise adorn the base, as well as the handle, the grip of which is formed of ivory, inlaid and braced with ferrules of silver, on which the names of the successful competitors in the annual contests will be engraved. Taken as a whole, the effect produced is rich, massive, and satisfactory, the variety of decorations and colours enhancing its beauty. It may be remarked that in this work all the ancient and modern methods of working metals and their ornamentation are exemplified and united.

A New York photographer has published a portrait of President Lincoln, which is likely to prove acceptable to all parties. At first glance it appears to be a photograph of "Old Abe," taken when he had the small-pox a few months ago, but on closer inspection the seeming pustules are found to be minute photographic likenesses of distinguished generals, statesmen, politicians, literary men, actors, actresses, &c. The likenesses, which are scattered all over the physiognomy of Old Abe, number 400 and upwards, and comprise men of all parties and professions, and are so exceedingly well executed as to be at once recognised. Though there are many good-looking men and women among the likenesses, yet taken altogether, they constitute as ugly a picture of Old Abe as any of the others that have been published.

The colossal bronze statue of Young Hercules, recently discovered at Rome, has, says the *Reader*, been completely exhumed. The workmanship is evidently of the best period, and not, as has been surmised by Signor Pincellotti, of the end of the third century. Signor Pincellotti would have us look upon the statue as that of the Emperor Maximian—Maximianus Hercules—but the entire absence of the coarse Dacian features of that Emperor does not seem to warrant the conjecture.

## PUBLIC AND PRIVATE WORKS.

The Public Works Loan Commissioners have agreed to lend £25,000 to the Waterford Harbour Board, or so much of that amount as may prove requisite for the purpose of improving the River Suir, two miles below Waterford. The loan is to be made at 3½ per cent. interest, and is to be repaid in eighty half-yearly instalments. John Coode, Esq., the engineer-in-chief of the Portland Breakwater, is the party by whom the improvement is designed, the main feature of which is the deepening of about a mile of channel, from seven to thirteen feet at low water of spring tides. The Harbour Board give the use of their dredge-vessel and plant for the purpose, and will make payments to the contractor as the work proceeds.

The Catholic Cemeteries Committee offer premiums of £10 and £5 for designs for a monument to the late Dr. Yore. The cost not to exceed £250.

The directors of the Bank of Ireland purpose opening branch banks at Portadown, Ballinrobe, and Banbridge.

The Coleraine Building and Investment Society is in full operation. At the last meeting grants were made to build some workmen's houses.

The Bray pier project is likely to be shortly carried out. Legal steps are being taken with a view to the transfer of the Act obtained in the matter, to the hands of gentlemen of the locality, who are prepared to subscribe the required capital (about £5,000). The pier is to be composed of screw piles of the best and newest principle, extending 900ft. out into deep water from the Esplanade. The formation of a small harbour at the mouth of Bray River will not be the less necessary because of the erection of the projected pier.

## Correspondence.

### ETIQUETTE IN THE ARCHITECTURAL PROFESSION.

TO THE EDITOR OF THE DUBLIN BUILDER.

SIR,—An architect of eminence has taken it into his head that he should have had the designing of a house that I am getting built; and in order to show his displeasure at the very culpable course my client adopted in getting me to design his building, his eminence (as perhaps I should call him) never loses an opportunity of earwigging and badgering him through friends and acquaintances. Now, Sir, to me personally this is, perhaps, of as much importance as a certain baronet's "three rows of pins;" but I can assure you it is otherwise with regard to the profession to which I belong—the lowering influence that such a course must have on the whole body when adopted by those from whom it should not be expected, is one amongst the many things that leave the architect in this country in that doubtful position amongst other professions that he should never have occupied. Just imagine a lawyer or doctor at the very top of his profession adopting such a course; why, Sir, he would be scouted by every member of his calling. I should not have gone into print with my complaint, but that this conduct has pertinaciously been persisted in by the party I allude to, and, if continued, shall only oblige me to lay the names before the whole profession in your columns, as my client has stated to me it is "not commonly decent, much less being unprofessional."—Yours, &c.

AN ARCHITECT.

I enclose my card.

## General Items.

A working man, an exhibitor at the North London Exhibition, writes to the *Star* to say that he is exhibiting a cabinet, fitted with drawers and doors, the whole secured with one lock; and concludes by challenging the Davenport Brothers not merely to find out the mode of opening the cabinet, but even the key hole.

In a paper addressed to the French Academy of Sciences, M. de Luca adverts to the process successfully adopted at Pompeii for obtaining casts of the persons who lost their lives at the time of the eruption which caused the destruction of that city. We will merely remind our readers that as that eruption consisted of stones and ashes, the fugitives, after falling down in a state of suffocation, were covered by the ashes, which settled on all the minutest folds of their garments and every part of their body. This coating of ashes hardened in course of time, and the flesh wasting away under it, left a hollow mould, into which the explorers of the present day, when they are fortunate enough to discover it in time, pour liquid plaster, and thus obtain an exact cast of the body. The number of casts thus taken is four, and M. de Luca has presented the academy with their reductions in plaster, executed by a clever artist employed at Pompeii.

It has been stated that in consequence of the heavy taxation in Dublin no fewer than 500 dwelling-houses are vacant at the north side of the city alone, involving a loss of over £3,880 to the rates.

A volume is in preparation by a photographer, containing photographs of the monuments and mural tablets in the churches of Dublin and its vicinity.

An influential meeting of the merchants, mill-owners, and ratepayers of Belfast has been held for the purpose of taking measures to provide an abundant supply of water for the town. The movement was initiated with the approval of the present Water Committee, one of whom attended and urged the necessity of obtaining a supply to meet the increasing wants of the locality. He mentioned a fact which shows the rate at which the town is progressing—namely, that, by the 1st January next, 4,000 new houses will have been added to it. The supply may be obtained from three different sources. A bill is to be introduced by the Commissioners in the next session of Parliament, with Messrs. Bateman, C.E., and Lanyon, C.E., engineers. Resolutions favourable to the project were adopted.—*Express*.

A similar subject has occupied the attention of the Kingstown and also of the Bray Town Commissioners. At a meeting of the latter the appointment of a committee to take into consideration the very important question of the water supply to the district was decided upon.

Belfast is also considering the question of new markets, and we should say not an hour too soon. Any one who has visited Belfast must be struck with the miserable market arrangements in existence there, a disgrace to such a thriving populous town.

The port of Calais is about to be considerably enlarged, and the landing quay increased from 590 to 1,220 yards in length.

Pittsburg has 46 foundries, consuming 46,000 tons of metal annually, and paying £1,000,000 wages annually.

During a late thunderstorm the lightning struck the tower of St. Mary's Church, Taunton, wrenched off one of the pinnacles, scattering the fragments in all directions, and inflicting much injury on the upper portion of the building; it next descended several feet along the southern side of the tower, and branching off, carried a portion of the side work right into the square below. Fortunately the crowd of people who are usually congregated in the neighbourhood of the post-office, which just adjoins the church, escaped injury. The damage inflicted on the tower is of a very serious extent, which is the more to be regretted as it is one of the finest late perpendicular towers in England, and had only been very recently rebuilt.

Tenders are required for the erection of a day-room at the North Dublin Union Workhouse.

The Drogheda Waterworks Company invite tenders for the supply of cast-iron pipes.

## Miscellaneous.

**LINEN AND COTTON FACTORY AT PORTLAW.**—At the factory at Mayfield, Portlaw, some additional rooms are being constructed, with a view to render this noble establishment still more perfect in its way. It now combines the manufacture of both linen and cotton in its various stages, from the reception of the raw material to the exportation of the finished cloth.

The Messrs. Malcomson's auxiliary linen factory at Carrick-on-Suir, also being enlarged for spinning purposes, was last week lighted for the first time with gas manufactured on the premises. Their extensive spinning mill in Belfast, covering seven acres of ground, commenced working last week.

**NEW METHOD OF HANGING DOORS.**—Mr. George Fawcett, of North Shields, with a view to obviate the accidents that are liable to happen in the opening and shutting of doors fitted as at present, proposes to form a groove (a segment of a quarter circle) on the back of the door, making it revolve round the shaft of a pillar tube, or circular moulding, fitted to the door frame. The ordinary butt or other hinges fitted at the back of the door are to be replaced by pivot points, plates, and screws, bands or crooks, at the top and bottom of the door, the combination acting like a rule joint, and so presenting no opening at the back, in whatever position the door is placed. The doors may also be hung in the centre of the side frame, and so present the same appearance of door and frame on both sides.

The *Clerical Journal*, April 23, 1861, says, "Mr. Benson's argentine can be manufactured in every description of service or ornament suitable for presentation, as well as the more unpretending articles ordinarily to be found on every dinner and tea table." This splendid material is a compound of

various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz.:—spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

**NOVEL COTTON-SPINNING MACHINERY.**—A Paris journal states that a clever mechanical engineer has started the idea of turning the motion of carriage-wheels to account for spinning wool and cotton. This would also afford the means of measuring the distance performed by the coachman; so much cotton spun, so many miles. To this the *Pays* replies that, in the event of this plan being adopted, passengers ought to receive fare instead of paying one; "in which case," says that journal, "we venture to prognosticate that foot-pavements would fall into disuse, shoemakers be at a discount, and blacksmiths at a premium."

## TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

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All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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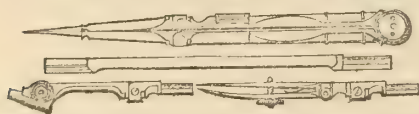
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# The Dublin Builder.

VOL. VI.—No. 118.

## THE HISTORY OF OUR HIGHWAYS.

SO soon as that period of the year—popularly and traditionally, however erroneously,—known as the dog-days, passes away, so soon as apples begin to ripen, and gooseberries to disappear, so soon as light-minded idle people lay aside what little daily toil they may have, to devote their attention, for a season, to the dissipation of picnic parties, to listless loiterings by the sea-side, desperately energetic ascents of lofty mountains, eccentric feats of pedestrianism in the Trossachs and North Wales, lazy fly-fishing in the wilds of Connemara, geologising, cathedral-sketching, digging into ancient sepulchral burrows, dredging in muddy bays for abnormal cuttle-fish, ruthlessly hunting down rare species of the unoffending plant known as the British fern, or stocking *vivaria* of questionably agreeable odour with ill-starred languishing sea-anemones, and otherwise breaking out into an indulgence of those strange and varied pursuits which are a characteristic of the British mind in the season of Autumn—so soon and surely does there occur to the unhappy dweller in cities, who cannot break the chain which binds him to the labouring oar, a season of indescribable flatness and dull monotony. Does he merely aspire to provide food for his own mind? His case is bad enough, but if it is his unhappy fate to cater for the mental appetites of others, it is one truly deplorable. Statesmen are on the moors, authors and artists gathering fresh inspiration among the hills and by the sea (alas! that one best known and loved of all will bring us not home this year and never again his fresh reminiscences of the moors and breezy strand, and that the ever-unworn pencil has fallen from the hand of the genial kindly satirist). Royalty is abroad in yachts, the doors of the Divorce Court closed, and news generally unattainable. How fares it with the luckless sub-editor of the daily paper, toiling in the absence of his chief to make up a decent display of readable matter? To him gigantic mushrooms are welcome, late strawberries a godsend, and overgrown cabbages a priceless treasure. We who are wont to depend on “our ephemeral literature,” as it is called, for our daily morsel of instructive information, take up our provincial journal listlessly—nay more with positive dread, for we fear lest our eye may fall on familiar paragraphs, which, in our bitterness, we are inclined to believe are kept permanently in type from year to year by provincial newspapers, such as those which inform us of the departure of the Right Hon. Lord Viscount Palmerston for Broadlands, and when he betakes himself to the moors, calls on us to regard him as a man and minister of four-score years; and then follows the inevitable birthday eulogium, which far be it from us to impugn, save and except that we have met the observations and stock phrases of the “jaunty premier,” the “judicious bottle-holder,” and so on, so often before, and *ad nauseum*, that with all our admiration for his lordship’s marvellous juvenility, we do not think we are to be much blamed if we lay down the unexciting point and take ourselves into the streets and highways. There is a vulgar phrase that “what is one man’s feast is another man’s

famine,” and it is some consolation that, if this season is somewhat devoid of interest to the general reader, it is not wholly so to the professional one (meaning of course the members of the profession which we provide for). We have statues inaugurated, foundation-stones laid, archæological societies on their pilgrimages, British Association and Social Science meetings in full operation, and, above all, we have restorations: Worcester, Hereford, Llandaff, Chichester, Ely; Tewkesbury Abbey, St. Bartholomew’s, West Smithfield, Austin Friars, and let us not forget our own cathedral church, and an innumerable number of long-forgotten churches of less importance, scattered through the country, which are undergoing processes widely differing in different cases, but nevertheless satisfactorily and complacently comprehended under the one name of “restoration”—a name which appears, unhappily in too many instances, to be applied to the process on the *lucus a non lucendo* principle, as being the furthest thing removed from restoration of the ancient fabric, that it could enter into the mind of architectural man to conceive. Even the columns of the mighty *Times* condescend to receive copious correspondence concerning the removal of the dust and the scraping of these venerable piles, and a controversy as to whether we are to dust and scrape them at all, and, if we are, the mode, measure and manner in which we are to do so.

And it may be observed that, while the archæological and architectural fever is on, we have a phase of the epidemic which breaks out in the revival of a sudden interest in old houses, whose history and associations had well nigh slipped from us; quiet, unobtrusive houses in out-of-the-way nooks of great cities, which once held the possessors of names that will reach our remotest posterity, and whence have issued thoughts that have stirred a world: some bold and fiery, some gentle and pious, some wise and learned, some clothed in immortal verse, and not a few with the painters’ and sculptors’ art, or in the form of noble music. Few nations have been more happily prolific in these great things than ourselves, and it is no unworthy pursuit for us to have a reverend care for, and interest in the local habitations where their great authors lived and worked. And our care for these places should not be our only one: there are yet many existing dwelling-places which, did we study and know them, would serve to keep alive the memories of many notabilities, good and great, or bad and indifferent as it may be, who are an essential part of our past history.

Some weeks ago we had a perfect outbreak about Milton’s house in the Barbican being taken down,\* and people were asked to come and look at it and go over again the pretty memories of the inner life of the Puritan poet and his childish wife, and when no more could be said on this subject, enthusiastic souls rushed into print, and begged for the preservation of all kinds of miscellaneous relics, the existence of which they believed to be imperilled by a kind of mysterious conspiracy, the chief actors in which were the Metropolitan Board of Works and the several metropolitan railway companies.

It is all very well to laugh at the alarms of these good worthy reverend folk, and to make their decent conservative feelings the subject of irreverent jokes: but after we have relieved our minds by calling these innocent antiquarians a few facetious names, and have otherwise asserted our dignity by what our transatlantic

brethren would call a little “tall talk” about “old-fashioned obstacles in the march of progress,” and so on; perhaps we might profitably give their side of the question a hearing on its own merits, and see, that if we will not concede to these relics a money value in an arbitrator’s court for their historic memories, we may at least turn them to our own individual profit, free of all expense, by rubbing up some of the associations connected with them. We beg, however, most distinctly to steer clear of expressing any individual opinion on the general merits of such a question as we are treating of; our views and those of some of our “advanced” readers might not perhaps coincide on the question of the conservation of ancient monuments, but we desire only to place the matter in such a position as will enable us to discuss it from equal points of view.

Out of the agitation on this subject of conservation of relics, has arisen a movement scarcely yet having taken a practical form, and, we are sure, few of our readers will not admit that it is one in the right direction. It has been proposed to mark in some way the houses in which famous persons ever lived, who once had their residence there, played their part, and passed away from among us; to note where a great soul first saw the light, to follow him step by step into life and see him take his last look at it, is surely no unworthy study, a link connecting the past with the present, those who are dead with those who by emulation or imitation have grown great by following in their great predecessors’ footsteps. There is a great field of study of this kind open before us. What famous children has our country had of its own, and how many from stranger countries have made themselves famous and been the glory of the land of their adoption. London has already in some measure awakened to a sense of what is due to the memories of her great dead, and why should we in this city refuse to take from her a lesson which she in her turn has not been too proud to borrow from Germany?

There is a house at Munich with a tablet on it, stating that Gustavus Adolphus once lived there. The house of Orlando di Lasso, a musician revered by Munich, is similarly marked; and the house in which Mozart wrote his *Idomeneo* is commemorated. An inscription on a house opposite the Hall of Marshals, and facing the statue of the great soldier who was once its occupant, informs this generation that there John Tzerklas, Count of Tilly, the victor of thirty-six battles, lived from the year 1611 to 1616; and so on in a variety of places. We only quote these as instances of the way in which the German mind turns to the commemoration of great names and facts, an idiosyncrasy which we must regard with some respect, inasmuch as we so little share in it as a nation, excepting, of course, that peculiar phase of nationality-fever which is chronic and ever-abiding with the kingdom of Scotland, and which takes the form in that country of erecting memorials and monuments to everybody and everything Scottish, without exercising any very great discrimination in the selection of its objects, so long as there is an excuse to be found for the erection of a monument to something or somebody. It is not long since we read with edification the description of a public monument to some doubtless, worthy Scot—we forget his name, we had never heard it before—and we venture to add it is doubtful if many people out of his own street knew more about him than that he was respectable and well to do. Anyone of less gifted intellect than a Scotch sculptor would have been somewhat puzzled to know by what means he was to embody in allegori-

\* The sum of three thousand one hundred and fifty pounds, sterling, has since been awarded to the owner of the relic for all his rights of leasehold, copyhold, and historic value.

cal sculpture the negative virtues which only were the tangible or intangible merits of the deceased; but no—to the imperturbable Caledonian this was not only a trifle, but a positive advantage. Did it not, he solemnly told us, *leave a wide field for his selection of suitable subjects*; and accordingly he decorated the pedestal of the statue of the honest doubtless, but somewhat undistinguished baillie, with bas-reliefs illustrative of the *song of Miriam at the passage of the Red Sea*! We should be sorry to say that our Scotch neighbours are so indiscriminate in every case. We freely admit that Scotland, least of all, is wanting in sons worthy of her recollection, and that they are worthily remembered too: and more honour to our neighbours for it say we; but we do not desire, in a movement which we should wish to see inaugurated among ourselves, an indiscriminate commemoration take the place of the careless indifference to such things, for which to our shame be it spoken, we have unfortunately acquired a reputation.

As we hinted at the beginning of this article, one natural result of the uninteresting character of the autumn season, in a literary point of view, was to drive us and others into the highways and streets for recreation; and we have endeavoured to turn our leisure to account in putting together in a desultory kind of way, without any attempt at a regular system, some gossip suggested by strolling through the streets of our own city which we hope to make the subject of another article. The field is a tolerably fertile one, and we would merely desire to suggest the study as one worthy of the attention of many who have the time and ability to devote to it. Dublin does not want historic memories, if we would but keep them alive, and ere long the last survivors of a generation, who can gossip of the Dublin of ante-Union times, will have passed from among us, and with them a fund of anecdote of notabilities of a departed day, and long-forgotten chit-chat, which we can ill afford to spare. We invite the assistance of those of our readers who have any such memories as we desire at their command; and no fact or anecdote, however trifling, can be considered useless which connects itself with the otherwise uninteresting blocks of bricks and mortar through which it may be our daily lot to pass, and which serves to while away the dull monotony by some pleasant association.

#### JOHN LEECH.

If any one had asked us little more than a year ago what author (using the word in its widest sense) we could least afford to spare from the ranks of literature, taking everything into consideration, we should unhesitatingly have answered, Thackeray—except, we might have added on reflection, John Leech. One result of the great increase of current literature and the readers thereof in our day has been to bring us into such weekly, daily, almost hourly, communication with our popular authors and artists, that when one drops from the ranks we feel not so much that we have lost a distinguished author as that there is a blank in our circle of personal friends. We question if any worker in any field of literature, or in any age, ever went to his grave followed by so universal and sincere regret from a whole nation as William Makepeace Thackeray, so accustomed were we to watch for his weekly or monthly instalment of kindly, thoughtful, chit-chat, for the nervous and vigorous style of writing peculiarly his own, in which he combined such marvellous descriptive powers with the spirit and conception of an artist, that when he went from among us we missed him as a friend who had long laboured successfully to add to our daily round of pleasure and lightened many an hour. A year has scarcely passed

away when we are called upon to close the grave over his schoolfellow and fellow-labourer, and it is no disparagement to the memory of Thackeray to say that we feel even more acutely the loss of the no less popular and beloved John Leech.

The obituaries of these two great men, and satirists of a kindred spirit, have been so often written, and have been presented to the general reader in so many shapes and in so many cases with such an utter absence of appreciation of the men and their peculiar abilities as to be more a subject of disgust than anything else to those who felt that their great gifts were beyond the reach of more wordy panegyric, so that we dread offering any remarks which from our unequal pen would only add another to the many instances of feeble insult to their memories, which have emanated from newspaper scribes, who were as unable to appreciate their genius as to write their epitaphs.

The few particulars known to the public of the life of John Leech are probably known to every reader of the DUBLIN BUILDER, who has met with them in the daily papers. Leech himself had a horror of being "lionized," and deprecated during his life-time any reference to his family history, so that the short outline of his career may be compressed into so few words that it cannot weary by our repetition of it.

We know little more of him than that he was born in 1817, that he was educated at the Charterhouse, and was, as we have said before, a fellow-schoolfellow of Thackeray, and afterwards his fellow-labourer in the columns of *Punch*, and his warmly-attached personal friend; that he was originally intended for the medical profession, but, fortunately for us, abandoned it for the exercise of his wonderful natural talent for drawing, and in 1841 joined the ranks of the contributors to *Punch*, then just established; that, as years passed on, his drawing, at first somewhat crude in spite of latent merits, gradually improved both in delicacy and vigour, and with it his wonderful humour grew gradually more subtle and refined, until he became not only the mainstay of *Punch*, but fairly established himself as the first of caricaturists and pictorial satirists of this or any age, past or, we fear, to come. Little more we know of him, save the testimony of those who knew him best, that he was an amiable, generous-hearted, kindly gentleman, of a retiring disposition, and distinguished for a highly wrought sensitiveness of disposition, which appears to have been a necessary accompaniment of his peculiar talent, and which preyed upon him most as he achieved his greatest successes, and finally precipitated the fatal attack of heart disease which carried him off at the early age of forty-seven. And yet John Leech was no caricaturist in the ordinary sense—we use the word for want of a better—all his predecessors in the school of pictorial satire were caricaturists, but the satire of the artist we have lost was that of John Leech, and of nobody else. His distinguishing qualities were an utter absence of exaggeration of any kind, and of unrivalled truthfulness of delineation, an extraordinary eye for form, a remarkable fertility of imagination, and prolific production of his subjects, bold, vigorous power of drawing, and a keen racy wit no less distinguished for similar qualities than it was for its genial, kindly, polished tone, that while it weakly convulsed with laughter tens of thousands of readers, may be safely said never to have given a single heart a moment's pain. A marvellous gift this, in one so keenly alive to the ludicrous, and which could only have had its rise in a nobility of disposition which abhorred and held up to contempt every thing snobbish and mean, that in its vigour loved all things healthy, and felt of life and beauty, whether it was exercised in drawing a horse, as no one but John Leech could draw it, sketching in a few bold touches a little bit of district landscape, or presenting to us girls drawn with a grace, and little children with a playful tenderness, that has never been approached.

Leech lived long enough to reap the reward of golden opinions won on all sides, and expressed. He never had great abilities as a colourist—the more fortunate for us, say we—but it appears that he had some ambition to go down to posterity as a painter. In 1862 he reproduced some of his celebrated *Punch* sketches in oils, and exhibited them in Piccadilly, and though most people failed to recognise any great

success achieved by him as a colourist, the inimitable humour of these old friends, so often laughed at before and thus presented in a new form, tickled afresh the fancy of every visitor. Art reviewers kindly forbore to utter disparaging criticisms on the—so far as colouring went—unsuccessful efforts of the artist who never made an enemy; each vied with the other to heap honest praises on the kind-hearted satirist. We turn over the pages of the re-published volume of his sketches, so often turned over before, and never without fresh enjoyment. For the present we cannot do so as of yore, for each one comes before us like the memory of some hearty joke, uttered by some friend who is dead, and seem to jar upon our recollection of the fact that we have lost him for ever, and that the weary, overtaxed brain that indefatigably produced for us all these pleasant things is at rest for ever.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE first ordinary General Meeting of the above Institute for the session 1864-5 took place on Monday evening, on which occasion there was a numerous assemblage of members to hear the opening address of the president, T. L. Donaldson, Esq. The donations of books, serial publications (English and foreign), drawings, &c., received during the recess having been announced, and thanks voted to the respective donors thereof, it was stated in the course of the other preliminary business that the re-arrangement of the library of the Institute and the proper classification of the books had been nearly completed and the catalogue prepared, which, with the additional bookcases placed in the library and meeting-room, had entailed an expense of about £400, to defray which a resolution had been passed at a special meeting authorising the sale of the necessary amount of funded stock of the Institute. In reference to this subject, the President read a letter from Mr. W. Tite, M.P. (late president), expressing a hope that the expenses thus incurred would be met by the private subscriptions of the members, rather than infringe upon the moderate funded property of the Institute for that purpose, and he begged to forward a cheque for £50 as his contribution to the library fund. The President having warmly acknowledged this additional evidence of Mr. Tite's continued deep interest in the progress and welfare of the Institute, and having stated the entire concurrence of the council in the suggestion of that gentleman that the expenses thus incurred should be defrayed by private contributions, placed on the table a further list of subscriptions, with a request that those members who felt disposed to do so would attach their names to it.

#### PRESIDENT'S ADDRESS.

GENTLEMEN,—We are now entering upon the thirty-first session of our Institution, and we can count among our members, 227 fellows, 163 associates, 17 honorary fellows and members, 70 foreign honorary and corresponding members, and 25 students and contributing visitors, making a total of 502. We have a comparatively perfect organization of council, and earnest working officers; in fact we have risen to a position in which all those who claim to belong to our profession seek to be associated. In saying this I believe that I use no exaggerated expression of gratulation or triumph; for what professional society of architects, nay, I may almost say, what body of illustrious men connected with the arts and sciences, and confining themselves to the strictly highest branches of their pursuit, can challenge the progress we have made in these thirty years of our existence? What institution has its relations in so many parts of the continent, nay, in the world, as ourselves? for we have ours in the north and south, in the far east and in the distant west. What society is there whose influences have been so general as our own? when we find other societies eagerly watching our proceedings, and guided by our operations. Our Institute, fixing the tone of professional practice and our code quoted as authoritative in the courts of law—establishing a system of professional education of the most complete character—recognized by the legislature, and testing the qualifications of candidates for appointments as district surveyors under the Building Act, and influencing even the judgment and decisions of the House of Commons upon a practical point, as that connected with the retention of the late Exhibition Building.

I do not pretend to say that we have acted throughout with the most sober judgment, or with all possible

energy and activity. But it must be recollected that what we have effected, although done under the immediate patronage of the crown, has been realized without government aid, and through the contributions of our members and private individuals; that at our earliest formation we had many professional prejudices to overcome, many adverse judgments to reconcile, many personal jealousies to conciliate.—But in spite of all this we have so far succeeded, and are ready progressively to confirm our position, to advance with the rapid progress of society and of science, to keep our profession in the van, and to maintain its rank among the learned and scientific institutions of the Empire.

I have read with much pleasure and instruction several of the papers written by members of the local societies, and a recent one by Mr. Frith, of Bristol, on the subject of "*What should be the aim of our Architecture at this time?*" contains much suggestive matter and just reflections upon the present state of the principles of taste in our art. To one of his observations, however, I think objection may be taken, when he says that "we must learn to set aside all the decorative features of Italian architecture, which do not spring from constructive requirements, such as attached columns and pilasters with all their ordinances—to accept no precedent, which does not meet the critic's eye with a more satisfactory reason for its use, than what we employ now, in saying, 'it is quite correct.'" I know not why Mr. Frith does not include under the same restriction Mediæval as well as Italian architecture. But I cannot add my adhesion to this law of *use* to be applied as the test of the proper adoption of many features in our art, for this would reduce it to a mere utilitarian plainness, and strike out from architectural composition many details that give playfulness, grace, and variety of outline. The very attached columns and pilasters alluded to may serve as buttresses and counterforts, and give stability and strength to a wall, breaking up its plainness, and at the same time be pleasing features, like balustrades, pedestals, vases, and other accompaniments. If we apply this meagre puritanical rule of matter to art, what would Mediæval composition be, deprived of shafts, buttresses, canopies, pinnacles, introduced in its rich screenwork, whether of stone or wood? There must be a certain conventionalism in decorative art, and although it must borrow its leading features from some type that has *use* as its basis—yet the imaginative poetic mind of the artist must have full play and freedom of treatment at the same time that it may be restrained by the sober rules laid down by Horace and Vitruvius. Fancy is a valuable gift. It is that action of the mind which at pleasure presents to itself impressions, the result of preconceived notions, or the forms, images, and representations of things. It may be the result of education and taste, or of a refined innate sensibility for form and colour. Doubtless it may be very dangerous when it degenerates into caprice, seeking to express a sudden ill-regulated affection or predilection, disregarding wholly the strict rules of art, yielding to a rather licentious liberty, and yet it may be pleasing and attractive by certain graceful combinations. Such were the styles of the Flamboyant and of Louis XIV. and XV., and many compositions at Rome, as the productions of Bernini and Borromini with all their impurity, and we may quote in the English school Vanbrugh as a brilliant example of poetic grandeur in composition. These were epochs of violent instinct and sudden determination, uncontrollable sympathies and disregard of the material made to minister to the wildest flights, and the fresh excitement of sensuous gratification compensated for the inherent defects of abrupt impulses. Their works, the result of ardent minds, have excited the wonder and admiration of succeeding times as the efforts of a gifted race of artists. Human nature is so constituted that such productions cannot pass unheeded; but on the contrary they must influence the feelings however discordant in many respects. In such instances Mr. Frith's observations apply with peculiar force, and are instructive to the practitioner in every period of life. Precedent has its weight as well as use; the mind, however, of the artist must have a certain range if we are to expect the highest aspirations of genius, and to profit by its revelations.

I am pleased to observe that the success of this Institute has led our professional brethren in and near the principal provincial towns to form similar societies for the promotion of the art, and the maintenance of a high tone of professional practice and character, alike honourable and advantageous to the employer and the employed. Liverpool, Manchester, Birmingham, Bristol, Glasgow, and other great centres of commercial and manufacturing industry, have their architectural meetings, read papers, and discuss questions of general interest, connected with architecture, archæology, and construction. This is the more necessary as the material prosperity of our large towns, with the development of their municipal operations, necessitate the erection of town halls, libraries, picture galleries, courts of law, theatres, hospitals, schools, churches, and other important edifices. These require an edu-

cation of the highest order, as well as distinguished talents, so that the productions may be worthy of the appeal made to the taste and scientific requirements of the architect. These local associations have been obliged to relax the strict rule of membership observed by us, but generally they are guided by the same principles as ourselves. I have, however, observed with regret that some of the provincial societies, instead of strengthening their own position and that of the profession generally, by accepting in its integrity the scale of professional charges adopted after the most painstaking and deliberate investigation by this Institute, have sought to publish a distinct scale of their own, founded generally upon that of the Institute without acknowledgment, and introducing modifications of purely a local nature. This is a sad mistake. The table of the Institute has been accepted by legal men in the metropolis, and quoted in the courts as an authentic document drawn up by the heads of the profession, and as authoritative in settling such questions of professional usage, and as mutually binding between the employer and employed. The provincial table, deprived of the sanction of the great central body, and resting only upon the authority of a limited circle of professional men, cannot have the same weight as the code of the Institute. The resolution of the Architectural Association on the subject is very judicious, as it very properly stated "that it would be most injurious to the profession to have two published lists of charges."

I feel that I may congratulate the Institute on the important influence it exercised in causing the building for the International Exhibition of 1862 to be no longer thought of as a permanent erection; but as one which from its imperfect arrangement of plan, and temporary nature of its construction, could not be adapted to a permanent purpose. Its very destruction has afforded the opportunity for a very successful application of military engineering in overthrowing the vast masses of brickwork, by the application of gunpowder, which no other means could so promptly have accomplished. Another result has been the intention of the Government (when to be carried out it is difficult to predict) to erect a new building on the site appropriated, for the Museum of Patents, the zoological and other collections of the British Museum, and for like purposes. The programme having been drawn up was submitted to public competition. The first prize was awarded to Captain Fowke, (who designed the original building) for a composition of considerable merit, in which he introduced many grand architectural features, and a happy disposition of plan, so that, with certain improvements in the details, which careful study in the execution must necessarily produce, the new building will be a noble addition to the monumental structures of the metropolis, and be a permanent evidence of the capacity and taste of its author (who is now candidate and we hope may soon become a Fellow of our Institute), and whom we cordially congratulate upon his success. At the same time we have to notice our Fellow, Professor Kerr, as having the second place in the competition, with a well arranged plan and effective elevations.

In my address upon the opening of our last session, I alluded to the imperfect means and sources of instruction within the reach of the architectural student. This subject has been taken up by one at the head of our profession, whose own productions are evidences of refined taste, solid judgment and extensive learning, and whose skill and experience are instanced in his numerous, and I may say numberless, works, many of them the finest productions of modern times in Mediæval art. Mr. Scott in a carefully written paper, has sketched out a view of the wants of the young architect, and the mode in which the deficiency should be supplied. A committee of the Institute was appointed, consisting not merely of professional men, but of others experienced in the subject, and capable of affording most valuable advice and suggestions, such as Beresford Hope, Esq., Professor Westmacott, R.A., E. W. Cooke, R.A., and Mr. Ruskin. We had several meetings of the most interesting character, and considered the best means of providing instruction; the discussions, which have occurred, eliciting opinions from some of the most able men, competent to advise in a matter of such professional importance. It has been argued, not in an exclusive or sectarian spirit, nor with preference to any particular part or class of art; for we should love them all with fervour, and it is this profound love, which should lead us to desire, that all styles of art should be upon a level and have fair play. Each of us may have and has his preferences, but this should not lead us to depreciate the qualities that exist in a style preferred by others. The report of this committee will be submitted for discussion to your consideration at our next meeting. The scheme proposed, suggests that "the instruction should embrace the drawing and modelling of organic forms with a view to the attainment by the student of such an accurate knowledge of their structure, as should enable him to apply them in decoration with power and truthfulness, and to form an intelligent comparison

of their treatment by the masters of every period of art, and in the monuments whether of ancient or modern times." To carry out such a purpose proper instructors must be found, and other requisite means of study provided, as also the efficient and vigilant superintendence of the able scheme ensured by the earnest co-operation of the members of the profession. In addition to moderate fees to be paid by the students, it will be necessary in the first place, that liberal contributions from our members should provide the means for procuring the several requisites of fittings and conveniences to commence and carry on the school, and the committee rely upon your generous concurrence to furnish funds for the purpose.

I have been reminded by our secretaries, that it is necessary to appeal to the members for papers to be read during the ensuing session. It is not in the power of the council and other office-bearers to do all that is necessary to maintain healthful and fruit-bearing vitality in the proceedings of the Institute. It is with no common feelings that the council watch over and direct the transactions of the year. And it is a matter of painful anxiety with the secretaries, to have papers ready for each ensuing evening, and not to be left entirely to mere casual contributions. They can only make the best use of the means, which they may perchance have placed at their disposal. This is not as it should be. For being appointed by the general body of the Institute in their responsible positions as honorary officers, it is for the members to provide those means, that is of an intellectual nature, communications at once interesting and instructive, and not necessarily elaborate, so that those who attend our ordinary meetings may be sure of finding facts or questions stated, reasoned upon and developed in connexion with the various artistic and structural creations of the past or present times.

There is reason to feel that this responsibility, casually alluded to in my last address, has not been generally appreciated by the profession. The secretaries have not in this respect been adequately supported, and I must observe that literary contributions have been given on several occasions during last session by our members to collateral associations, which ought to have had their more fitting place of delivery here. Thus the energy of the members has been dissipated instead of being concentrated, and the novelty of a new sphere has had more attractions than their "*Alma Mater*." Ought not the welfare of the Institute to hold the first place in the consideration of the members? To be secondary would it not descend from its proper state and consequence, and then be no longer worthy of the profession? I appeal to the members to appreciate the importance and necessity of these observations, and to afford efficient aid in respect of papers. They need not be long nor elaborate. Sometimes the simplest statement of facts, or description of a building, or process in construction, may contain matter worthy the Institution, the auditory and the reputation of the author. And by such communications the friendly suggestions of all classes of members may be elicited and unreservedly offered, defects detected, mutual energy induced, and a more soul stirring spirit of co-operation excited. A paucity of papers and of the "*esprit du corps*" entails the most serious consequences.

The self-respect of our members may be stimulated by the example of one of the highest dignitaries of the Roman Catholic Church in these realms. Cardinal Wiseman has recently delivered before the members of the Architectural Museum a lecture "*On the past and present and the prospects of the future for good architecture in London*," and I think I may add "*in England*," if I may be permitted to follow up the scope of the remarks of his Eminence. We must all feel grateful, that such a topic should have been handled by so high an authority, with such fine perception and discrimination for the monuments of our art, with so wide an acquaintance with its finest productions, and to so practical a purpose. It is of the utmost importance, when one so exalted in rank and of such cultivated taste vindicates that which is pure in our art, and raises a teaching voice to the profession as well as to the public in general.

Nor can it be admitted, that there are not topics enough, dark and obscure questions, still to be investigated and elucidated by our thoughtful architects. When the revival of classical literature produced, as a natural consequence, the revival of the study of ancient art and monuments, then the enlightened men of the sixteenth century applied themselves to the patient and earnest investigation of those relations, which obtained in the edifices of Classic Antiquity. They laid down the rules and laws of proportion in regard to the orders, dimly shadowed by Vitruvius. These canons have been misunderstood and misrepresented in later times, and never more so than in the present. They were offered as elementary, liable to change as taste and refinement of perception might suggest, but they have been considered as arbitrary and empirical trammels to taste, and what were meant as merely proximate results have been assumed to be positive and final.

Mediæval Art has not as yet been so investigated, and some may say it never can be. Can positive proportions be laid down, as to the relations in size in the several parts of a column, the base, shaft, and capital? In the group of a range of mouldings? Or in the mutual relations of proportion in the apertures of doors or windows, or in their respective dressings? No law has been discovered in the relative bearings of piers, or openings of arches of naves in their breadth and height. The just width and height of a nave, or tower, or spire, have still to be ascertained. Who has yet had the patience or grasp of mind philosophically to dive into the mysterious relations and parts, which constitute the beautiful in the choir of Lincoln, in the nave of Westminster Abbey, in the façade of Cologne, or in the massive energy of Durham? Whence the source of the impressions, which these remarkable structures produce?

I would also venture to suggest subjects still requiring investigation, such as the positivism reigning in some minds at variance with the idealism of the poetic temperament in others. Such consider that there is no room for beauty except in absolute stone, brick or metal as to the substance, and of use or usefulness as to the application; and that grace, expression and meaning cannot exist except in some immediate materialism. They acknowledge no poetry or proper fancy unless embodied in the rarer and more precious materials, and that sensuous impressions are necessary to give reality to those of mere abstract imagination.

Would it be unprofitable to enquire to what extent the happy genius of great artists may by an intuitive instinct have lived in an atmosphere of beautiful ideas and consciousness of grace, expression and sentiment, so as to translate and embody them in their own creations, as by a divine afflatus? May it not be that in former periods the mysterious relations of beauty were known and laid down practically in positive canons, and that the great superiority of their works consists in the happy temperament of those artists, who felt most powerfully the best mode of applying those canons, so as to convey to others the impressions they themselves experienced and sought to excite.

In the divine order of the universe it cannot be doubted, that there are certain fixed laws of beauty dependent upon certain relations; upon a fitness, harmony, and proportion, as yet unrevealed and consequently unascertained. So in art we recognize a like influence. It remains for some high intellect and discriminating mind to interpret these laws and to penetrate and develop the mysterious relation by existing examples.

In what consists the grand peculiarities of Greek art? for its moral grandeur and unequalled purity are not merely legendary, nor is our admiration based upon our religious feelings, as in the case with mediæval productions. Our recognition of their power is apart from all passion. Our reverence rests upon objects devoted to a distinctly different theological origin. We have no immediate affinity of customs, thought or literature in common with those of the times in which they were produced. May we not be considered as impartial judges uninfluenced by considerations, that might otherwise warp the judgment, when we bow with reverence to the mighty genius of the Greeks in art and in letters?

Not to mention the many curious and important questions in construction, which arise from the numerous new materials and combinations of materials brought under the notice of architects and engineers, and their structural application, I may perhaps be permitted to suggest, that the description of the many important buildings in course of erection will afford much instruction. Probably the greatest profit may result from such communications. It argues no assumption on the part of the architect, for he merely states the requirements he may have had to satisfy, the special difficulties he may have had to encounter, and the means he may have adopted to carry out his conception, and who can explain them so well as he? And we have witnessed such occasions at our meetings, when this plain, unvarnished, earnest statement has rivetted attention and received the grateful recognition of all present.

I throw out these hints to shew how wide a field there is for interesting papers. And in addition, there are the vivid impressions on the minds of those architects who visit the Continent, and who, whether in France, Germany, Italy, or other states, will have found much that ought to be recorded, both as to the productions of past and present times and as to the place they should hold as works of art. Without the intention of depreciating any, we may be permitted to compare them with those of other periods and countries, to ascertain their true relative value, and to husband them as preciously suggestive. We should also observe the rapid progress made of late in France, where a new era of improvement has made gigantic strides, and architecture, under the presiding enlightened genius of a great mind, contributes to the convenience, health and dignity of the metropolis and of the provincial towns.

How is it that the Crown, the Government, and the Parliament of Great Britain have a kind of paralytic atrophy of feeling in regard to their duty to endow the country with useful monuments that should add to its comfort, its embellishment, and its grandeur?—regarding each other with a kind of awe, lest the one should ask too much and the other grant too little; each thinking that adequate and appropriate buildings can be erected with a small outlay and a miserable disregard to the nobility of architecture; thinking that a grudging economy is not unworthy of a nation like ours, great in its political position among nations, and rich in its resources. Why are such buildings still to be desired as public offices for our departments to replace the paltry hired accommodation rented at enormous sums? Why are the law courts of the metropolis, for which the funds are ready and lying idle, not begun? or the accesses to the new quays forming on the banks of the Thames at a stand-still? or the restoration of the chapter house at Westminster? or the chapel of the Holy Rood at Edinburgh, a disgrace as a religious appurtenance to the palace of our Sovereign, not contemplated? or our harbours of refuge disregarded, as are many other such public works, demanded by the necessities of the nation or the feelings of the public? Why are such to find no place in the estimates of the Chancellor of the Exchequer of an empire, whose actual income sits lightly upon it, though reaching to seventy millions? Is the realization of such wants to be left to future generations, and thus the present to be deprived of the enjoyment it ought to possess, if those at the head of affairs conceived their duties aright? Is it to be reserved to us to contemplate the accomplishment of such operations by the history of imperial Rome of the past, or the example of enlightened Bavaria and imperial France of the present? Is imperialism necessary for such high and lofty considerations?

This allusion to our neighbours leads me to the subject of what we are actually doing at home. You are aware that at the commencement of the last session of Parliament this Institute petitioned both Houses to consider the present state of the thoroughfares of London, and suggested their improvement, as preliminary to any concession to metropolitan railways, so many projects for which threatened to render London uninhabitable and unfitted even for commercial purposes. It would have been converted into one huge central railway station for the accommodation of the diverging and traversing lines. If Parliament had but listened to this suggestion from practical men, our whole system of street communication might have been re-modelled, upon as broad a system of distribution as that proposed by Sir Christopher Wren for the city of London after the great fire, and the neglect of which has entailed consequences, to which we are daily more and more the victims. The railroads themselves might have been made to contribute to the cost of lines of openings, which would have been available for their accommodation, and necessitated by the accumulation of their traffic, now concentrated at remote and inaccessible points. Such considerations have had their due influence with the authorities in Paris, who have not neglected the opportunities, but have nobly met the necessities of that city. The spirit of individual improvement has, however, of late years been active in the city of London. Our merchants and manufacturers have pulled down insignificant houses, and carried up magnificent piles of warehouses. Our bankers have almost entirely rebuilt Lombard-street within a few years, leaving only the elegant work of Sir Robert Taylor, the Pelican Office, as a relic of the past. Speculation also has been rife, and the smallest sites in the densest portions of the city and narrowest streets have fetched fabulous prices, with an almost reckless disregard of consequences. But all this has been without any improvement in the thoroughfares or reference to general convenience; and essentially the city is daily becoming more and more difficult to traverse, whether for foot passengers, carriages, or heavily laden vehicles. Yet we find that, while government, parliament, and the municipal authorities, are insensible to all these inconveniences to commerce and impediments to transit, railway companies, without regard to cost, sweep away hundreds of houses, drive on their lines in spacious avenues of cuttings, and bring their trains into the very heart of the town. It is to be deeply regretted that the government of the country is so insensible as to make no effort in stimulating by its example the energy of improvement. What are the active steps yet taken to open the street from Blackfriars to the Bank? while the London, Dover, and Chatham Railway Company have traversed property of frightful value, carried their bridge across Ludgate Hill, in spite of public protest, and erected the most costly buildings. The Government perhaps assumes credit for the progress of its East India Office and the Foreign Office in Downing-street, by Mr. Digby Wyatt and by Mr. Scott; but the corporation of Liverpool bids fair to outrun it in the erection of the Exchange and pile of municipal build-

ings, by Mr. T. H. Wyatt, which is to cost as much in the outlay. All this is pitiful in the extreme. The din of war in a time of professed peace consumes the millions of the people for iron ships, munitions of offence, and forts on the sea-board. Yet a few hundred thousands are grudgingly granted, and too often refused, to promote what more essentially would tend to promote the peaceful well-being of the nation, and the comfort and enjoyments of the people.

It is with deep concern for the loss of a valued friend and professional brother that I have to announce the death, during the past week, of our fellow, Mr. H. E. Goodridge, of Bath, at the age of sixty-eight. He became a member at a very early period of our institution, and always felt a deep interest in the progress of art, and in the highest standard of professional reputation. He had the true artistic feeling, and his buildings at Bath display novelty of combination, picturesqueness of outline, and chasteness of detail. He was architect for many years to the celebrated Mr. Beckford, and erected for him the much admired Lansdowne Tower, under the shade of which the remains both of the original proprietor and his architect now rest. Mr. Beckford, who was very sensitive in his appreciation of whatever was correct and beautiful, always said that this production would ever speak to his architectural talents. I trust that we may be favoured by his son with a full record of the works and life of one who was respected by all who knew him for his professional and personal worth: of one who had the eye of an architect and the hand of an architect; whose heart was in his work, and who was in every duty of life the man of duty.

It is my painful duty also to notice the deaths of two gentlemen who have assisted us in our researches, and rendered good service to the Institute, by the valuable papers which they have contributed to our proceedings. I mean Mr. Chas. Harriott Smith and Chas. Winston, Esq. Both of them our honorary members—men earnest in the pursuit of science, devoting themselves unreservedly to its development, and ever ready to communicate the results of their researches frankly to the whole world, without any other object or view than the diffusion of that information which their laborious investigations had placed within their reach. Mr. Smith was himself a mason, and the son of a mason, with a natural love for study, and the desire of fathoming his immediate pursuit, and with a certain ambition he diligently availed himself of means, placed at his disposal by Mr. Bonomi and Mr. Wilkins, R.A., then in the zenith of their reputation, to acquire a mastery of architectural drawing and perspective, as also of geometry. About fifty years ago I formed among my young friends a sketching class, who met in my study, and of whom Mr. Smith was one, with George Bailey, Thos. Lee, John Goldiecutt, A. B. Clayton, Mr. Alexander, son of the architect of the West India Docks, and a few others, who composed the association. In 1817 Mr. Smith gained the gold medal at the Royal Academy for a design for "A Royal Academy of Painting, Sculpture, and Architecture," due to the neatness of his drawing and the skill of the perspective view, rather than to any high merits of composition; and it is to be observed that he prepared the drawings only in the intervals of business. He took up the study of building stones as a practical and useful subject of investigation, and in order to render himself master of the entire matter of the composition of stones and their place in the crust of the globe, he studied geology in the almost solitary work then written upon it, and acquainted himself with chemistry so far as related to the topic. Hitherto the study of geology had been limited to the theory of stratification, to the systems of Hutton and Werner as to the origin of rocks, the organic remains which they contained, and to the localities in which they were to be found. But as for any practical result, in reference to their application to construction, no special scientific treatise had appeared, and it was not even noticed as an important question by geologists. The fossils embedded in the rocks, as an essential part of their structure, revealed records of animal and vegetable creation of countless ages long since past, and so fully enlisted the sympathies of the naturalist and botanist that the uses of the stones were utterly forgotten. Mr. Smith, twenty-four years ago, read two valuable papers on lithology, or observations on stone used for building, in which he embodied all the experience of his own practice and the information he had gathered, when as a Commissioner, with Sir Charles Barry, Sir Henry de la Beche, and the geologist of the Isle of Wight, William Smith, Esq., he, by the appointment of government, visited the principal quarries of the kingdom, in order to ascertain the best stone to be employed in the erection of the Houses of Parliament, and the results of which were contained in the two editions of the admirable report of the Commission, now out of print. Sir Charles Barry earnestly urged upon the Government to have a resident superintendent of the quarries which were to supply the stone for the Houses of Parliament, in order to ensure none but the best beds, as Sir Christopher Wren had done for St. Paul's;

and Sir Charles Barry had intended to have entrusted this duty to Mr. Smith. The Government not feeling the importance of the wise suggestion of the architect, from an injudicious spirit of economy, declined the proposal, and the result we all know. To Mr. Smith this Institute is indebted for the admirable series of English building stones in the case at the head of the staircase; and I believe that the last time he was out he came expressly to see them, as he had kindly consented to superintend their being properly cleaned, in order to render their colour and structure more evident. He had been largely employed by the profession in the architectural carving of some of our principal monuments—University College, the Royal Academy, the Royal Exchange, the capital of the Nelson Column, which he modelled, and in the decorative portions of the chapels to the City of London Cemetery. He was occasionally an exhibitor at the Royal Academy. I owe much to his advice and assistance in works where I have had occasion to avail myself of his sound practical knowledge and supervision. His modesty, his unassuming manner, his honesty and straightforwardness, his readiness to communicate what he knew, and his high sense of right and wrong, gained him the respect and confidence of all who knew him. It will be difficult for the profession and the Institute to replace him, as a trustworthy counsellor and friend, for such men rarely rise up in life to acquire knowledge and use it, not merely for themselves, but for others.

The late Mr. Winston was a man of like-mindedness and equal devotion to science as our late friend Mr. C. H. Smith, but being a member of the bar he had of course a higher intellectual education, and brought a greater capacity to the investigation of glass painting, which he pursued with large views, and with a zeal beyond all praise. Besides his own published volumes our Transactions of 1852, 1853, and 1854 contain many important papers on his favorite pursuit, which are the more valuable as aiding the full knowledge of those processes of manufacture and manipulation, those arrangements and combinations of materials, color, form and setting, which gave to antique glass an as yet unrivalled pre-eminence. His paper on the application of painted glass to buildings in various styles of architecture contains many sound, bold, and novel views worthy the attention of the architect, the archæologist and amateur; and particularly his remarks on the proper synchronism of subjects and treatment in painted windows with the style of the building, and which he would wish to be freed from the incorrect drawing, the quaint and distorted figures, the bad taste and deformity of former ages. These essays upon so difficult a subject of investigation, demanding such varied acquaintance with technical details and artistic properties, are the more remarkable, as being not at all connected with his professional pursuits, and carried on when engaged in a large legal practice. His facility of drawing was great, and his delineations of painted glass admirably rendered the vigor, expression, and character of the originals.

It will be agreeable to you to know, that the library has been refitted at a considerable expense, and the accommodation of cases so much enlarged as to allow of a thorough classification of above two thousand works, and space also for accommodation for considerable additions in future years. The catalogue also is in a forward state of preparation, and only awaits the authoritative decision of the council for the printing to be commenced. These operations will cause the expenditure of several hundred pounds, but the confusion in the books had become so inconvenient and intolerable, that it was absolutely necessary to take these steps in order to render available the usefulness of our valuable works to the researches of our members. Few can be conscious how laborious the operation has been, and we are indebted to the peculiar knowledge and unremitting attention of our fellows, Mr. J. B. Papworth and his brother Mr. Wyatt Papworth for results, which I am sure will prove highly satisfactory to the Institute. We have to recognise the generous and kind interest taken by Mrs. Bunning in our collection, as she has presented to us during the past session about fifty valuable works from the library of her late respected husband, the city of London architect.

In connection with the literary treasures of the library I must call particular attention to the collection of drawings which are of importance, as illustrations of the peculiar talents of our deceased brothers in architecture and some of which are precious series from the pencils of such men as Henry Parke, Von Klenze, Achille Le Clerc, the Athenian Stuart, C. R. Cockerell, and other eminent architects. I have the pleasure this evening of presenting twenty-eight drawings by the late Joseph Woods, author of the Letters of an Architect. Mrs. Woods, his sister, allowed me to select them from the portfolios of her brother for the Institute, and I have chosen such as more clearly proved the judgment with which he selected the best points of view, the strict fidelity with which he rendered each subject, the bold and crisp and

tender character of his pencilling, or the effective style of colouring, proving him to have been endowed with the true artistic feeling, and which he had cultivated up to the very last moment of his existence.

I am much gratified also to announce, as I am led to hope, that we may have presented to us some drawings by the late Sir Charles Barry, by which our members and friends and future generations will be able to appreciate his great talents as a draughtsman and his genius for design. I learn with pleasure from Mr. Foley that the statue of Sir Charles will be completed and put up in January next, on the landing of one of the staircases in the House of Commons, on a spot selected by the committee of subscribers, and approved by H. M. Chief Commissioner of Buildings, the Hon. W. Cowper, M.P.

I need hardly dwell upon the value of such collections of original drawings as those alluded to, nor upon the importance for our members to avail themselves of every opportunity of adding to it, whether by their own or those of others. All influence should be used with the family or the representatives of deceased architects to get some specimens for the Institute, records honorable to the artist as they must be beneficial to the Institute.

I must not review the ordinary occurrences of the last few months without alluding to events of a more social character amongst us. For the first time since the formation of this Institute, we have had a dinner at the Wellington, in St. James's-street, at which were present, as invited guests, the president and other members of the Royal Academy; C. H. Gregory, Esq., member of the council of Civil Engineers; and J. W. Bazalgette, Esq., engineer of the Metropolitan Board of Works; Henry Cole, Esq., director of the Kensington Museum; and Captain Fowke, the architect; several of the most eminent builders of the metropolis, and other distinguished men of science. There was also held in these rooms, in June last, the usual soirée, when a numerous and brilliant assembly were gratified by rare and curious objects of art and vertu, brought together for our visitors. At the first the council had some hesitation as to applying the funds to such a purpose, but the expense was guaranteed by Mr. Tite and myself. This resulted in another instance of the generous munificence of my honoured predecessor, to whose liberality the Institute is already largely indebted, as he insisted upon himself bearing the whole outlay, amounting to a considerable sum, in spite of my remonstrances and claim to share the honour. I reserve, therefore, to myself the privilege of some other opportunity to evince in a like manner my zeal for the Institute.

The accomplished President of the Royal Academy of Arts, Sir C. L. Eastlake, upon the occasion of the annual banquet, to which your President is honoured by an invitation, which usually precedes the opening of the exhibition, and which took place in April last, made a remarkable speech in his usual eloquent language referring to our art. He considered "that viewed only as an academical study, no pursuit connected with the objects of taste can more fully recommend itself, as an adjunct to a liberal education;" and he dwelt upon the necessity "of placing within the reach of the many the attainment of a correct knowledge, and a power of appreciating well-selected examples and the gradual formation of sound judgment" on the works of the architect. Such words, pronounced by the highest artistic authority, in such a place, and addressed to many ministers of the Crown, to our leading senators, and to men devoted to science and literature, proves the importance, under a national point of view, of the just appreciation of our art and of its productions.

One of the last meetings of the late session was occupied by the consideration of the Report brought up by the Committee on Artificial Stone. Some of the results of the tables offer remarkable inconsistencies, and doubtless it is not months, but years of exposure, and only a vast number of samples, and of large size, that can give reliable results. Few can form an idea of the time and trouble involved in such enquiries; and I doubt much of the expediency for the Institute to enter upon such investigations. It is not reasonable to expect that professional men can afford gratuitously to devote such attention as is necessary for such elaborate experiment, or that the Institute should incur the expense, which in this case might have been considerable, had not Mr. Dines generously placed his premises, appliances, and the time of his men, at the disposition of the Institute.

According to the wise regulations of our Institute, this being the second year that I have been called upon to fill, however inadequately, the duties of your President, the present is the last occasion on which I shall have to address you thus at length, and to reveal to you all my inmost feelings as to our art in reference to our profession. I trust therefore I may be permitted, without offence and without wounding the susceptibility of others, to confess broadly and distinctly my own impressions of the importance of the study of classic art, as a most essential element

in the education of the young architect, and I do this at once to vindicate myself and the highest expressions of artistic thought.

There are those who consider classical architecture as an encumbrance to the student in his educational career, and therefore ignore it, adopting a more recent class of art without suspecting that they lose much by the omission; and in fact such minds do not lose much by such a conclusion, for the opinions of the learned are to them of little importance. There are others however, who, without absolutely arriving at such a conclusion, still do not place much reliance on classical studies, and they require reasons why, when there are styles of so much more recent date, and more nearly connected with our history and customs, so much deference should be paid to what they call the alien productions of remoter periods, of distant lands, and of such different necessities and habits of living and thought. Let us now consider what the advocates for classic architecture may adduce, and how the present style may be improved. All right-thinking persons agree, that too much attention cannot be bestowed upon a subject which is calculated to inculcate purity of taste and high elevation of thought. The necessity is admitted of adopting the best models for the formation of correct notions of the beautiful in art. When any monuments of recent times shall have excelled the works of the Greeks and Romans in the full development of their magnificence and splendour, whether as regards their proportion, grandeur, fitness, and refined ornament; and when any subsequent buildings shall have equally united through as many ages the general reverence of mankind, it will be time to discuss the relative pretensions of the two epochs to be considered supreme, as having embodied the soundest canons of refined taste. The architects of Greece and Rome lived in periods, when art in those countries was at its culminating point—when men of the most cultivated minds and of the highest intellectual status in such departments were engaged in discussing in the schools the laws of taste and the utmost refinements of thought. They laid down the laws of proportion with exactness. The sister arts of sculpture and painting were most refined, and the masterpieces of the highest genius were produced. Neither the one nor the other was obliged to depart from the truthfulness of nature, in order to conform to the arbitrary peculiarities of architecture. Our own eyes see that the works of Phidias, Scopas, Bryaxeis, Timotheus, Leochares, and Pythias were as full of all the just proportions, native grace and artless pose, as if the living subjects themselves had assumed the positions in which the sculpture is grouped, and as if the statues were intended for independent purposes. Those artists worked for an intelligent people, and had not to seek adventitious means to make their works come home to the convictions of the multitude. No contortions of form. No excess of expression. The poetic fancy of the artists had its limit, and did not run wild. The sacred edifice did not admit the caricature of sacred subjects, but maintained a tone of feeling and thought removed from everything that was lowly, familiar, and debasing. No masqued efforts in point of construction. It is amazing to think that classical art, with all the magnificent remains we have of the genius of the ancients still existing, should be put upon its trial in England. It is true that the monuments are in ruins, that the completeness of their origin state with all their appropriate accessories and the maintenance of their actual use in our times do not exist, as in mediæval buildings; and that the fulness of Greek art is to a degree an abstraction, and can only be appreciated by those who have lovingly and profoundly studied the subject; and by so far it stands at a disadvantage with more recent phases of taste. But with such a standard of purity as that revealed by the monuments of Attica, of Asia Minor, and of Rome, not to mention the provinces enriched by the reflex of glory, that sheds its halo on such ruins as those of the south of France, and in Sicily and Pompeii; a school cannot wander far from the true path unless in ignorance it rejects all antique tradition. It must be an impatience of wholesome control, a disregard for sober authority, a wild license of thought and passion for novelty, that would disregard the rich inheritance of the influence of classic taste. To cripple and destroy which is an act of barbarism and folly, an audacious attempt to throw back civilization, a high treason against good sense. For their temples, which are the highest expression of art in any people as being dedicated to the Deity, and coincident with the deepest feelings of devotion in the heathen mind, were objects worthy the acceptance of the Divinity. They were eminent in conception, choice in every detail, superb in embellishment, calculated to excite feelings of reverence and awe; stupendous as to size, striking as to position.

If we are to ignore the classic and select the exclusive study of mediæval art, as the most reasonable and masculine for the mind of youth, which period of mediævalism are we to adopt? For our present advocates for Gothic architecture, and I speak in the

presence of those who can correct me if I am wrong, are at variance in principle and practice upon this point. The three periods of classic art shew the progressive advance of taste, an enlargement of the sphere of invention, not an antagonistic process, for each one was perfect and harmonizing at the same time with the rest. All these could be adopted at the same time with perfect congruity. But shall we adopt the Byzantine? the Norman? the Early Pointed? the Decorated Lancet? or the Perpendicular, or Flamboyant? Will either admit a mixture with the other? We are limited to our one style. The Semi-circular will not properly combine with the Pointed. Nor the details of the pre-Norman with those of the subsequent epoch; nor the arch of this with the arch of that period. Where is the just ratio between the base, the shaft and the capital? They are all various. Where the utility, except for show, of a column, elevated in the classic to the leading majestic feature of a monument, in mediævalism reduced to mere shafts of decoration? What the laws of contrast between light and shade, when all the mouldings of a clustered shaft or reveal may be rounded off without a square or plane face to act in contrast and relief? Where the beauty of the exterior of buildings without breadth, cut up by the projecting and flying buttresses, evidences of weakness in construction, destroying all unity, quiet and repose, and introducing instead a bustling busy succession of shadows, lines, and disconnected parts? What mean those niches with figures therein, following up the sweep of the curved vaulting of a cathedral porch, as if each effigy of solid stone were ready to fall on the head of the worshipper as he entered the sacred edifice? What meant all this magnificence of disposition, that costliness of decoration, that attention to animal luxury and comfort for the residences of men supposed to be devoted to ascetic self-denial? What that affluence of art and material bestowed upon the memorials of monk and nun, abbot and bishop, so flattering to clerical vanity, and which the heathen did not admit.

Doubtless there are many daring flights of science and hardihood of construction, shewing great skill and handicraft. But there is scarcely a cathedral which is not tottering on its legs, displaying rents and crevices, and threatening ere long entire ruin, unless timely repaired, after only five or six centuries of existence. Whereas there are the remains of monuments in Italy and Greece and Asia, which have survived the shocks of earthquakes; the barbarous violence of the destroyer, and the wasting havoc of time. Despite of all this, they present lines of columns surmounted by heavy entablatures, standing free and upright as on the day of their erection, as though in their solitary grandeur they still defied the raging of the tempest, the fury of man, and the natural causes of decay and ruin. We conclude then that it is best for the student not to be exclusive in his taste, for there are elements of grandeur, fitness and elegance in all classes of art and in all periods. But to train the mind to appreciate the truly beautiful, he should select for his early studies the examples most severe in taste and most correct in form, as the best adapted for that purpose. His education therefore should be classical, perfected by a knowledge of all subsequent styles, including the mediæval; and then he may adopt and exercise safely the one most congenial to his matured taste and experience. For then he will be unprejudiced, the slave of none, the master of all.

In thus frankly stating my views on the relative merits of the two great periods of our art, the classic and the mediæval, it is not my purpose to arrogate in practice the exclusive superiority of the one over the other. Each has its peculiar sphere of usefulness and practical application, and that a noble one—in the wants of the present period; wants as regards taste, wants as regards use. The extreme classicism is to my own mind as unsuited in many cases to our requirements as the extreme Gothic. Our domestic habits, our public requirements, nay, our religious turn of thought, in God's mercy, happily demand modifications to suit them to the actual and not imaginary state of society. We must not be acting as puppets, and as on an ideal platform play the part of bygone thoughts, feelings, and impressions, but work out the honest convictions of the present real stage of life. We may look back, but we cannot go back to the past. I pray you then not to consider me as inculcating partizanship in artistic life; it engenders a rivalry of the lowest kind, it embitters the emulation which should on the contrary be generous; and it gives rise to enmity between those who should be friends, and such an unworthy motive-principle of action in pursuit like ours must be utterly repugnant to all honorable minds. The character of the profession depends upon the manner in which it is practised by its professors; and its status is fixed by the aims of those who stand highest in its ranks, and by the mutual respect in which the members hold each other. With noble ideas of art in the abstract, with a devoted love and reverence for the beautiful, all must seek to illustrate these qualities in their pro-

ductions, irrespective of the applause of the critic, or the unenlightened admiration of the public. Uninfluenced by mercenary views, by jealousy, or by selfish ambition, we must be forbearing and just to our brother competitors in the race, and judge them rather by the emanations of their skill and genius than with reference to ourselves. Under such influences the art becomes of noble growth, healthy, hearty, glowing with generous sentiment, and creating an atmosphere, a living principle, worthy of the best of times, and creditable to those engaged in the pursuit. An honourable profession like ours must be honourably pursued.

#### IS A NEW MAYORALTY HOUSE REQUIRED?

AT the recent meeting of the Town Council, Alderman Bonsall inquired whether it was correct that £1,200 or £1,300 was to be laid out on the Mansion House? It had been frequently stated that the Mansion House was scarcely suitable for the Chief Magistrate to reside in, and that a new house should be erected on its site. Under these circumstances he thought it would be improper to expend so large a sum on the present structure.

The Lord Mayor was not aware that such a large sum was proposed to be expended on the Mansion House. It was necessary to widen some passages, and increase the accommodation of the supper room.

Mr. Byrne had seen the estimate, and it was nothing like £1,300. The outlay required in providing increased accommodation in the supper room was £390, and £33 each for two sets of folding doors.

Alderman Bonsall said that if the amount expended on the Mansion House for the last ten years had been appropriated to its rebuilding, they would have a Mansion House that would be a credit to the city.

Mr. Sullivan suggested that the matter should be referred to a committee of the whole house.

The Lord Mayor said that it was not intended to alter the front part of the building at all, but to connect the King's Room with the supper room, for the convenience of the citizens.

#### THE STONECUTTERS' STRIKE.

THE questions at issue in the recent strike having been submitted to the Royal Institute of the Architects of Ireland for their advice and counsel in the matter, the following reply has been addressed to the Stonecutters' Society:—

*To the Secretary of the Stonecutters' Society,  
Dublin.*

SIR,—I laid your letter to me (of the 4th ult.) with its enclosure before the Council of the Royal Institute of the Architects of Ireland as you requested, and I am directed to convey, through you, to the Society of Stonecutters of Dublin, the deep regret felt by the Council that such a body of men should allow themselves to entertain seriously a matter so trifling in itself, and in which both old practice and recent experience are so diametrically opposed to their pretensions.

Up to a recent period the stonecutting trade has been reduced to a very low mechanical calling—the almost universal use of granite and other hard stones involving a maximum of hand-labour, from the attendant expense, necessarily excluded nearly all head labour—fortunately this is now being changed, additional facilities of communication are bringing into common use the English and French oolites and the sandstones of Scotland and the North of Ireland; and stonecutters, from being machines for squaring rough blocks of granite and limestone, and perhaps running a few flat, conventional mouldings, are now becoming men of educated hands and eyes, men with fancy and intellect who can appreciate a beautiful design, and fix it in durable stone for the admiration of posterity. Is it not beneath such men to squabble about such a very trifle as the setting? Is it not rather their business to see that the mason does that part of the work properly?

I have stated that both ancient practice and modern experience are opposed to the claim. In the ancient guilds of "master masons" there is a clear evidence that it was not the practice of the "stonecutters," properly so called, to set the work, they worked in the shop or on the bank, each had his own trade-mark, of which I have seen many myself, and the prepared stones were set by the ordinary masons. Modern experience has shewn that a man's work is more effective, and better and cheaper when he sticks to one kind of work. Most architects would make very bad stonecutters; very

few carvers are good for anything as joiners; as stonecutters you are excellent, and even in the very highest branches of the craft; when it ceases to be a trade and rises to the dignity of an art, there are men among you who are producing works of daily increasing merit: do not therefore abandon the higher to grasp at the lower walk of masonry. If any of your number profess to be a mere mason, to spend his time setting other men's work, he has the advantage of being able to make any little alteration that a stone may require, and as such will be valued and sought after, and readily employed, but when one such man could set the work of a dozen at plain work, do you not see that you are striving after a matter which is a mere trifle in itself, and utterly beneath a body of men calling themselves Stonecutters.

I am further directed by the Council to make an appeal to the body on the subject of the serious mischief they are doing to the employers whose works they have stopped, and the poor labourers and sawyers, who are left to wander the streets with idle hands and aching hearts, to avoid the deeper misery at home. I hope soon to have the gratification of hearing from you that the Stonecutters have returned to their employment, satisfying themselves with the understanding that neither shall they be excluded from setting stone because they are stone cutters, nor the masons because they are only stone masons, but that competency and the employer's sense of his own interest shall be the only, as they are the true tests, and such as are likely from their nature to be permanent.

I have the honour to be, Sir, your obedient servant,  
(Signed.) JAMES H. OWEN, Hon. Sec.  
Royal Institute of the Architects of Ireland,  
Dublin, 4th November, 1864.

#### LINEN WAREHOUSE, BELFAST.

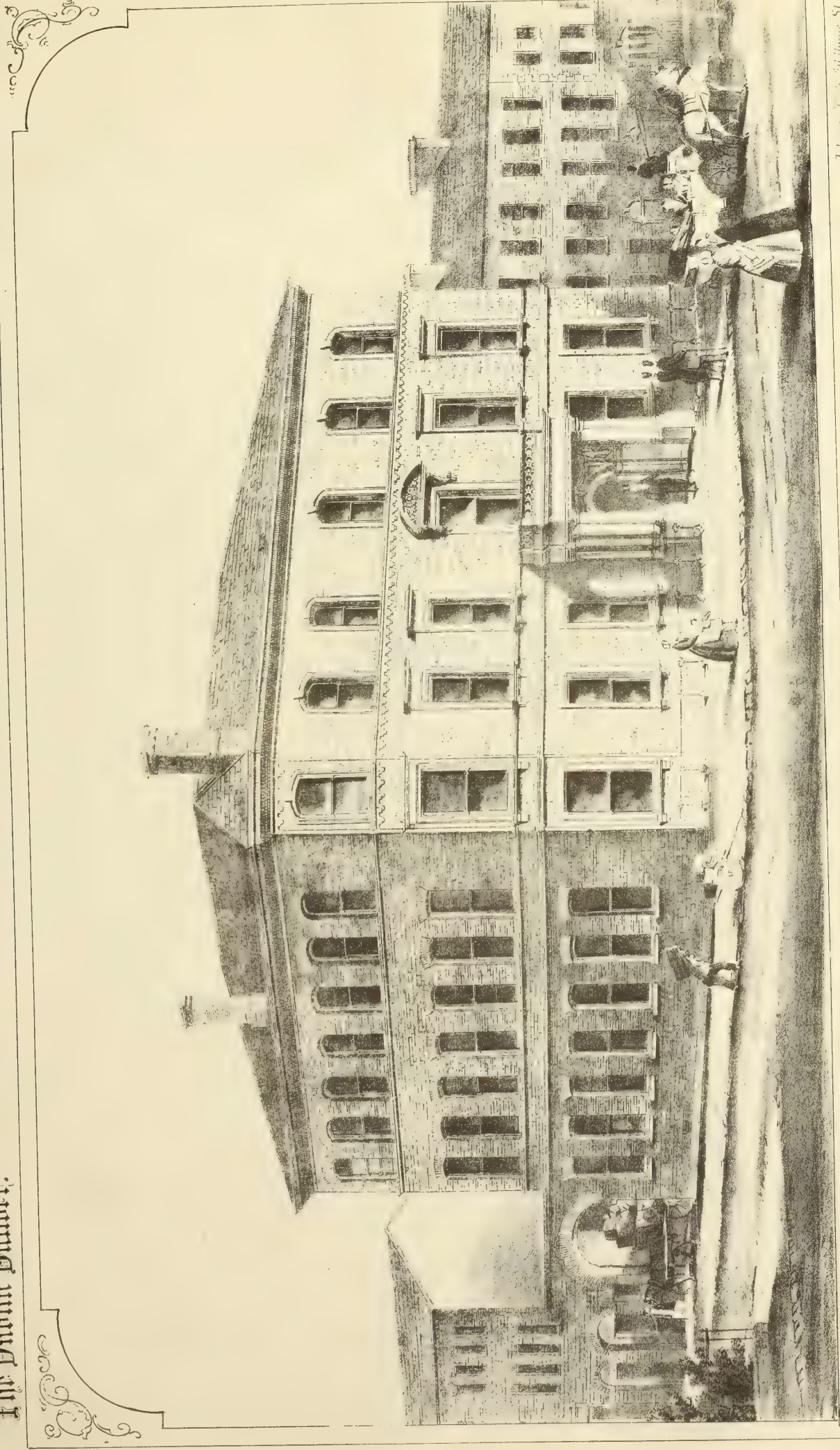
THE warehouse, an illustration of which appears in this number, is selected as a specimen—scarcely even an average one—of the class of buildings which are springing up in the town of Belfast. In some cases, where whole streets are composed of such edifices, the effect to a stranger's eye is somewhat striking, and eminently suggestive of commercial respectability. Not a few of these buildings are not wanting in suitable architectural character, and the admirable ornamental and structural details are well worthy of study. We hope to return at a future period to the illustration of some of the more elaborate ones. This one suffers under certain disadvantages arising from an awkwardly crooked site, but is nevertheless a substantial-looking, respectable building. The arrangement of the entrance doorway, decorated in a novel manner with festoons of linen, is noteworthy.

The facing of the building is Scotch fire brick, with Scraboh stone dressings to the windows and doors. It is the property of Messrs. Moore and Weinberg, and the architects, we believe, were Messrs. Lanyon, Lynn and Lanyon:

#### Books Received.

*Cottage, Lodge, and Villa Architecture.* By W. and G. Audsley, architects. William Mackenzie, London, Glasgow, and Edinburgh.

THE first two numbers of this work, the authors of which propose to supply a want very generally felt in architectural circles, are before us. Each number contains three very beautifully executed plates with explanatory text. It would be premature to express any decided opinion as to the merits or demerits of the publication until the whole is before us. The plans of the examples in these two numbers are excellent and well arranged, and the drawing exquisitely neat, and as such, a good model for the imitation of students. The elevations, however, scarcely come up to the same standard of value, although the drawing is characterized by the same neatness. The detail generally partakes a little of the "mason and carpenter" school of Gothic, although not without some merit; a little more boldness too in the execution of the detail drawings would, we think, have made them more valuable for the imitation of students; but, as we observed before, these remarks are somewhat premature, and we only give them as our impressions of the first six plates of a work which will contain ninety when completed, and which will present thirty-two complete designs in different styles, together with an introductory essay on planning, and explanatory text. The work will be complete in 30 numbers, and the price of each is two shillings and sixpence.



J. Lewis & Co. Dublin S<sup>c</sup>

LINEN WAREHOUSE, DONECALL SQUARE NORTH, BELFAST.

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## IMPROVEMENTS IN BUSINESS PREMISES.

WE have observed with interest that improvements of considerable extent have been carried out at the premises of Messrs. Andrews and Company, general grocers, wine merchants, purveyors, &c., of Dame-street and George's-street; and now that they are completed, the concern presents on the whole a building of a character and style well suited to their extensive and respectable business. The alterations have been carried out by Daniel Crowe and Sons, of Great Brunswick-street, and are very creditable in execution. The premises had been cut up and remodelled several times, and in the progress of the work it appeared that the piers, &c., on which the walls rested, were in a defective condition, and supported for the most part on timber, which was in a decayed state, and had to be replaced by brick and cement piers—an operation requiring the utmost care. The building is of a substantial description, and the architectural features plain and unpretending. The door and window openings have all been made to correspond, giving a general uniformity to the whole. The windows on the shop or ground floor and entrances (of which there are five) have semicircular heads, and molded archivolt, and key-stones molded in profile to suit the members of the frieze and archivolt which abut against them. The building also presents a uniform appearance when the premises are closed, as the doors and shutters are made in imitation of Venetian shutters, and all correspond. A cornice, under the first-floor windows, breaks round the quoins on each front, and in the frieze under this cornice there is the name of the firm. The windows of the second storey have architraves surmounted by an entablature, each supported by neat consoles. These windows are filled with polished plate glass, as are also the windows of the lower storey; the windows on the second floor have a continuous molded string at the level of their eills, also broken round the quoins, with architraves and entablatures to each. The two upper storeys have architraves to the windows, and a cill course to the upper windows. The whole is surmounted by a massive cornice and blocking in character with the other parts. The chimneys have also been reconstructed. The quoins are of equal length, and channelled and plain in the lower storey. The whole of the work is executed in cement. The Messrs. Andrews have also remodelled the interior of their very extensive establishment, affording considerable increase of accommodation and convenience. The alterations of the interior are in keeping with the exterior.

We are always glad to have an opportunity of noticing improvements of this character, which are calculated to put our large places of business on a footing with those of other great towns.

## THE LATE DR. SPEEDY—SANITARY STATE OF DUBLIN.

WE (*Freeman's Journal*) have to-day to record, in our obituary list, the death of a medical officer of great experience and long standing in Dublin, who gave much attention to the sanitary condition of the city, and has himself fallen a victim to that child of misery and product of sanitary neglect—typhus fever. Dr. Speedy, whose kindly warnings on this subject we have again and again quoted in these columns, will, alas! warn no more. Let his sad but honourable death—death met in the fearless discharge of his duty to the poor—warn the members of the Corporation of the consequences that must follow a neglect of sanitary laws, and let it induce them to be more active in bringing into operation the new bye-laws, which will enable them to enforce cleanliness in nine thousand houses, and compel the rent receivers, who now neglect to provide for the ordinary decencies of life for more than one hundred thousand of our working poor, to perform the duties, as they now exact the rights, of house property. *Three times have the active members of the sanitary committee failed to get a meeting of the council sufficiently numerous to deal with the bye-laws.* The voice of our lamented friend and fellow-citizen often, when in life, warned them on this subject: from his untimely grave he now warns them to neglect the poor no longer.

## PROJECTIONS IN THE STREETS.

MESSRS. Todd and Co., of this city, millers, were summoned at the instance of the Corporation for not having removed certain sign labels which are affixed to their shop-fronts.

Mr. R. K. Clay appeared for Messrs. Todd and Co., and Mr. J. Bryson, of Nassau-street, stationer, who was summoned for a like offence.

Mr. Smyth drew attention to the Act of Parliament, passed on the 28th June, 1861, by which the Corporation were empowered to remove sign-boards and other obstructions, &c., and he submitted, on his proving that the obstruction existed, he was entitled to have the parties fined.

Mr. Allen concurred in the view taken by Mr. Smyth so far, as he considered that when a body like the Corporation of Dublin considered that the sign objected to was an obstruction, it was, to his mind, a *prima facie* case. Mr. Smyth called the inspector, and proved that the sign was recently put up.

Mr. Clay submitted on behalf of his clients that, under the act referred to, the complaints should go further and prove to his worship's satisfaction that it was "an obstruction to the public"—those were the words of the act—that the question was a very serious one to almost every shopkeeper and trader in Dublin, and required mature consideration before a precedent should be established such as Mr. Smyth contended for. A sign could be so placed as to come within the meaning of the act, so as to interfere with the public traffic, in consequence of its being hung too low, and so obstruct foot passengers. It was to meet such a case the act was passed; if one sign came down all should come down. He now proposed to prove that the sign in question was not an obstruction to the public.

Mr. John Todd was examined, who stated that in his opinion the sign was not an "obstruction to the public," and that the lower part of it hung about twelve feet from the pathway. The witness stated, in answer to Mr. Allen, that the sign was on a level with the drawingroom floor.

After much discussion, Mr. Allen fined the Messrs. Todd and Co. £1 1s. and 6s. costs, to enable them to have the matter fully discussed by counsel before the Recorder. Mr. Bryson's case was adjourned for additional evidence, as he claims the right to retain his sign as it was in existence prior to the 28th June, 1861, the date of the act.

## ROYAL IRISH ACADEMY.

A GENERAL meeting of the Royal Irish Academy was held last evening.

The Very Rev. Dean GRAVES in the chair.

Dr. W. Reeves apologised for the absence of Mr. G. V. Du Noyer, and in his name presented and described a collection of original drawings of Irish antiquities. This is the sixth collection of drawings of a similar nature presented by this gentleman, and he (Dr. Reeves) had ascertained that they numbered 548. It was Mr. Du Noyer's intention to continue his presentations.

Mr. Samuel Ferguson read a paper "On an Ogham inscription discovered by himself in the cave at Rathcroghan, county Roscommon." Referred to the council for consideration.

The chairman gave some information interesting to the student of Ogham characters.

Mr. Eugene A. Conwell read, in continuation of former communications, a paper "On the ancient remains on Sliabh-na-Caillighe." His remarks were so intimately connected with a number of valuable drawings which he exhibited that without them they could not be understood or appreciated. He described minutely his clearing out of the sepulchral chambers of two cairns on the peaks of that mountain near Oldcastle, and quoted an amusing legend.

Mr. Samuel Ferguson and the chairman bore testimony to the value of Mr. Conwell's researches.

Mr. H. F. Hoare read a paper on "Banshees." He attempted to trace the origin of apparitions of this kind, taking an archaeological view of the subject. His object was to show that these apparitions were nothing else than the Robinson Crusoes of the country.

## OPENING OF ST. STEPHEN'S GREEN.

A MEETING under the presidency of the Lord Mayor was held yesterday in the Mansion House, for the purpose of arranging for the introduction of a second bill into Parliament during the ensuing session, authorising the opening of St. Stephen's-green as a public park. Among the resolutions passed was one recommending a conference of the several parties interested in the movement previous to the preparation of the bill. A committee was appointed to take the necessary steps.

## THE DUBLIN TRUNK CONNECTING RAILWAY—ARBITRATION.

CHARLES BRASSINGTON, Esq., C.E., the arbitrator appointed between the above company and the trustees of the Catholic University, held a meeting on Saturday, 12th inst., in the Rolls Chamber. The trustees of the Catholic University claimed the sum of about £4,700, in respect of their interest in the lease of part of the lands of Clonliffe West, near Drumcondra, through a portion of which the proposed line will pass. While the bill was in progress through the House of Lords the trustees opposed, and the company entered into an agreement to purchase the whole of the land leased to the trustees, and in a portion of which the first stone of the new University had been laid. By terms of agreement the arbitrator is to be at liberty to consider the expense incurred by trustees in relation to the site, and in procuring another. Mr. Coffey, Q.C., appeared for the company, and Mr. John O'Hagan, for the University. The Rev. Dr. Woodlock, Mr. McCarthy, architect, Mr. Dease, of London, architect, and Mr. McCurdy, architect, were examined on behalf of the trustees, and Mr. William G. Murray, and Mr. John S. Mulvany having been examined and cross-examined on behalf of the railway company, the further hearing was adjourned. Portion of the sum claimed consists of a large sum incurred in the expenses attendant on the ceremonial of laying the first stone.

## MONUMENTS, STATUES, ETC.

The Queen has honoured Mr. Brodie, of Aberdeen, with sittings for a statue to be erected in Aberdeen, which has been subscribed for by the working classes of Aberdeenshire.

Mr. Greenough, the American sculptor, has just sent from his atelier to London a bust of the distinguished actress, Miss Helen Faucit, which, as a work of art, has received the highest commendation from the amateurs of Paris.

A pump (which, as Mr. Pickens observes, "is very chaste practice") has been erected at Blandford, in Dorset, in which has been inserted a tablet, on which has been inscribed the following, viz.:—"Erected for public use by Thomas Horlock Bastard, and dedicated by him to the memory of his esteemed friends George Combe and Andrew Combe, M.D., and of their zealous efforts to diffuse a knowledge of the human constitution, and of the laws of nature as conducive to the preservation of health and the advancement of morality. October, 1864."

The lovers of mediæval art will be pleased to learn that the unrivalled series of monumental brasses in Cobham Church, near Rochester, is, together with other monuments of the ancient lords of Cobham, now being restored effectually, at the cost of Captain Brooke. The sculptures are assigned to Mr. Richardson, but the brasses are under the care of Mr. J. G. Waller.

A communication from Rome contains the following:—"The discovery of the statue of Hercules in Pompey's Theatre excites the admiration of artists in the highest degree. It is a work of Grecian art in bronze, and of larger proportions than any to be seen at Rome. Its execution is superior to anything yet known; the bas-reliefs of the Pantheon and the Apollo Belvedere are of a purer style, no doubt, but they have not the incomparable finish of the Hercules now discovered. Pius IX. takes a great interest in the statue. Having learned that the lucky finder, M. M. Righetti, was endeavouring to sell it to a distinguished foreigner, the Pope is said to have complained of that proceeding, and to have mentioned to a deputation of the Archconfraternity of St. Peter, that, as M. Righetti owed large sums to the State, the statue might possibly be looked on as a pledge similar to those of the Mont-de-Piété, for such a precious object could not be lost to the city of Rome. The Popes have rarely neglected such discoveries; the care taken by Julius II. to preserve Apollo Belvedere, when found in the baths of Titus, is well known."

The British Museum has received the statues from the Farnese Palace at Rome, recently purchased from his Majesty, the ex-King of Naples.

Mr. J. Earp, sculptor, has just completed a drinking fountain from the design of Mr. J. F. Bentley, architect, for Bridgetown, Barbadoes. It is made of Portland and red Mansfield stone, and stands, inclusive of the bases and steps, 24 feet high.

A monument to Melancthon has been prepared in Berlin by the well-known sculptor, Professor Drake. It is to be erected at Bretton, in the Grand Duchy of Baden.

It is proposed to erect a memorial window at the Charter House to the late Mr. John Leech.

A tablet of green graphite (?), bearing in letters of gold the words *Gluck's Wohnhaus*, is to be placed on the house at Vienna in which the famous composer lived for some years.

### THE FINE ARTS IN CONNECTION WITH THE CHURCH \*

ONE of the very great advantages of reunions such as the present is that we are enabled to take stock of other things than those immediately set forth in the prospectus, and I therefore most willingly seize the opportunity to examine as to the state of the fine arts in connection with the Anglican Church. Of course the subject resolves itself into what we have done, what we are doing, and what we may reasonably be expected to do. Now as to what we have done. It is some twenty years or more since the Cambridge Camden Society took up the subject of Mediæval architecture. Pugin had done much, but no one man can ever pretend to direct so great a subject as a change in our architecture. The Camden Society went into the breach, and by means of a series of most useful papers containing the results of the experiences of the many, and also by means of the most unsparing criticism, it succeeded in getting us to build tolerably decent churches, *i.e.*, churches which, as regards the exterior, looked very like old ones. Not that it required any particular talent on the part of the architect to do so, for the directions for a regulation church are very plain and may be easily found by an attentive perusal of the "Ecclesiologist," and indeed so easy has the subject become that I venture to say that almost any young architect of the present day who has been two years in an office can design his regulation church. Another great occupation was the restoration of old churches. I do not know whether I ought properly to call this a restoration or a destruction, for so much injury has been done under this pretended restoration that I do not hesitate to declare that we have lost a great deal more than we have gained under this head. There is really no more difficult problem in the whole practice of architecture than that of restoration; for a man, to succeed thoroughly in it, must be not only well versed in modern and ancient construction, but must also be an antiquarian and something of an artist. Yet how often do we hear of young men just out of their apprenticeship and with good connections beginning life with the one or two churches to be built and five or six more to restore? Of course the new churches do not matter very much, for, as I said before, church building is the sole thing taught in an office; but it is a very different thing as regards the restored churches, in each of which we run a chance of losing some landmark in the history of architecture. So often, indeed, has this happened that as a general rule when one hears of a church having been restored it is hardly worth going to study from. What really is wanted in the restoration of a church is to do as little as possible. Keep it together if it is possible; if an aisle or tower is tumbling down rebuild it, using as much of the old materials as possible, and inserting a small inscription to record the fact. Should there be any money to spare employ it in a work of art as good as you can get for your money, *i.e.*, one stained glass window, a dossal, or a painting on a wall or roof; but then get it good, and let it tell some story. In fact, let be such that an artist would think it worth his while to turn out of his way to look at it. As it is we fill our churches with stained glass which a future generation will probably break to pieces; and if ever we do see a piece of sculpture we may be sure that it is of the most mild description. The figures tell no story, for they have no expression in their faces, and do not appear to know what to do with their hands; their hair is also most carefully arranged, and their noses and other features are of the most regular and unmeaning description. But to return to the new church. As I said before, the exterior is generally very like an old one, and that old one of the village type; it is only very lately that we have become aware that town and village churches require very different modes of treatment; but suppose we open the door and go inside, what do we see? Generally nothing at all beyond a mass of seats, and a few inferior stained glass windows, and very happy indeed are we if these latter do not positively offend the eye by their raw colouring, to say nothing of their bad drawing. The walls are plain plaster, and the roof looks like a scaffolding, so thin and meagre is it. Now in the edifices up to the fourteenth century, I very nearly question whether that desideratum of ecclesiologists, an open roof, ever obtained in churches. Look at ancient twelfth and thirteenth century buildings that have not been restored, and you will find an hexagonal ceiling, the said ceiling in many places replacing the old boarding; but, in some poor places, as in the little Sussex churches, it may just as likely have been original. In many instances the ceiling was even flat, or very slightly canted, as at Peterborough, Jesus college, Cambridge, and, I believe, Adel church. Now, this boarding was useful in two ways—it afforded a surface for decoration, and it kept the church cool in summer and warm in winter. There was, also, a small window high up in the gable

to ventilate the arc between the ceiling and roof. In our modern open roofs we have just the reverse; they are frightfully hot in summer and cold in winter. Go into a church after a Sunday afternoon service, and observe how close it smells. Our modern architects put the little window in the gable, because they find it there in the old examples; but with them it is of no earthly use but to afford light where light is not wanted, and to show the thin scantling of the timbers.

Another important point is the treatment of the walls. No one in his senses supposes that all the Mediæval churches were decorated in brilliant gold and colours, like the Sainte Chapelle of Paris, or St. Stephen's at Westminster. Yet they were painted, and in this manner—the rubble of the walls was dubbed out to a plain surface; the angle jambs of windows and doors were made of stone, because that was the best and most durable material for the purpose; the whole of the walls were then covered with a coating of gesso (whiting, and size) one-eighth inch thick, which was gradually thinned off as it approached the stone jambs, which were covered with only a thin washing of it, as they did not show as stone. Upon this gesso the artist painted his subjects, with a red outline, and shaded them up with black and red and yellow, using white for the high lights. It should be remembered that these colours were not used pure, except in little bits, but were broken up with white and with one another. The seas of diaper we see in modern churches were unknown to the old artist, who, when he did employ diaper, did so only as a background, or to fill up a space unoccupied with anything more important. From remains continually being brought to light we may confidently assert that nearly every church in the thirteenth century was decorated in this manner. They were whitewashed in the reigns of Edward VI. and Elizabeth, and have, in the vast majority of instances, only been brought to light to ensure their more speedy destruction from the church restorer. The interior of a modern church, on the contrary, is neatly plastered with plaster one inch or three-quarter inch thick or less on the rubble, which stops flush with the stone coigns, which are left uncovered because the architect has been brought up to consider stone as a beautiful material for its own sake, and, in fact, just the same as an Italian would regard marble. The consequence is that we see every piece of stone a distinct colour from the plaster, and all the lines of the architecture become jagged and uneven.

Nothing is probably more amusing, if it were not at the same time sad, to read the congratulatory tone of the public prints when they notice the opening of a new church. We are told that there is a spacious and commodious chancel, or that the edifice is built in the appropriate form of the cross; that all the capitals have been beautifully carved into roses and lilies, or passion flowers, by Mr. X—, the architectural sculptor; that the roofs are of high pitch, and have been varnished and stained; that two of the columns of the font are of Purbeck, and two of them of Rouge Royal marble; that the stone reredos is inlaid with piers of polished marble, and that the chancel has been laid down with Minton's encaustic tiles. Sometimes, indeed, our breath is taken away by our being informed that the chancel is lined with alabaster. Now these things are not art, they are only prettinesses; they cost a great deal of money, and do not add to the solemnity of the building. How much better would it have been to have got some young artist to have told some Bible story, some event in the life of our great Example. The picture or pictures might be done in tempera, the most lasting of vehicles where there is no damp; it might be executed in grisaille, or in the four colours, like the old examples; and surely the lesson taught by our Saviour working at His father's trade and being obedient to His parents, may, in many instances, be worth acres of Minton's encaustic tiles, or yards of inlaid work. But remember, in this instance I presume the aid of a competent artist is employed, and there are many such among the younger ones who would be but too delighted to work for the church instead of painting pictures for the Academy on speculation, which are probably badly hung, and certainly not sold. Such pictures would have good drawing and expression, and such painters would be able to make cartoons which would also have these qualities, and so save us from so much rubbish which is annually placed in our windows. And here I may perhaps be permitted to pay a tribute to my late friend, Charles Winston, so well known for his work on stained glass. He differed most decidedly from the school of art to which most of my friends and myself belong; in fact, he considered the Roman architecture as our true *point de depart*, but with all this he was the unceasing and unsparing advocate of boldness in architecture, to the exclusion of prettinesses such as cusps and finials, and of good drawing and good colouring in stained glass. From him I learnt a very great deal, and many of the opinions I have ventured to put forward on this occasion I first heard from his mouth. Had he been

spared longer he would have seen the principles he advocated in general use throughout the architectural arts. As it was, he only lived to see the beginning.

Lastly, the question presents itself as to what we are to do to beautify our churches. The answer appears to me to lie in three things. The first is to use them a great deal more. At the present day private devotion has, to a great degree, superseded public. How far such a result is desirable, it does not become me as a layman to speculate. A man will naturally care less for a building which he enters only every seventh day, than for one in which he says his prayers every day, morning and night. Perhaps if some of our city churches were kept open all day, the chancel being protected by a grille, public devotion might, to some degree, supersede private, and people might come to take an interest in a place so much frequented, and with which their hopes and fears are so much associated.

The second thing to do is to have a greater love of monumental art. This love of monumental art is of slow growth, and will not arise in one or two years. By monumental art, I mean the painting the walls of our rooms, instead of hanging pictures upon them, in spending money on objects of daily use, and in making our sculpture part and parcel of our domestic buildings. The great obstacle to such a state of things is our unfortunate law of leasehold, for who will paint walls when he knows that he has them painted eventually for his landlord, and not for his descendants?

The third thing required is a better education of the architect. In nine cases out of ten, if the architect can show his client a sketch of the group of sculpture or the painting he wants introduced in connection with the architecture, his client will let him have it done; but, unfortunately, when the architect, as is too often the case, cannot do this, he takes refuge in notches, foliage, cusplings, chamfers, tiles, marble, inlaying in stone, and other prettinesses, which in the end cost more money than works of art, and are nothing to look at when they are done. An instance of this obtains in our metal work. I should very much like to know the sum annually expended on the wretched brasswork held together with screws that we now see in every church. We do see an immensity of it, but how is it that we seldom see cast brass work, with figures like the Albero of Milan? Simply because it is easier to draw a thing with a pair of compasses than to design historical groups of figures.

It should also be remembered that no artist, and an architect such as we now want is an artist, can possibly do more than a certain number of works of art. All above that must be done by his clerks, while he himself cannot have the time to properly think over even those he retains (if he does retain any) for his own special attention. One great remedy I would propose is a more general distribution of work among architects, and at the same time a demand for higher qualification from them. They should also be paid, as artists are paid, according to their merits, and not upon a per-centage of work done. I have thus, according to the best of my ability, touched upon the present state of ecclesiastical decoration, and the means for our future improvement. The great thing is to create a demand, by opening our churches every day and all day long. The decoration will soon follow, and a crop of artist architects and artist painters will arise which will be an ornament to our church, and prove in this country that she follows up the proud position she has taken up of late years—*viz.*, as the great patroness of the fine arts. At present the question is simply between art and prettinesses.

The *Daily News* of May 29th, in its description of Benson's Great Clock, says: "The entire finish is of the highest cast." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing room, dining room, bed room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. church and turret clocks specially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate-hill, London. Branch Establishment, 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H. R. H. the Prince of Wales.

\* By Mr. W. Burges. Address at the Bristol Church Congress.

## HEALTH OF DUBLIN.

(From the Registrar General's Weekly Return.)

THE number of births registered in the city of Dublin during the week ending November 5th amounted to 114—59 boys and 55 girls; being one less than the number registered during the previous week. The number of deaths registered during the same period was 99—51 males and 48 females; the number registered during the preceding week was 123.

Diseases classed "Zymotic," proved fatal in 21 instances—including 10 deaths from fever, 4 from diarrhoea 3 from scarlatina, 2 from small-pox, one from diphtheria, and one from dysentery.

Forty-three of the persons whose deaths were registered during the week, were under 20 years of age, 18 were between 20 and 40, 14 were between 40 and 60, 23 between 60 and 80, and one was aged 81 years.

Of the 114 births registered during the week, 68 occurred in the North City, and 46 in the South City District. Fifty-five of the deaths registered during the week took place in the North City, and 44 in the South City District. According to the Census for 1861, the population of the former district was 109,143 and the latter, 145,665.

At the Observatory of the Ordnance Survey Office, Phoenix Park, the mean height of the barometer during the week was 30.160 inches. The highest daily mean reading during the week (30.342) occurred on Saturday, and the lowest (29.922) on Sunday. The temperature was highest on Friday, when the thermometer rose to 54.7°, and was lowest on Thursday, the mercury having fallen to 30.0°. The mean temperature during the week was 45.8°. The lowest daily mean (41.4°) occurred on Wednesday, and the highest (50.0°) on Saturday. The total rain-fall during the week was .144 inch. The mean humidity of the air during the week was .849,—complete saturation being represented by 1.0.

The number of births registered in London during the week ending November 5th, was 2,017—1,019 boys and 998 girls; the average number registered in the ten corresponding weeks of the years 1854—63 was 1,901. The number of deaths registered during the week amounted to 1,451—757 males and 697 females; the average number for the same week in the previous ten years being 1,239.

## DUBLIN INTERNATIONAL EXHIBITION, 1865.

THE operation of testing the strength of the ribs or arches which carry the roof over the main aisles of the Exhibition Building, took place on the 27th ult. The directors instructed their architect and consulting engineer to apply the severest test the roof could ever be called on to endure, and to satisfy themselves that even in the present unfinished state no sign of weakness was anywhere apparent. Accordingly, it was decided to suspend a load of 14 tons, equivalent to one quarter of a cwt. to the superficial foot of roof, from one of the arches which are 50 feet span. Ropes were let down, and a scaffold secured to them within 3 feet of the ground, and upon this was piled the prescribed weight of timber and bricks. A lath was hung from the centre of the arch, and the deflections recorded. The greatest deflection of the arch was one half inch, and the most minute scrutiny failed to detect the slightest flaw or yielding of an injurious nature.

A portion of the gallery of the Winter Garden Building has also been tested, notwithstanding its incomplete state, the flooring boards not being laid or tie-rods finally adjusted.

One compartment of it, or a square of 16 feet, was loaded with 130 men, closely packed upon the loose flooring boards, equal to a weight of 8 tons, the deflection being but half an inch; and with 60 men, or a load of 3 tons, deflection 3-16ths of an inch.

The mode of constructing and supporting the gallery floors is novel and effective; the joists bear upon purlins, supported on cast-iron struts springing from horizontal wrought-iron tension bars, which run diagonally from column to column under fl or level, and rigidly brace them together. This ingenious method of bracing is a manifest improvement upon the present vertical diagonal system of bracing adopted in the London Exhibitions, and also at Sydenham Palace.

When the galleries are complete, it is intended to prove them by a weight equal to 140 lbs. to the foot superficial, being the proof to which her Majesty's Commissioners subjected the gallery floors of the International Exhibition of 1862. They will further be tested by rolling over them 68 lb. cannon balls in open wooden frames, which will effectively test the soundness of the several castings.

It is proposed to establish a permanent art gallery in Birmingham; pictures to be removed at the time of sale, and contributors to have the option of replacing their unsold works at pleasure.

## ARCHÆOLOGICAL.

In a letter addressed to M. Elie de Beaumont, Father Secchi of Rome gives an account of two interesting monuments discovered by him near Alatri, in the Campagna Romana. This town, of Pelasgic origin, and celebrated for its Cyclopean walls, is situated on the top of a mountain, and being at the time of the Romans ill-provided with water, the Censor L. Betilienus Varus, as a celebrated inscription tells us, caused an aqueduct 340ft. high to be constructed between Alatri and the neighbouring mountains; it being expressly stated that he built it with arches, and provided it with strong pipes. The present researches ordered by Pope Pius IX., in order to renew the supply of water to the town, have led to the discovery of a large portion of the old aqueduct. From the survey made by Father Secchi it appears that the lowest point of the aqueduct lies 110 metres below the highest point of the town, a figure which coincides with the 340ft. of the inscription. Here, therefore, is an aqueduct built 160 years before Christ, in the shape of a reversed syphon under a pressure of 11 atmospheres. It is difficult to say how much water was conveyed by this aqueduct, but it evidently was sufficient for the consumption of the town, since the piers of the arches measure no less than 5ft. 9in. in breadth. The total length of the syphon is about six kilometres. The other discovery is a field under which a complete system of drainage was executed by means of long pipes made of brick clay, and on an average 1½ft. in diameter. They are now stopped up with sediment, and are 2½ metres below the surface of the soil. This field was probably the parade-ground mentioned in the inscription as having been laid out by Betilienus, whose attention to the interests of his city was well rewarded, since he was twice appointed Censor, and a statue was erected to his honour.

One of the most curious and interesting discoveries for years at Pompeii has just been made. It consists of a large white square marble block upon which is carved an almanack with some extraordinary and interesting data.

In Malton, in excavating for drainage round the post-office, portions of two Roman roads have been cut through about 3ft. below the present surface. One road was that which led towards the west (York, &c.), and the other, in Wheelgate, to the north (Isurium), and also to Prætorium (Dunsley). Both were paved, and run together with a cement or mortar. Upon the road burnt stones and earth were plentiful, intermingled with quantities of bones of the horse, ox, and swine. It is conjectured the animals may have perished in the streets during the burning of the town by Archbishop Thurstan, in order to dislodge the Scots, in 1135. The bones, through long burial, had become flint-like, and quite as hard.

*Aqua Solis*, which we now style Bath, is vindicating her Roman magnificence by the presentation of a large tessellated pavement about 12ft. square to the eyes of certain excavators. This work rested upon dwarf pillars and hollow tiles; probably such were used for heating purposes. In the centre of the design is a rose with geometrical borders. A second pavement, of coarser execution than that above named, was discovered immediately adjoining it; a house had been erected over both these works, and its weight had much disturbed their levels.—*Athenæum*.

Two skulls and other bones of a couple of human skeletons have been discovered by the workmen employed in levelling the embankment between the new roads leading from Ferryquay Gate and Bridge-street to the new bridge, Londonderry. They lay beside one another in the yellow clay subsoil, about 4ft. beneath the surface of the ground. They are supposed to have been the remains of persons killed during the siege.

At Paris some labourers who were digging a new sewer in the Rue de la Paix discovered a human skull in the remains of a leaden coffin. They likewise found beside it a copper plate, in excellent preservation, bearing an inscription. They removed the coffin carefully, and deposited it with the commissary of police of the district. According to the inscription, these remains are those of Henriette de Joyeuse, widow by her first marriage of the Duke de Montpensier, sovereign of Dombes, and by her second marriage of Charles of Lorraine, Duke of Guise, who died in 1656.

DISCOVERY AT THE BLACK ABBEY, KILKENNY.—One of the long buried and forgotten sepulchral monuments connected with the Dominican Abbey in this city was discovered recently. While removing a boundary wall, situate within the original Abbey precincts, the workmen found a tomb, right across which the wall had been built, and apparently in its original position, as it lay east and west, and the foot to the former point. It is a coffin-shaped slab, ornamented with a cross in bold

relief, gracefully designed, and floriated at the points. Running along the right side of the shaft of the cross, in two lines, is an inscription in Norman French and incised Lombardic characters as follows:—"† David: Mercator: Git: Ici: Deu: De: Sa: Alme: Eit: Merci: Amen." That is—"David the Merchant, lies here: God on his soul have mercy. Amen." This was, no doubt, an ancient burgess of Kilkenny. The character of the sculptures and inscription shows the monument to date about the year 1250.—*Kilkenny Moderator*.

Lieutenant-Colonel Akroyd has discovered in a doorstep what is supposed to be an ancient battle-axe. After much examination and consultation, the discovery was deemed of sufficient importance to justify the removal of the step to the geological portion of the Yorkshire Philosophical Society. The stone had been in use as a step fifteen years.

Our countryman, the *Times* correspondent in Denmark, in describing the visit of the Royal party to Thorwaldsen's Museum, says—"this building which is at once the shrine and the shroud of the great Danish sculptor enjoys among artists a world-wide reputation; but to the visitor who may have previously made acquaintance with some only of his best detached pieces, such as the monumental effigy at Lucerne to the Swiss Guards of Louis XVI., there is a sensation altogether novel in turning from the living creations of his genius to the granite-edged slab in the centre of the courtyard under which Thorwaldsen lies buried. Giving for once a refutation to the proverb that 'the prophet is not honoured in his own country,' this building was commenced in the lifetime of the artist, who was well aware of its double destination, and, in fact, superintended the construction of the vault which was eventually to enclose his remains. The architectural details of the building are largely indebted to the style visible in both Greek and Etruscan sepulchres, and the mural ornaments of the interior are copied from the decorations of ancient tombs. Allegorical allusions abound everywhere to the genius of Thorwaldsen, and the difficulties which it overcame; and on the summit of the building is a fine bronze casting of Victory, in a car, checking her steeds in the moment of triumph. The figure of the goddess and that of one of the horses in this group are items reproduced from Thorwaldsen's own designs; the car and the other three horses were modelled by W. Bissen. A description has already been attempted in the *Times* of the curious effect produced by the external wall-paintings, in coloured stucco, which are intended to set forth the arrival of the sculptor, when, in 1838, after an absence of 18 years, he returned to Copenhagen in a vessel carrying the greater portion of the works destined for the Museum. Of the contents of the building it will be sufficient to say that they are divided into two parts, the first consisting of pieces of sculpture actually chiselled by Thorwaldsen, or copies in marble or plaster of his works, the second being the collection of objects of ancient and modern art which he amassed during his lifetime. Some idea of the extent and interest of the Museum may be gained from the fact that, irrespective of the plaster casts, it includes no less than four groups, 17 statues, 18 busts, 61 bas-reliefs, and a frieze in marble. The total number of Thorwaldsen's works collected here is about 650. All the sketches and moulds which he used have been preserved, so that it is possible in the case of each of his principal works to follow the gradual development of the idea from the first bold outline to the last delicate touch of the graver. Denmark certainly deserves to produce great men, for in every department—kings, savants, or artists—their deeds live after them, and their remains are held in honour."

Mr. H. Sharpin, architect, Ripon, has made an interesting discovery in the pavement of the choir of Ripon Cathedral. The pavement is being taken up, and in the north aisle a fragment was noticed which had been used as a flooring flag. The sculpture faced was turned downwards, but after an inspection it was supposed that it was part of the old Markenfield Monument in St. Andrew's Chapel, in the north transept. The stone was taken to the tomb, and fitted in its old place—the south-west corner. It has borne the sculpture head of the figure of a lady, resting upon a cushion, but these have been hacked away. The embattled edge is in good preservation; and the representation of the end of the riband which has been attached to the crest of the tilting helmet, on which the head of the knight rests, is carved upon the stone just above where the cushion has been. The tomb represents a knight of the Markenfield family and his lady, and no doubt commemorates the Sir Thomas Markenfield who lived in the time of Richard II., and who married the heiress of the Minniots, of Carlton Minniott, near Thirsk.

The *Messenger de la Provinces* states that a tourist, who is also a painter and archæologist, has just discovered the remains of a Gallo-Roman temple at Bououx, near Bonnieux (Var). This temple is supposed to have been dedicated to Silence, as the head

of an ancient statue has been found with a finger laid on the mouth, a gesture used in all ages to impose silence. Excavations have been commenced, which will probably lead to further discoveries.

Some remarkable ancient relics, probably belonging to the early Celtic period, were found lately amid some ruins in the Western Islands of Scotland. The articles are nine in number, and formed of pure gold. Six of them are evidently ancient finger-rings of the same description as are preserved in the antiquarian museums of the country. What the remaining articles are is not so apparent. The most curious of all has somewhat the shape of a modern earring, heavy and rude in the workmanship; but some antiquarians have supposed it to be one of the ancient torques or neck ornaments of our Celtic forefathers; and if it be so it will, from the rarity of specimens of the kind, prove an object of especial interest.

A letter from Lyons, in the *Moniteur des Arts*, states that some workmen engaged in digging near the wood of Rocheardon, in the environs of that city, have discovered traces of a Roman camp. Near the surface they found a quantity of fragments of arms and other articles, chiefly bronze, and, at the depth of 18ft., a number of swords, battle axes, spear heads &c., all in tolerable preservation. They also found a number of bronze coins, bearing the heads of Domitian, Antoninus, and Marcus Aurelius. It is supposed that this spot was the scene of a fierce conflict in the great battle between Albinus and Septimus Severus, which is known to have taken place on the left bank of the Soane in that neighbourhood. All the objects found in these excavations are now in possession of M. Vaganay, an antiquary of Lyons.

#### FINE ARTS.

The Arundel Society have issued their list of publications in preparation for the ensuing year. These consist of—1. A line engraving, by Mr. Schäffer, of "St. Sixtus giving Money to St. Lawrence for Alms," in continuation of the series from the frescoes by Fra Angelico, in the Chapel of Nicholas V. in the Vatican. 2. Five chromo-lithographs, by Mr. C. Schultz, from the triptych painted by Memling, in the Hospital of St. John at Bruges, representing the following subjects:—1. The Adoration of the Magi. 2 and 3. The Nativity and the Presentation in the Temple (on one mount). 4 and 5. St. John the Baptist and St. Veronica (on one mount).

An exhibition of modern pictures (the *bona fide* contributions of their respective artists) has been opened in Leeds. Among the contributors are many of metropolitan celebrity; and associated with the exhibition is an art-union, under distinguished local patronage.

A splendid album of oil and water coloured sketches by American artists, valued at £300, has been presented to Miss Charlotte Cushman by the ladies of Philadelphia, as a token of respect and admiration for her talent, but especially as their recognition of the great service rendered by her to the cause of the United States sanitary commission.

It is said that the projected new gallery of pictures in water colours will be opened somewhere about the middle of February next, and continue open until the same time in May. The admission fee is proposed to be the customary shilling. The guarantee fund contains forty names, and numerous applications for space continue to be received by the secretary, Mr. W. Severn. Piccadilly appears to be the locality proposed for the new exhibition. The object wisely kept in view with regard to this scheme is not the formation of a new society, but simply the acquirement of another place for exhibition free to all, and not for the exclusive use of members of existing societies, as in other water-colour exhibitions.

Mr. Cave Thomas is engaged on a picture for theapse of Christ Church, Marylebone, representing the Announcement of the Nativity to the Shepherds.

The mural painting in the Church of Nosheim, near Strasbourg, for which Niehomme successfully competed last year, is almost finished. The picture represents St. Peter and St. Paul kneeling at the side of Christ, who is blessing the world. The church is of the fifteenth century.

Messrs. Bridoux, Bertinot, and Deveaux, have been entrusted by the municipality of Paris with the commission to engrave on copper the famous mural paintings by M. Signol, in the Church of St. Eustache.

#### ENGLISH NEWS.

The corporation of London have at length resolved to take the first step towards opening the toll-exacting bridges over the Thames. They have agreed to pay

£4,584 to the proprietors of Southwark bridge for its free use for twelve months, at the end of which time an offer may or may not be made for the purchase of the property. As, however, it will be next to impossible to close up such a thoroughfare once opened, it may fairly be inferred that for all public purposes the bridge will henceforth be free. Waterloo must then follow.

The North London Working Classes' Industrial Exhibition, in the Agricultural Hall at Islington, is now open. The objects exhibited consist of professional workmanship, amateur productions, inventions and novel contrivances, mechanical models, architectural, marine, and ornamental models, works of art, ladies' work, and miscellaneous objects.

IMPROVEMENT IN OMNIBUS CONSTRUCTION.—A large portion of those accustomed to travel by omnibus would, in order to inhale the fresh air, prefer riding on the outside of the vehicle, but many (elderly or timid persons) have hitherto been deterred through the inconvenience and difficulty they have experienced in ascending to, and descending from, the roof, which could only be accomplished by very narrow steps arranged perpendicularly, and placed somewhat widely apart. To remedy this, the London General Omnibus Company have launched upon the road between Hammersmith and London several elegant vehicles, in which not only is a more ready access to the interior of the omnibus effected, but by the formation of stairs on either side of the entrance door, with protecting hand-rails, the ascent and descent can be accomplished with facility, and the additional advantage of being able to effect this while the omnibus is actually in motion.

The Preston Town Council intend to proceed with the formation of a new cattle market on the north-western side of the town. The entire cost will be about £22,000; but the full plan will not be carried out at present. There will be a junction from the Lancaster and Preston Railway to the new market. All the foundation-work has been executed by the parish labourers.

The Theatre Royal, Birkenhead, was opened on Monday evening, the 31st ult. It is calculated to hold about 1700 persons, and on a crush about 2000. It is well ventilated, and the importance of making a proper provision for ingress and egress has been well considered. The entrance to the boxes and pit are from the front—each being twelve feet wide—and the gallery is reached by two entrances at the sides. The interior is prettily decorated, although we must take exception to the ornamentation of the proscenium. The front of boxes is in white and gold, with panels filled in with gold decorations, on a light green ground. The accommodation provided consists of boxes (sides and dress), pit and gallery, with three private boxes on each side of the stage; the upper ones are, however, next to being useless, and the arrangements of the others preclude the possibility, in our opinion, of their being let to the public. The stage is built with all the modern improvements and appliances. It is capacious—plenty of room being allowed for the working of necessary effects, and the comfort of the ladies and gentlemen engaged has not been forgotten. Altogether the theatre is entitled to be considered a model one, and great credit is due to the architect, Mr. Lewis Hornblower.

#### SCOTCH NEWS.

GLASGOW CATHEDRAL.—A ceremony took place in Glasgow Cathedral on Tuesday—being the formal presentation to the Board of Works of the series of painted windows with which the cathedral has been decorated.

EDINBURGH.—The congregation of Old Greyfriars (Established Kirk) have subscribed the sum of £500, for the purpose of erecting an organ in the church. It is hoped that the instrument will be in use before the next meeting of the General Assembly.

AN ANCIENT GRAVEYARD.—A very interesting discovery has been made in St. Enoch-square, Glasgow, by the workmen of Mr. Rankin, contractor, who are at present engaged in constructing a common sewer there. While digging along the west side of the church, at the depth of about 3ft. 6in. from the top of the causeway stones, they came upon a stratum of black earth, which emitted a strong sour smell, of which the labourers complained very much, and which was said to resemble the effluvia from an open grave. A considerable quantity of human bones, of various sizes, was found in the black stratum to which we have referred, and which is no doubt the remains of animal matter which has been decomposing for generations. There is not any doubt that there has thus been laid bare a portion of the ancient cemetery attached to the venerable chapel of St. Thenau, the mother of St. Kentigern or St. Mungo. The chapel dedicated to this illustrious lady, and where her remains were believed to rest, stood upon some portion of the ground now known as St. Enoch-square, which, indeed, is a corruption of her name. The memory of St. Thenau was held in great veneration in the Roman

Catholic times, and in the list of relics in the treasury of Glasgow Cathedral in 1432, and which were supposed to be carried away by Cardinal Beaton about 1560, were "two linen bags, with bones of St. Kentigern, St. Thenau, and other deceased saints."—*Glasgow Herald*.

RECASTING OF AN OLD BELL.—The ancient bell in the Town-house steeple at Broad-street, Stirling, has, in consequence of some defect, been taken down and forwarded to the foundry of Mr. J. C. Wilson, Glasgow, for the purpose of being recast. This bell, which has for so many generations been heard in the upper parts of Stirling, bore the following inscription:—"Sit Nomen Domini benedictum. Petrus Himony me fecit, Amsteledami, Anno Domini, 1669." Besides this inscription there were two circles composed of Cupids and flowers. The wolf (the crest of Stirling) was underlined by the town's motto—"Stirlingi Oppidum."—*Scotsman*.

The opening of a new Baptist chapel, every stone of which has been quarried by the hands of the minister, has been recorded. It is on the Island of Lismore, standing almost in the middle of Loch Lhinn, and the minister is Alexander Livingston, one of the agents of the Baptist Missionary Society for Scotland. He has not only given the site, but to lessen the expenses, has with his own hands quarried every stone, besides assisting as a labourer to the workmen.

Professor Simpson has recently discovered the remains of an ancient British town, some six or seven miles from Edinburgh, on the western side of the Craighill, a locality where many traces of the original inhabitants of Britain have been noticed for years back. The place was strongly fortified, and must have been impregnable in early times.

#### CHURCH BUILDING, IRELAND.

A new parish church for Miltown is to be built in the neighbourhood of Temple-road, Upper Rathmines. Mr. Thomas Drew, architect.

A new church has been commenced at Howth to accommodate 400 people. Mr. J. E. Rogers, architect, Mr. Walter Doolin, builder.

On Wednesday 2nd inst. the church of Augher, Co. Tyrone, was consecrated by the Archbishop of Armagh by the name of the Church of St. Mark.

Viscount De Vesci has contributed £2,000 towards re-building the parish church of Abbeyleix; and Lady De Vesci has expressed her intention, from her private purse, to furnish the interior.

Aughnamullen Church, Co. Monaghan, which has been recently rebuilt, was consecrated on Tuesday, the 8th inst. by the Lord Primate.

Efforts are being made to raise funds to restore and rebuild the parish church of Carrickfergus, Co. Antrim. The building has some ancient remains of the Early English period, and of a long irregular plan. A northern transept contains an interesting and elaborate monument of the Elizabethan period, in memory of the early settlers of the Chichester family; and the chancel a stained glass window of the Renaissance period, traditionally said to have been brought from some church abroad, and which possesses considerable interest as a work of art. Tradition also states that the church is connected by a subterranean passage with the castle. It is proposed to remove the unsightly flat ceiling, substituting an open timber roof, and to reseat a portion of the church. A part of the funds will be supplied by the Ecclesiastical Commissioners.

The church of Grangegorm, Co. Dublin, is to be enlarged. Proposals to be sent to Ecclesiastical Commissioners for Ireland on or before 21st inst.

The foundation-stone of the new Cathedral of St. Finn Barr, Cork, is expected to be laid early in the next month. The old building is rapidly disappearing, and will soon be among the things that were.

#### CHURCH BUILDING, ENGLAND.

The restoration of the old church at Uphill, near Weston-super-Mare, is being proceeded with, at the expense of Mr. T. T. Knyton, of Uphill Castle.

Kingsworthy Church, which during the summer was enlarged and thoroughly repaired and decorated under Mr. J. Colson, architect, has been reopened by the Bishop of Winchester. The church, as now enlarged by the addition of about twelve feet in length to the nave and south aisle, will accommodate from seventy to a hundred more worshippers than before. The vestry and chancel are entirely new. The latter is paved with encaustic tiles, and the eastern window is filled with stained glass, representing the Birth, Entombment, and Ascension of our Lord. The other windows in the chancel and east end of the church are also filled with scriptural subjects in stained glass, as memorials to members of the family of the present and recent rectors.

The Bishop of Bath and Wells has consecrated St. Anne's district church, Congresbury. The building was erected from the designs of Mr. Norton, architect,

at the cost of £2,500 to Alderman Phippen, of Bristol, who further intends endowing it, besides building schools and parsonage. It is Early English, and comprises nave, south porch, chancel, with organ-chapel, and vestry on the north side, and it has north and south transepts projecting from the "crux," which is groined in wood. On the north side is a circular bell-turret, surmounted by a gilt cross. It is paved with Staffordshire tiles, and seated with open benches, all of which are free and unappropriated, and capable of accommodating upwards of 250 persons. The chancel is a circular apse, containing thirteen windows, in the centre one being the figure of the Saviour, the others containing figures of the twelve Apostles, by O'Connor and Bell of London. The windows form an arcade inside, resting on slate columns. The chancel is lined with Bath stone throughout. The roofs are open, and the nave arched and pannelled. The reredos comprises an elaborate projecting cross, coloured and gilded, resting on calvary steps, upon a stone super-altar, upon which are flowers, &c., in handsome gilt vases. The chancel is stalled, and the pulpit is carved with sacred monograms, &c.; the former is divided from the tower by a stone arcaded screen, and the lessons are read from a metal lectern standing in the body of the church. The structure is built of Worle limestone with Bath stone dressings, and the roof is covered with Bridgewater tiles. In a niche over the porch of the south transept there is to be a statue in stone of St. Anne teaching the Virgin to read, the figure being carved by Farmer of London; the windows in the nave represent figures of the Great Prophets, and were executed by O'Connor of London.

St. Luke's Church, Soho, has been reopened after having undergone an entire renovation under Mr. Teulon, architect.

The Bishop of Manchester has consecrated the new church of St. Thomas, Radcliffe. It has been built on the site of the old one, which was the gift of the mother of the present Earl of Wilton, was consecrated in 1819, and would accommodate between 500 and 600 persons. The church has cost £7,273, of which Lord Grey De Wilton gave £1,500, and has promised an adjoining field when required for a graveyard.

St. Breward Church, Cornwall, restored by Mr. St. Aubyn, architect, has been reopened.

The church of Roydon, Norfolk, has been reopened after undergoing alterations. The south aisle formerly extended only half the length of the nave, and terminated in a vestry. Through the liberality of the squire, George Frere, Esq., the aisle has now been completed, and the vestry has been rebuilt by the rector on the south of the chancel.

A stained window to the memory of the late Mr. Giles Puller, M.P. for Hertfordshire, is to be placed in the parish church of Standon, Hertfordshire.

Christ Church, Clapham, has been reopened after the erection, at the expense of a lady who has withheld her name, of a new reredos from designs by Mr. Street. The altar has been raised by two steps, and at the back is a ledge of dark green marble, from the centre of which springs a red marble floriated cross let into the alabaster, which is inlaid with black marble, from which springs rounded bosses of polished alabaster. At the sides of the reredos are panels of alabaster and richly coloured tiles, and tiles are used with excellent effect on the floor of the sacristy and the steps of the altar. On the south side have been placed a new credence and piscina, as well as sedilia of Portland stone beautifully carved and enriched with richly veined marble, of which the new steps to the altar are also composed.

Among churches recently consecrated we may name Ludford, Lincolnshire, by the Bishop of Lincoln; and Morborne, Hunts, by the Bishop of Ely. Among those reopened are Cothelstone, near Taunton; and Codford St. Peter, Wilts.

The *Standard*, Nov. 15, speaking of Benson's watches in the Exhibition, says—"It has evidently been Mr. Benson's object to render them rivals in point of beauty of decoration to the elegant Swiss knicknacks, and at the same time to preserve the characteristics of an English watch—strength, durability, and accuracy. In point of decoration his watches are certainly unsurpassed." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, adapted to all climates. Benson's illustrated pamphlet on watches (free by post for two stamps) contains a short history of watchmaking, with description and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, Class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. The Prince of Wales.

## PUBLIC AND PRIVATE WORKS.

New courts and offices for the Court of Bankruptcy are to be erected. Tenders to the Board of Public Works on or before 7th prox.

The grand jury of the King's County seek for tenders for alterations in the county gaol; to be sent in before 28th inst.

A number of cottages are about being erected by the Ballast Corporation, at Glashule Quarry, Kingstown, for the pilots at that port. A house will also be erected for the pilot-master, Captain Wilcox, R.N. These works have long been in contemplation, and will be carried out forthwith.

A magnificent set of stable offices has just been completed at Adare Manor, in the Co. Limerick, the princely residence of the Earl of Dunraven, at a cost of about £5,000. This beautiful range of buildings was designed by P. C. Hardwick, Esq., London, in a style harmonising with the previous erections, and was built by Mr. James Hunter of Bandon, under the immediate superintendence of Mr. Corbett, city of Limerick, engineer.

The designs for the enlargement and improvement of Parry's Hotel, Salthill, will, when carried out, render it one of the most commodious establishments in the county. The plans, &c., have been prepared by Mr. McCurdy, and the contractor for the work (which, as previously stated, will cost about £4,000) is Mr. S. H. Bolton. It is intended to raise the present building a storey, putting on a high mansard roof, and adding thereby over 30 apartments. A tower is also to be built.

## General Items.

A man named Patrick Walsh met his death a few days since by the falling in of the sides of a channel which he and others were engaged in cutting for the purpose of laying the Vartry waterpipes. He was taken out cold and lifeless, from a depth of nine feet.

At the meeting of the Town Council on Friday last, a proposal was made for the removal to the City Hall of the statue of Thomas Davis, Esq., at present in Mount Jerome Cemetery. The motion was negatived.

The works at the new bridge over the Boyne at Drogheda, for which Mr. Buxton, of Leeds, had contracted, and at which his men have been employed since April last, have been suspended.

The first meeting of the Board of the harbour of Carlingford Lough Commission was held at the office of the Newry Navigation Company on Friday 4th inst. Messrs. A. J. Macrory and Alexander Boyd, solicitors, attended. Wm. Forster, Esq., was appointed chairman of the Commission for the present year. Mr. James Barton was appointed engineer for carrying out the works. Immediate steps will be taken for carrying out the objects of the Commission—removal of the obstructions at the entrance to the lough.

The Kerry Flax Company's new mill at Ballymullen, about a mile from Tralee, is almost completed. It stands on the site of the old brewery belonging to Mr. Stephens. The machinery has been supplied by Messrs. Friedlander. Mr. Charles Wilson, of Caledon, late flax inspector under the Royal Agricultural Society in Mayo, is engaged as superintendent.

The Midland Scientific Association have undertaken to clear out the floor of Thor's cave, a fine cavern, situated near Wetton, in Staffordshire, which promises to be rich in glacial remains and in antiquities.

An extraordinary rumour is current in Paris that the Alhambra, the celebrated palace of the Moorish Kings of Spain, is for sale.

Lord R. Montagu has made public a letter received from Professor Liebig warning agriculturists against too entire a reliance on the virtues of sewage manure, the continued use of which, he says, without a due supply of phosphates, will only impoverish the soil.

A watchmaker in Spain has constructed a watch that only needs winding up once a year.

"A Herts Vicar" tells a terrible story in the *Times*. His village has recently been prosperous, it is very healthy, and work and wages have been unusually good; consequently the population has rapidly increased. The cottages, however, have not, so the people have taken in lodgers till whole families are huddled together in one room, and any epidemic spreads like fire in a rickyard. With spring came the measles, killing twenty-two persons, with summer fever, under which twenty-seven gave way, and the deaths, which are on the average sixteen a year per thousand, have this year been at the rate of eighty. There is no squire, the cottages belong to poor men, and there is no one to build any more. In other words, prosperity in this village means wages sufficient to buy food, but not sufficient to pay decent rents—a frequent phenomenon in England.

An invention has been successfully tested in London

whereby the illuminating powers of gas, by means of hydro-carbon, is increased fourfold at a cost of only ninepence per thousand feet. The inventor is the Rev. W. R. Bowditch, incumbent of St. Andrew's, Wakefield, who has sold his patent to a gas-carbonetting company in that town.

In the naming of the modern streets of Paris recourse has been had to the most celebrated names that occur in the fine arts. Whereas in a former age titles which were suggestive of war and victory were the most prominent at the street corners, there are now to be read the names of Quinault, Marmontel, Hérold, Beethoven, Donizetti, Bellini, Lesueur, Cimarosa, Méhul, Wilhelm, Orlando Laaso, Béranger, Musset, Lesage, Petrarque, Talma, Poussin, Raphael, Titian, Rubens, Greuze, David, Scheffer, Ingres, Vernet, Decamps, Visconti, and Erard. Mozart, Haydn, Boieldieu, Meyerbeer, Corneille, Rousseau, D'Alembert, Gluck, Grétry, and others are to follow next.—*Orchestra*.

The Royal Cornwall Polytechnic Society have recently awarded their medal to Mr. Henry Lumley, associate of the Institution of Naval Architects, for the invention of what is termed "Lumley's rudder."

Punjaub coal has been tried in the locomotives of the Punjaub Railway, and found to answer "as well as any English." Its combustion was nearly perfect, leaving but very little clinker.

A Madrid journal says that the Emperor Napoleon has presented a gold medal to the eminent Spanish printer, M. Rivadeneyra, on account of the edition of "Don Quixote" printed by him at Arramattilla, of which he sent a copy to the late exhibition at Bayonne.

Dr. MacCormac, of Belfast, has written to the *Downpatrick Recorder*, repeating a suggestion which he made some years ago for draining land now covered by the sea. He says:—"My proposal was to drain the whole of Lough Strangford by throwing a dyke of stone or beton from Ballywhite to Chapel Island, Portaferry, constructing catchwater drains on each side of the Lough, and aiding the residuary drainage by the erection of one or a couple one thousand horse power pumping engines on or near the dyke. This project," he says, "I consider not only feasible, but desirable. It would set free some 40,000 or 50,000 acres of soil, and would yield every facility for the construction of comparatively inexpensive railways from Crossgar across the contemplated dyke to Portaferry, on the one side, and from Portaferry to Kirkcubbin, Greyabbey and Newtownards, on the other.—The drying up of so much soil would greatly improve the climate, much valuable land would eventually be thrown into cultivation, and the sweeping tideway, which has given to the estuary the Danish designation of the *Strengfjord*, being stilled, would allow the entrance of the Lough to become a most desirable harbour of refuge. It would cost less and prove at once more practicable and desirable than did the reclamation of the sea of Haarlem of about the same extent in Holland.

Mr. Silbermann, a renowned artist-painter in Strasbourg (Alsace) excels in his chromo-typographie productions. He has, amongst other beautiful specimens, lately published a plate representing the banner and arms of the city of Strasbourg, and executed in 36 different shadows of color on gold ground. He is one of the cleverest printers in chromo-typography. A periodical printed by him is always accompanied by a plate in 15 colors, the charge for which, by a publication of 50,000 copies, is one penny. Some of his specimens formed part of the French collection at the late International Exhibition.

At a meeting of the Royal Dublin Society, held on the 10th instant, the following resolution was passed:—"That this society authorizes the Exhibition remaining open for such period as the managing committee and the finance committee shall consider advisable; and also approves of the Christmas Cattle show being held in the Machinery Court, to be given up at the end of the month to the agricultural committee, which committee is requested to co-operate with the managing committee as to necessary details, same to receive the sanction of the council."

A correspondent of the *Irish Times* draws attention to the dangerous state of a house, No. 5, New-row South, the front wall of which, he states, must shortly fall.

The opening of the new Presbyterian Church, Rutland Square, is fixed for Friday next, 18th inst.

THE LIFE ASSOCIATION OF SCOTLAND has removed to its new premises in Dame-street, opposite the Commercial Buildings. The block of building, standing, as it does, at the corner of Trinity-street, has an imposing appearance. The Association will only use for business purposes a comparatively small portion of the premises, the upper divisions, accessible from Trinity-street, being laid out in suites of offices admirably adapted for letting. In this way a first-class company is represented by a building which is an ornament to the neighbourhood, while the money is remuneratively invested.

## Miscellaneous.

The "Field," April 21, 1861, speaking of Benson's argentine, says, "This material, possessing and retaining a perfect resemblance to silver, can be manufactured at a trifling cost into articles of plate for ordinary household use, as well as ornaments of a more pretentious character." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, argentine and electro plate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

**THE BUILDING TRADE IN BELFAST.**—Workmen are busy pulling down one or two houses in Bank-lane, Belfast, which will form part of the site of the new Provincial Bank buildings. It is expected that the mass of debris will be soon cleared away, so as to enable the new building operations to be commenced at an early day. Owing to the extraordinary activity in the building trade in Belfast at present, and for some time past, bricklayers, stonecutters, house-carpenters, labourers, &c., have been receiving constant employment at very high wages. The extensive work to which we have just referred, and numerous others that are spoken of for the further improvement of the town in other localities, continue to stimulate this important branch of our industry, in a manner that promises for it continued and increasing success.—The action of the local building societies has contributed a good deal to this satisfactory result.—Each of those societies, of which there are several, appears from the reports to be doing a brisk business in turning savings and loans into new and improved dwelling-houses, generally adapted for the middle classes. New sites are adopted for these undertakings to a great extent, but very often old and antiquated erections have been removed, and in their places we

now have handsome new edifices springing up. By this plan we shall find the "town proper" renovated so as to preserve its character from suffering by an unfavourable contrast with the suburban districts.—*News Letter.*

The first silver medals have been awarded by the Polytechnic Institution, Falmouth, to E. W. Cooke for his picture, "Lagones of Venice;" and to Henry Tidey for his water-colour picture, "Queen Mab."

**A PAPER HOUSE.**—An exhibition of a novel and interesting character will shortly take place; it is one designed to illustrate the varied and almost exhaustless use to which paper may be applied. M. Szerelmey, whose inventive genius is only rivalled by his perseverance under many difficulties, has been for some time past engaged in the preparation of the materials for this exhibition. He proposes to build a house of paper; to construct the walls of paper, to roof it with paper tiles, to floor it with paper boards, to supply the water through paper tubes, to light it with gas supplied through paper pipes, and to supply a large portion of the furniture and household utensils of paper. The inventor, in the preparation of the materials, makes use of a peculiar description of gum, which he calls zenissa, which is found in large quantities in the East, and which he contends is the same material as that used by the ancient Greeks and Romans as a coating for their ships, and by the ancient artists for encaustic paintings, such as adorned the tombs of Egypt and the dwellings of Pompeii.

**A NEW RAILWAY CARRIAGE.**—The necessity of devising means for preventing the perpetration of crimes in railway carriages has turned the attention of inventors to the subject, and the following contrivance has been proposed by M. Leprovost. His railway carriage is made of sheet-iron, and does not greatly differ in appearance from the common one. It is a first-class carriage, containing twenty-four places, or eight for each compartment. Within, a longitudinal passage establishes a communication between the compartments, and extends along the whole train from carriage to carriage. The partitions of each compartment, rising to the roof, prevent the inconvenience of draughts from the other compartments, and the partitions which form the passage protect the traveller from those which might come from the windows of the same compartment. From this it appears that travellers in the same compartment are only visible to the official that walks up and down in the passage. According to this description, the first-class carriage must, in our opinion, bear a striking resemblance to a prison van, and indeed we incline to believe that all this ingenuity is utterly thrown away, seeing that the problem has long been solved in America, and better still in Switzerland, by doing away with compartments altogether, and establishing a free communication with the adjoining carriages of the train; a plan which is only objected to by fastidious and short-sighted exclusiveness. In Switzerland nothing can be more convenient than a railway carriage, to which the traveller gains access by ascending a few steps, leading to a sort of platform or balcony for smokers. Here a door opens into the interior, fitted up like a saloon, with a table in the middle, and

seats all round; the passengers, instead of being cramped by sitting for hours in the same posture, can walk about, or write, or play at chess or whist if they please. The seats are made to turn so as to face opposite points of the compass, and everything is arranged on the most comfortable plan, with the only exception that the traveller desirous of solitude is not alone; a questionable comfort which, as we but too well know, is fraught with danger.—*Morning Post.*

**THE DUBLIN INTERNATIONAL EXHIBITION.**—Favourable accounts have been received from Rome of the reception which this enterprise meets there. A member of the committee had a conference with Cardinal Antonelli and the Minister of Commerce, and was afterwards honoured with an audience by the Pope, who received him very graciously, and assured him that his government would give the Exhibition its earnest support in every way that circumstances would permit. His Holiness expressed his warm sympathy with this national undertaking, and his affectionate hopes that it would be beneficial to Ireland. From the sculptors and painters, and other artists resident in the imperial city, cordial assurances of support have been received, and their is every reason to expect from them numerous contributions of great merit and interest.

The *Giornale di Roma* states that the Pope has ordered his government to aid in the forthcoming exhibition at Dublin by serving as intermediary between intending exhibitors and the central commission.

## TO CORRESPONDENTS.

In reply to our correspondent, J. W. (Oct. 15th), who desires to be informed of the relative heights of the Nelson monument in Trafalgar-square and the one in Sackville-street, Dublin, we beg to inform him that the total height of the monument in Trafalgar-square is 160 feet to the top of the statue, and of the Dublin one 130 feet. The elevated position, however, of the London one, when viewed from Whitehall-place, and its more graceful Corinthian proportions, make the disparity in altitude appear much greater.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

The back numbers of this Journal, from its commencement in January, 1859, can be had on application at the office, 42, Mabbot-street, Dublin.

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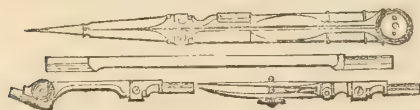
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# The Dublin Builder.

VOL. VI.—No. 119.

## THE HISTORY OF OUR HIGHWAYS.\*

**T**HE march of improvement in our metropolis is making great strides, and bringing with it vast changes—changes vaster and more important in transforming its ancient aspect, than we, who daily come and go through its highways, and who are pre-occupied by our daily round of struggle with great and petty cares in its familiar arena, are wont to take note of. Changes these are—no one can say us nay—for the better, and to us most of all, it is a source of pleasure to watch them, and of pride to chronicle and describe them in these pages. The new banks, insurance offices, shops and warehouses are on the whole most creditable to their originators and their architects, and of a substantial and ornamental character, on which the citizens may fairly congratulate themselves, and we them. Our voice is the last that should be raised in any way against the process of change in the ancient thoroughfares, and it is far from the object of these remarks to raise objections of any kind to the transformation. Our city, notwithstanding its antiquity, is peculiar in one respect, if we are to compare it with some of the ancient cities of the kingdom, whose architectural relics are among the greatest treasures of which we all may well be proud. Dublin has seen evil days enough in its time to have obliterated it from the map of Ireland; had it not been endowed with special gifts of geographical position, and a certain innate capability of rising—like the oft-quoted Phoenix—from its own ashes, in some way more or less substantial, respectable or wretched and shabby, after each fresh crisis of destruction, or paralysis of prosperity. It would require the compass of a folio volume to trace even the outline of what it has suffered from burning and pillaging Danes, and unruly and unscrupulous chiefs of its own soil; neglected by its rulers, not unfrequently crushed in its civic life for a time, and oppressed and struggling with unhappy political dissensions and changes, it is not much to be wondered that it emerged from its last great political convulsion, after the treaty of Union, and left so little of what was ancient and picturesque comparatively speaking; the wonder is, not that it left so little, but rather that it left so much of what was at least respectable and imposing, if not distinguished by any very great antiquity.

Once more Dublin is prosperous and well-to-do, commercially speaking, in a high degree, and we have inaugurated an epoch of building on a larger and more important scale than we have been wont to do. Nearly every new building that springs up is the demolition of several old ones, and among those which are daily disappearing, are some not without importance in a past time. The new Provincial Bank of Ireland, for instance, in College-street, is raising its palatial proportions on the sites of some four or more former buildings, one of which, the Irish Institution, erected not much more than twenty years ago, was a building not without some pretensions to architectural importance, and, if we are to form a judgment from the relics brought to light during the

excavations,\* these buildings had only in their turn been erected over the sites of former ones. A few fragments of ancient encaustic tiling told of the occupation or proximity of some part of the ancient abbey of St. Mary le Hogges. A number of wine bottles conjectured to be of the time of Queen Elizabeth, and a considerable number of tobacco pipes—temp. Charles I. or thereabouts—suggested that this locality, still abounding in taverns, had not been unaccustomed to occupants of a convivial turn, a fact placed beyond doubt by the discovery, far beneath the foundation of the walls of the Irish Institution, of a wooden still of very goodly dimensions, and in a tolerable state of preservation. The new Union Bank in College Green will occupy the site of three houses and a part of a fourth, and the moiety of the fourth one has been already superseded by a new café and restaurant. The new Presbyterian Meeting House in Rutland-square has raised its airy proportions and graceful spire and pinnacled gables on the site of neglected, dismal Bective House. Upper Sackville-street is, perhaps more rapidly than any other thoroughfare, changing its appearance, and there is now little to remind us that but a short time since it consisted of private dwelling-houses, and but a little longer since the “Bloods” and powdered beauties of a bygone time promenaded on the sward under the shady trees of “the Mall” which once occupied its centre.

Seeing that these revolutions are daily going on in our more important thoroughfares, and inevitable changes too, we are moved to ask of Dublin can nothing be done in the more deserted streets, in which little or no change is going on, and from which business has drifted away, to preserve some record of the famous persons who dwelt—(can we summon up imagination to believe it now?)—in their or ce-pleasant shadows. Just let anyone, fortunate enough to find some congenial ancient spirit with a retentive memory and a love of old gossip, with whom to stroll through some of our streets, especially through those of the more old-fashioned and reduced-gentility type, and draw upon his friend's resources, and we venture to predict he will find there is a cheerful side even to gloominess, and yet a charm in dilapidation and dirt.

Previous to the Union, Dublin was the constant or occasional residence of two hundred and seventy-one temporal and spiritual peers, and three hundred members of the House of Commons, and many of these were men who played distinguished parts in the history of that day. To a few of these statues and monuments may be erected, Grattan, Curran, Plunkett, in time to Burke, O'Connell, and others, but the greater mass will have no memorial, and if their very existence is even remembered by a coming generation, it is almost more than could be expected, for all traces of their homes and haunts will have disappeared.

Everyone, from the Causeway to Cape Clear, knows that the House of the Royal Dublin Society was once the residence of Ireland's only and “darling” Duke, but had it been purchased for shops and warerooms, how soon would its once nobility have passed away from everyone's mind. It alone of many has had the good fortune to be diverted to a purpose even more worthy than its former one; may we live long to see it the national centre of enlightened learning directed to the care and fostering of national progress, and to see the Royal Dublin Society with yet increased re-

venues, extending its invaluable means of usefulness, and guiding, with the discernment and judicious liberality for which it has ever been distinguished, the peaceful course of national prosperity.

Who cares for the names, or remembers their possessors who reared other houses in Kildare-place in the immediate neighbourhood of the Society House? Who remembers that further down the same street, No. 39, was the house to which the wit and fashion of “dear dirty Dublin” crowded to pay their court to the fair blue-stocking, who in defiance of the Herald's office and all precedent, delighted to style herself and be styled “Sydney, Lady Morgan.”

All disputants to the contrary, we have the incontrovertible testimony of the register of St. Peter's Church, that England's great duke, if not born (and that is unimportant, for are we not always being told in the controversy, that the mere local occupying of a stable at such a time, is of no consequence in its results), was at least made a Christian of in the kingdom of Ireland and city of Dublin, by being baptized in the church of St. Peter in that city. How few of us, however, as we take our way through an atmosphere of sepulchral official chill to the spacious staircase of the office of the Ecclesiastical Commissioners for Ireland, in South Merrion-street, call to mind that we are treading the once classic floors of Mornington House.

“*Sic vos non vobis.*” In now solemn Molesworth-street were we transported at nightfall—by some spirit-medium process more effectual than that of Brothers Davenport or Mr. Home—back into a time some hundred and thirty years ago, we might hear in the street the murmur from the throats of many cheery “good fellows all” as they made the glasses ring with lusty blows upon the table, and the walls re-echo with their claret-inspired plaudits, as they toasted their witty and accomplished host, Arthur Dawson, Baron of the Exchequer. How we would hear the ring of laughter and applause that would follow his new song of *Bumper Squire Jones*, and as he doubtless followed it up with the song of how he had cleverly robbed poor Carolan of his but new-born melody, *Plejo na ca na Jones*, a very good joke, Mr. Chief Baron, in which no doubt you thought “worthless as an old song” a proverb equally applicable to a brand new one, but how would it have been with you if the transaction had been in connection with a sheep—a hanging matter in those good old times. This trifling act of robbery by one of His Majesty's judges, which resulted at least in the junction of an immortal air to words unequalled for their wit and fire, took place about the year 1727, and thirty-two years after, Kane O'Hara, living on the other side of the street, did pretty much the same thing, and coolly appropriated an unknown air of Rousseau's, which he gave to the world in *Midas*, as “*Pray, Goddy, moderate the transports of your tongue.*”

Lisle House in the same street has a gentler memory, to which the novelist Maturin came a-wowing, and finally won Dr. Kingsbury's pretty daughter. The Royal Irish Academy was Henry Grattan's house, and the museum, in the ere of Northland House, where lived George Knox, the staunch friend of Wolfe Tone.

As we stroll homewards towards the north part of the city let us make a detour by Great Denmark-street if only to look at the outside of No. 2. Here would the Cruel Norbury (he who thanked heaven that he had a country to sell) return, having sentenced some poor wretch to the gallows with a jest, or to penal

\* Some interesting relics are in the hands of the architect, Mr. William G. Murray, R.I.A.A.; we believe it is intended to offer them, such as they are, for the acceptance of the Royal Irish Academy.

\* See page 227 ante.

servitude with a pun, and who himself met death, as he had lived, with a profane jest and a wager upon his lips. Not five minutes' walk from Norbury's house there stands, in Upper Dorset-street, a house on which might well be written "*miserrimus*;" here it was that the once witty popular Dean of St. Patrick's passed the last sad hours of his turbulent life; the saddest spectacle which could be presented to anyone, a giant reason overthrown, and lips, from which once flowed unbroken strains of wit, opening only to give vent to the almost inarticulate babble of idiocy. The melancholy picture has its touching interest even for us, and the squalor and ruin of a once respectable dwelling, its wainscotted hall, lying open to the wind and rain, the poverty and misery of its present numerous occupants, the neglected filthy fore court, with the stump of a once stately willow tree, present a picture not at variance with the associations it calls up. Following the same street: No. 12 is a house of modest exterior, yet Richard Brinsley Sheridan was born there, and in the history of his life we can follow him farther, and watch him here studying the *Universal Spelling Book* with his little sister Alicia, and laying the foundation of his love for theatricals at that famous school kept by one Samuel White at 79, Grafton-street; the school-rooms were in Johnston's-court, a spot but little touched outwardly by the finger of time, save that it has changed the character of its occupants, and that some of its present institutions would be the reverse if calculated to train up youth in the way it should go. It may be noted as a singular fact that the corner shop is still in the possession of a Johnston.

What Irishman of gallantry would not look with respect at the house (did he but know the right one, and which we admit would be an advantage) in Great Britain-street, to which "a good angel came" and rescued the future lovely Lady Coventry and her young sisters from a debtor's prison? But gossip even of the most harmless description may, and in fact from the circumstance of its innocence generally does become wearisome to the best regulated minds, and we unwillingly dismiss the subject until a future occasion.

#### ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

THERE was a general meeting of the Institute on Thursday evening, the 17th ult.

PARKE NEVILLE, Esq., C.E., in the chair.

Mr. James H. Owen, (Fellow) Hon. Sec., read the following report of the Council for the session 1863-4:—

#### REPORT OF COUNCIL.

At the commencement of a new session, your council, while, in accordance with custom and the bye-laws, submitting to you a list of the council and officers for election for the coming year, wish to take this opportunity of addressing you on the affairs of the Royal Institute generally.

During the past year our members have been increased by the admission of the following:—Fellows: Messrs. J. C. Burne, J. A. Adams, J. S. Mulvany, R.H.A., Alfred G. Jones, R.H.A., E. McAllister. Students: Messrs. Henry Wilmot, Francis Nolan, R. A. Gibbons, W. Stirling, Richard S. Swan, J. Bermingham, jun., P. J. Byrne, jun., S. P. Close, J. Connolly, Joseph Bell, H. R. Rice, and Alexander C. McFarlane. Associates: Messrs. W. H. Hill, T. C. Kelly, J. S. Sloane, B. T. Patterson, Wm. Doolin, P. J. Moran, Thomas Early, F. S. Barff, W. Woods, F. Barnes, C.E., R. J. Stirling, C.E.

We have to regret the removal by death from among us of Mr. Patrick Byrne, one of our oldest members, and a much honoured and respected member of the profession. While essentially belonging to a school of architects of another generation, as his works scattered about this city testify, and from his time of life past joining in the march of recent progress, his personal qualifications, great experience, and solidity of character, made him a highly respected member of the Royal Institute; and it is much to be regretted that his latter years should have been em-

bittered by painful pecuniary difficulties, some of the consequences of which, after his decease, you were requested, and liberally assisted in alleviating. We have also to record the death of Mr. E. McAllister, who was but recently elected a fellow of the Institute, and who was accidentally removed by death at the early age of 28 years.

Among the more prominent proceedings of the last session was the conversation given by your president on the 29th March, which was attended by His Excellency the Lord Lieutenant and about 1,000 of the *élite* of the country. Your council cannot help feeling that much good was done by that evening's proceedings in placing the profession in its right position before the public of Dublin and Ireland at large. The term "architect" in this country is of such large extension, embracing every man who works at a building who is of a higher degree than a hodman or mortar-mixer, that it was important to shew the world that the architect recognized by this Institute was a person who, to the education and manners of a gentleman, added the special qualifications of an artist and man of science. It rarely happens in this or any other country that so many architectural drawings of such high merit, both as designs and as works of art should be collected together, forming an exhibition which it was much to be regretted that necessity should have compelled its immediate removal. In addition to the drawings, the collections of photographs, and specimens of art manufacture exhibited were equally creditable to the industry of the gentlemen intrusted with collecting them together, the liberality of the several tradesmen and artists who lent them for exhibition, and indicative of satisfactory demand for objects of art in the country. Your council cannot but feel that if a similar exhibition could be got up and kept open for some time, it would both tend to educate the public in architecture, by placing before them a series of works of a high order of merit, and elevate the professors of the art in the public estimation,—in no respect is the Irish public so deficient as in the knowledge and appreciation of true architecture,—they have, for so many years, been accustomed to shams and conventionalities that they cannot distinguish between good and bad. Anything with plenty of cut-stone about it passes for a fine building and good architecture; and this ignorance can only be removed by continual exhibitions of really good architecture—good—not from the amount of cut-stone employed, but from the display of cultivated mind and elevated taste shewn in the disposal of the materials.

Several papers were read at the general meetings of the Institute during the session, including a very able treatise on "the Arrangement of Lunatic Asylums," by Mr. Fogerty, illustrated by the designs for the District Lunatic Asylum for the county of Clare, now in progress of erection; a translation and condensation of the "Sketch of the Rise and Progress of the Architecture of the Middle Ages in France" by M. Viollet-le-due, by Mr. J. H. Owen—a paper of very great interest as removing the last lingering relics of that sort of impression current a generation back, that Gothic architecture grew out of some sort of imitation of the interlacing of trees—whimsical theories, having their origin in ignorance and ingenuity combined with a lazy temperament that contented itself with wild guesses where real philosophical enquiry was tedious and troublesome. Too much praise cannot be awarded to M. Viollet-le-due for having so clearly and satisfactorily demonstrated that the distinctive features of Mediæval architecture simply arose from the necessities of the buildings to be erected; that the pointed arch has its origin solely in the mechanical necessity of carrying a great weight high in the air, and transmitting to earth on a series of points, and that without the Gothic style the Gothic buildings were impossible.

Mr. E. Trevor Owen read a paper on "the Grouping of Mediæval Buttresses and Pinnacles," shewing that there was an order and method employed in them, and that they followed a rule of development analogous to the style of the period at which they were executed; so that, apart from the details, it would be possible to distinguish the period from the mere grouping and the outline.

Mr. W. G. Murray read a paper on the National Gallery for Ireland, which was afterwards published, it must be confessed without producing much effect, which is principally to be attributed to the fact that the Dublin public have not yet received sufficient education in art to appreciate good architecture, or to recognize either its presence or absence in a building; it can only be from such a cause that one of the cliques of amateurs from Kensington, whose proceedings are watched with jealousy by the public in London, could have been quietly tolerated in wasting little less than £30,000 in producing a bad and unfinished building in the city of Dublin.

Your council has been appealed to on behalf of some of the builders of Dublin with reference to the charges of the building surveyors, but not having been furnished with any particulars, in answer to their request for them, have not been able to form any opinion on the subject.

The claim of the stonecutters of Dublin to the exclusive right of setting cut-stone work was recently brought before your council by the representatives of that body; in reply your council feel it their duty to give strong expression to their opinion that the dispute was about a point of no importance whatever; that the proper object of ambition on the stonecutters' part should be to educate their hands and eyes and raise themselves in the scale of art-workmen, and that while no man ought to be excluded from employment as a stonemason because he was a stonecutter, neither should any man be rejected from setting because he was not a stonecutter; that the matter was one which should properly be left to be decided by the employer whose self-interest would lead him to employ the most efficient parties.

In opening another session your council would urge on the members of the Institute the consideration that the success and interest of the several meetings is mainly dependent on having papers and communications to be read. There is probably no member of the Institute who has not, in the course of his practice, during every year of his life, some matter of interest from considerations of art, or technical peculiarities, or legal doubts and difficulties; the putting such things shortly and simply on paper involves but little trouble, but their discussion is always interesting and frequently most profitable. Your council do hope that the session now commencing will be characterized by more exertion on the part of individual members, and that the ordinary meetings of the Institute will not be suffered to fail of interest from lack of food for discussion.

In common with the general public of Ireland we have to regret the removal from among us of our Patron, the Earl of Carlisle, a man whose public life had been associated with Ireland for many years past, and who for some years past had taken an increasing interest in the architecture and architects of Ireland; we have only to hope that his return to the quiet of private life may lead to his restoration to health and the enjoyment of many years happy life.

The chairman moved the adoption of the report just read, and that it be published in the DUBLIN BUILDER, which was passed by the meeting.

The following were elected as the council and officers for the ensuing year:—President: Charles Lanyon, Esq., R.H.A. Vice-Presidents: J. Owen, Esq.; G. Wilkinson, Esq.; Sir John Benson. Council:—Sir T. Deane, R.H.A.; F. V. Clarendon, G. C. Ashlin, S. Symes, J. H. McCarthy, R.H.A., J. Rawson Carroll, W. F. Caldbeck, E. H. Carson, W. H. Lynn, and Parke Neville, Esqrs. Hon. Secretary: James H. Owen, Esq. Assistant Hon. Secretary: J. J. Lyons, Esq. Treasurer: W. G. Murray, Esq., R.H.A. Auditors: N. Montgomery, and J. M. Curdy, Esqrs.

#### THE METROPOLITAN BRIDGES.

ANNEXED is a tabular statement of some interesting particulars of the London bridges.

BRIDGES.	Length		Width	Area	Cost	Cost per sq. foot
	feet	ft. in.				
London.....	904	63 6	47,912	542,150	11 6 0	
Southwark.....	800	42 6	34,000	384,000	11 5 10	
Blackfriars.....	995	42 0	41,790	167,840	3 15 6	
Waterloo.....	1,380	41 6	57,270	579,915	10 0 0	
Hungerford.....	1,536	13 4	20,480	98,760	4 16 6	
Westminster (Old)	1,160	43 0	49,880	389,500	7 16 0	
Vauxhall.....	840	32 0	30,380	300,000	9 16 0	
Chelsea.....	922	45 0	41,496	88,000	2 5 0	
Westminster (New)	990	85 0	80,000	estimated	3 5 0	
Blackfriars (New)..	980	76 0	77,000	245,000	3 5 0	

The *Art Journal* of November, in its description of Benson's Great Clock, says—"It has attracted universal attention; its construction has, we believe, obtained general and strong approval; it is one of the largest chiming clocks as yet manufactured in this country." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting-house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 33 and 15. 33 and 34, Ludgate Hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## ST. BARTHOLOMEW THE GREAT, SMITH-FIELD.

THE antiquaries, architects, and ecclesiologists of London have at this moment an opportunity which, in the nature of things, can never happen again. If they choose to go to Smithfield, they may see the majestic choir of a Romanesque minster of almost the first class in the best possible condition for minute examination. The venerable remains of the fine Priory church of St. Bartholomew the Great, after suffering every imaginable mutilation and defilement for centuries, are about to be rescued from further desecration. As yet, however, the "restorer's" hand has not touched them. Nothing has been done hitherto beyond simple excavation and removal of modern fittings. Pews and galleries, curtains, wainscots, and glass-screens have been taken away, and the original levels have been reached; but not one ancient feature has yet been interfered with. Now is the time for seeing this noble fragment of Romanesque architecture in an untouched state. Before long it must be again made ready for the use of the parish. We have every reason to believe that this will be a model "restoration," but still those who are interested in architecture should take care to see this church now. London unfortunately possesses no other equally curious relic of mediæval antiquity, and such a sight as may now be enjoyed in West Smithfield will never be seen again.

It is remarkable how few people know even of the existence of this noble church. A mutilated pointed doorway (now buried in shops and houses), supposed to have belonged to the original west front of the nave, may be remembered by some who have visited St. Bartholomew's Hospital, on the other side of the street. And the name of Bartholomew Close still reminds the Londoner of the precincts of the ancient priory. But the church itself has long been so hidden by parasitical buildings that a person may know the neighbourhood pretty well and yet never have seen it. What remains of Rahere's church, founded in 1101, in the reign of Henry I., and finished about 1123, is nothing but a choir, with an aisle or procession-path surrounding its apsidal east end, the crossing (at the original intersection of the transepts) and one bay only—the easternmost one—of the nave. These remains are coeval with the naves of the cathedrals of Durham, Norwich, and Peterborough. The original length of St. Bartholomew's seems to have been about 280 feet, and its breadth 60 feet. These proportions, it may be useful to state, are a little less than those of Rochester Cathedral. At the dissolution of religious houses the nave was pulled down, and the conventual buildings were disposed of to various persons. The choir and transepts were granted in 1544 to the parishioners, for their use as a parish church; and from that time till now—except that about 1625 the original tower was taken down and a new one built of brick in the style or no-style of the period—nothing has been done to the shell beyond the ordinary repairs and beautifications of successive churchwardens. But to what a state of decay and desolation three hundred years of contemptuous neglect may reduce an ancient structure, no one will fully understand who does not see the church in its present transitional condition. In the first place, the internal level has been raised two or three feet, either gradually by intramural interments, or designedly in order to remedy the defects of imperfect draining. Outside, the accumulation of soil is quite amazing. The church, indeed, is now nearly subterranean. It was approached, until the other day, by steep descending staircases at all its entrances; and, in the north aisle, the apices of some blocked arches which formerly opened into a chantry scarcely showed above the level of the external ground. About 12 feet was the average depth, perhaps, to which the church was buried. And, of this accumulation of soil, a very large proportion was composed of decaying human remains. Inside and outside dead bodies had been crowded together without any pretence of decency, until at last the whole was a mass of corruption. Even now, after the greatest care has been taken by the excavators, the place is scarcely fit to be visited. A huge pile of human bones, in every stage of decay, is heaped up in the north aisle, and covered by a tarpaulin. Behind the altar, in the apse, is another charnel-house, the stench from which is most offensive. The worst of it is that the parish authorities do not know how to dispose of these remains. We are informed that all the cemeteries refuse to allow these bones to be re-interred in their grounds, unless they are packed close in separate coffins; and it is calculated that it would cost £300 to effect this. The best suggestion that we have heard for meeting the difficulty is this:—that a large excavation should be made in the principal burial-ground (the former nave of the church), the subjacent soil, which is excellent gravel, removed, and the bones lowered into the deep pit

so formed. It is painful to think how many worshippers in this church must have suffered fatally from the putrescence that surrounded them. It need not be said that the whole interior was fearfully damp and cold. Even paint and whitewash could not disguise the universal decay that was in progress. Dry rot and mildew reigned supreme. When the modern pews, &c., were removed the other day, it was found that the stem of the pulpit—which was of the wine-glass shape—was reduced to touchwood. The whole affair rested in reality on a weak iron tie which was supported on nothing stronger than the side of a pew; and it is a mercy that some preacher, more energetic or more corpulent than usual, did not bring the pulpit down with a crash. So reckless had been the treatment of the interior that, when the pews were removed, it was found that one or two of the massive columns had been hacked and pared (for the sake perhaps of gaining an extra seat), until nothing but the rubble core remained. Every sort of encroachment has been permitted. All along the north side, frail houses have been built with timber structures abutting on the ruinous wall of the narrow space (only a few feet broad) surrounding the church. The whole triforium of the north aisle has been cut off from the church and turned into a parochial school, and a master's house somehow made out of it at the east end. A still worse fate has befallen the apse. It would seem that the original Romanesque apse was cut away, at its extreme end, before the Reformation; probably for the insertion of one of those huge Third-pointed altar-screens, of which Winchester, St. Alban's, and St. Mary Overy's in Southwark, are the best examples. But no such reredos, unhappily, remains. There is a mere modern straight wall of no historical or architectural value; and the rebuilding of the Romanesque arches will be a very easy task, as the original curve, and base-ment, and mouldings remain. But the part of the triforium immediately over the apse has been, most unaccountably, alienated from the church. A fringe maker's house and factory, occupying the site of the old Lady Chapel, or Prior's lodgings (it is doubtful which), has encroached here into the very body of the building, the ambulatory extending beneath it. And—what, in these days, is something surprising—the occupants do not seem disposed to give up, either for or without a consideration, their rights of possession. Until they do so, the restoration of the triforium as a whole will be impossible. But we have no doubt that these gentlemen will soon permit the parish to re-acquire the right to use its own church. The south triforium has disappeared altogether. A vestry has been built over the south transept; and the north transept is converted bodily into a dwelling-house. Certainly, a more hopeless task seldom awaited a church-restorer.

After long delays and hindrances of all sorts, an influential committee has been formed to carry out the necessary works, and a considerable, but altogether inadequate, sum has been raised. We believe, as we said, that the works are in good hands. Mr. Hayter Lewis and Mr. Slater are the architects employed; and several well-known names, entitled to all confidence, appear on the list of the committee. Their first contract has been confined to clearing the interior, and removing the heaped-up soil from the outer walls. This has been very successfully done. The exterior now stands free, with an open trench all round it; and a deep drain has been constructed which will keep the area fairly dry for the future. Inside, the discoveries have been sufficiently interesting. The bases of the columns have been found almost perfect, and in several places an original pavement of tiles has been brought to light *in situ*. Large numbers of encaustic tiles, and innumerable fragments of carved work, often bearing traces of colour and gilding, have been discovered; all of which have been most carefully preserved by the clerk of the works. One discovery puzzled the explorers for a long time. A whole deposit of small earthenware sticks was found in one place—all of them exactly alike, about five inches long, and in shape something like a thin baluster. The authorities of the British Museum pronounced at once that they were wig-curlers! It would seem as though some defunct hairdresser of Queen Anne's times had chosen to be buried in his wig, with the curling-pin in each curl. Architecturally, the proportions of the choir and its surrounding ambulatory, now that they are fully seen, are very noble; and, in particular, the perspective of the vaulted south aisle, which is now opened in uninterrupted length, is almost unrivalled. Really, it is now seen that the ancient stalls extended across the transept; and that the rood-loft occupied the eastern bay of the nave. A wall, which is clearly ancient, extending across the north transept arch, entirely blocking it. On the south side there appears to be the foundation of a similar wall, which, however, could only have formed a low backing to the stalls. Some indications

of the basement of the rood-screen were also brought to light.

Many difficult questions await the decision of the committee in the further progress of the works. The completion of the apse would seem to be the first step in point of importance, after the general reparation of the fabric. It may be some time before the northern triforium can be rescued from its present destination; but we should counsel the immediate restitution of the southern one. Unless this is done, we are told that a row of recently built mean tenements, very closely adjoining the south aisle, will acquire rights of air and light as against the church. In addition to this it may be urged that the re-opening of the triforium arcade would be of great importance to the architectural effect of the interior. Many years will pass, it may be, before the whole choir can be thoroughly reinstated. It is to be hoped that nothing will be done now that after generations will regret. The treatment of the clerestory, which is of fifteenth-century date, but finely proportioned, and of the roof, which is modern, will be no easy matter. It is probable that minute examination of the fabric will throw some light on these difficult problems. There are some monuments of great interest in the church. That of Prior Rahere, the King's Minstrel, the founder of the priory and of the adjacent hospital, standing on the north of the altar, is of good Perpendicular date, and cannot be moved. Opposite to it is a Jacobean tomb of Sir Walter Mildmay, founder of Emmanuel College, Cambridge, and Chancellor of the Exchequer to Queen Elizabeth. It interferes grievously with the arcade, and might advantageously be moved to the blank wall under the north transept arch. We hear with pleasure that all the other monuments will be carefully preserved. It is very gratifying to see an historical monument so well cared for as St. Bartholomew's the Great promises to be in its present—conservation, we will say, rather than—restoration. We counsel a visit to the building in its present most interesting state; and, as funds are greatly wanted, we hope that visitors will not forget the claims which the work has upon all who know the value of these precious relics of the past. This church is scarcely less interesting to the Londoners than S. Germain des Prés is to the people of Paris. It will be discreditable if St. Bartholomew's the Great is not at least as well restored as that famous church.—*Saturday Review*.

## INSTITUTION OF ENGINEERS IN SCOTLAND.

THE eighth session of this Institution commenced on the 3rd ult.—JAMES R. NAPIER, Esq., President, in the chair.

The President delivered an address, in the course of which he said:—A matter of considerable importance to mill-owners has recently come before me, in a paper by Mr. G. H. Strype, on the influence of the "Inertia of the reciprocating parts of steam engines, &c.," read in February, 1863, to the Institution of Civil Engineers of Ireland. The subject is not new, although I have only lately seen its importance. M. le Chatellier published a similar analysis in connection with the stability of locomotives in the year 1849. Mr. Strype states that the irregularity of the motion produced by the difference of the initial and final pressure of steam in an engine working expansively is greatly over-rated in the case of single cylinder engines; that the inertia of the working beam and other reciprocating parts of the engine becomes a regulating medium, such as is required for equalising on the crank-pin the great difference of pressure on the piston between the first and last of the stroke, when a considerable amount of expansion is used. As the accelerating force of the reciprocating parts of the engine varies as their weights and squares of their velocities, a skilful mechanic will have very little trouble in so designing a new undivided expansion engine, with any given ratio of expansion, so that its motion shall be, at least, as regular as any other engine with the same ratio of expansion divided among two or more cylinders, and shall be more regular than many single cylinder engines with a less ratio of expansion. The simplicity of the single cylinder engine, with undivided expansion, recommends itself before any combination dividing the expansion among two or more cylinders. Mr. Strype had a favorable opportunity of comparing the economy of the single cylinder engine with the double cylinder engine. He states that a pair of single cylinder engines of 245 i. h. p. consumed thirty-three tons of coal per week, and that a double cylinder engine of 176 i. h. p. consumed forty tons per week, or, calculating for equal amounts of power, the fuel for the undivided expansion engine was to that for the divided expansion engine as 1 to 1½ nearly. Both engines were connected with flax-spinning mills; both had boilers of the same number, construction, and dimensions; both had the same amount of expansion, 4 to 1, and used the same quality of coals. It is not

stated that the cylinders of either were cased with steam, or in any way heated. The loss in the divided expansion engine he ascribes chiefly to the waste in the passages. In the remarks I sent last session to re-open the discussion on the effects of super-heated steam, &c., I proposed, for the detection of the acid which I believed was the cause of the corrosion in marine boilers, the placing of pieces of polished marble in the steam and water, expecting that the acid would show itself by destroying the polish. I had six pieces placed in different parts of the "Lancefield's" boiler, and left them there for six weeks. The result was that the white marble from the water became yellow, and the shining polish was destroyed, but whether the latter was caused by a deposit from the boiler water or by the acid action which I expected, I cannot tell. The polished pieces taken from the steam space were not perceptibly changed either in color or in polish. Thinking, then, that zinc would be as good a test of the presence of acid as marble, I had a piece about 4 ft. long by 3 in. broad, by 3-16ths thick, placed vertically, part in the steam and part in the water; it was in the boiler for three weeks. The lowest part which was immersed about 18 inches, was greatly corroded, the corrosion decreasing up to the highest part, which, in the steam, appeared to be little affected. Lime was suggested as the cheapest remedy for this supposed acid action. I was afraid, however, to venture on the quantity thought to be necessary—viz., about 20 lbs. per hour, and tried only about 3 lbs. per hour. The effect was imperceptible, as shown by the corrosion of another similar piece of zinc placed in a similar position during another three weeks, the boiler primed with every addition of the lime. Whether the corrosion of the zinc is any indication of the preservation of the iron or otherwise I do not know. If it is, it has the appearance of being too expensive a remedy. I expect, however, better results from soda ash, which I purpose trying again; but I feel the want of a delicate and ready test to show the effect at once, or without waiting for months, or it may be years, to find out perhaps that the remedy has made things worse. Mr. J. C. Foster has tested some of the condensed steam from the safety valve casing, and from the cylinder jacket of the Lancefield, and found both acid. During a voyage to the Mediterranean last spring, I tried to get some experience as to the rolling &c., of the ship; but unfortunately the weather was too fine, the ship behaved too well, or I was too obtuse to profit much by the sea breezes. I had Professor Smith's free revolver with me, and on several occasions recorded both the angles and times of rolling; but for want of other data my observations are, I believe, useless. From the frequent upsetting of one of the back rails of a cabin seat, I inferred that on these occasions the vessel rolled from the vertical about 30 degrees; and the length of the waves, which I assumed to be the same as those I had measured when the wind was fair, about three hundred feet. Professor Rankine from these data has calculated that the ship rolled to an angle about three times greater than the greatest slope of the waves. I was indebted to one of the passengers for making a glass bottle the end of my measuring line instead of the piece of wood I had provided. With such an apparatus the lengths of the waves can be very accurately measured. Waves about 170 feet long travelled about 22 feet a second faster than the vessel at 11 nautical miles an hour. The height of these waves, judging by their rise and fall on the middle of the ship, I measured about 12 ft., and of the largest about 13½ feet. It is stated by Professor Rankine, in explanation of some ships getting pooped, that the sea wave adds itself to the following wave created by the ship herself. Whether it be true or not that ships with full sterns are more frequently pooped than ships with finer sterns, I think it is evident that ships to be used where heavy seas are to be met with should have finer sterns than those for smoother seas; for besides the speed of the vessel being greater running before a gale than in smooth water, there is the backward current of the water in the trough of the sea to be allowed for. In the case of the waves 300 feet long to which I have alluded this backward current at the surface of the water in the trough, calculated by the usual formula, would be from 2½ to 3 nautical miles an hour, so that the stern of a vessel intended for a speed of 10 or 11 miles an hour in such seas should be made suitable for a speed in still water of from 12 to 13 miles an hour. The wave current in the trough of the sea, travelling, as it does, in the opposite direction to that of the wave created by a vessel running with the sea with a stern too short for the velocity of ship and wave current, may cause the ship's stern wave to break. Great masses of water broke when the stern was in the trough, under the quarters of the vessel in which I sailed. The waves were then travelling at the rate of about twenty-three miles an hour, while the vessel was following them at the rate of about eleven. I expect this phenomenon is common enough in heavy weather, and that these may be the seas which poop vessels, small relatively to the waves, or

larger vessels, with sterns too short for them. The question of great guns v. great or little ships is still a subject of great interest. There has been a system lately proposed by Mr. M'Laine, of Belfast, which I expect will ere long recommend itself. Instead of turning one or more turrets enclosing small guns, as in Captain Cole's by hand or otherwise, Mr. M'Laine turns the whole ship by means of her propelling power, and proposes to fire monstrous guns from her well-protected bow. The vessel is to be propelled and manoeuvred by two submerged propellers at the stern.

A report of a committee was then read by Mr. J. G. Laurie, regarding a proposal to unite with the Scottish Shipbuilders' Association, which showed that the amalgamation would be highly advantageous to both parties. A committee was appointed to continue the negotiations.

A paper was then read "On Bitumenized Paper Pipes," by Mr. Maquet, specimens of which were exhibited, for gas and water. An animated discussion followed; after which the attention of the meeting was called to the desirableness of getting papers on the working of coal-cutting engines, recently successfully introduced.—*North British Mail.*

#### NEW STATUES FOR THE BRITISH MUSEUM.

THE British Museum received last week the statues from the Farnese Palace at Rome, recently purchased from his majesty the ex-king of Naples.

These statues, nine in number, are as follows:—

1. A Mercury, nearly identical in *posé* and scale with the celebrated statue in the Belvedere of the Vatican. Another copy of this work exists in the gallery at Lansdowne-house, of which it forms the principal ornament. Of these three Mercuries the one in the Farnese Palace is the most complete, having undergone very little restoration, and it was by reference to this figure that Visconti showed that the figure in the Vatican was not an Antinous, as was formerly supposed. All three statues are doubtless copies of some celebrated original. It would be difficult, without placing these statues side by side, to determine which of the three is the most beautiful work of art, but competent judges are disposed to give the palm to the Farnese Mercury as the figure which preserves most faithfully the style of the exquisite Greek original which has formed the prototype of all three. The head of this figure is remarkable for that pensive expression which ancient art delighted to associate with the perfection of physical beauty. Every feature is intact, and the surface of the marble in admirable condition. The neck is inclined gracefully on one side, and there is in the form that inimitable combination of suppleness with strength which the Greek sculptor had for ever before his eyes in the *palaestra*, and which may still be seen in some of the races of the Levant. Vestiges of colour may yet be traced in the drapery at the back of this figure.

2. An equestrian statue of a Roman Emperor of heroic size. The head is that of Caligula, but doubts have been entertained whether it belongs to the body. The legs of the horse have also been restored in places, but on the whole this group is in very fine condition, and especially interesting, as being one of the very few equestrian statues which have been preserved to us from antiquity. Indeed, it is believed that only four such groups exist in marble, viz., the two statues of the Balbi in the Museo Borbonico at Naples, the mutilated torso of a Persian figure from the Mausoleum, and the Farnese group.

As a work of art this group is inferior to the two groups at Naples, and also to the bronze Marcus Aurelius of the Roman Capitol. It is, however, a good specimen of Roman monumental art, and may be studied with advantage by the student of the present day.

3. The celebrated and unique copy of the Diadumenos of Polyclethus. This figure, an engraving of which is given in K. O. Muller's *Denkmäler d. a. Kunst*, taf. xxxi., No. 136, represents a Greek athlete binding a diadem round his head, whence the name Diadumenos, by which the figure was known in the ancient schools. In the form we see the same characteristics as in the types of Phidias, great muscular development in all the nobler points of the figure, united with an exquisite harmony of proportion, so that the predominant expression which the figure suggests is rather that of grace than of mere brute force. This figure has a special interest to the student of art, because it is an unquestioned copy, and the only one in existence in the round from that work of Polyclethus which the judgment of antiquity esteemed one of his two master-pieces; which, like his other *chef d'œuvre*, the Doryphorus, was used as a canon of proportions in the ancient schools, and which, at a later period, sold for the enormous sum of 100 talents, equal to £25,000.

4. An Apollo playing on the lyre, in the same attitude as the beautiful statue from Cyrene, in the British Museum, but naked. This figure has been a

good deal restored, but the modern additions have been made with great skill and knowledge.

6. An heroic figure, to which no name has as yet been assigned. It may possibly represent a king of the Macedonian period in the character of a deity, according to the system of local portraiture which came in after the time of Alexander the Great. This figure is well modelled.

7. A Satyr holding up a basket in which is an Amorino. The statue is of the Roman period, and not very finely executed, but the motive is *naïf* and unusual, and the sculpture in admirable condition. The two remaining statues in the collection are a group of Mercury and Hersé badly restored, but interesting on account of the subject, and a male torso.

An interesting notice of the statues now acquired by the British Museum, from the pen of Professor Gerhard, of Berlin, is to be found in Bunsen's great work on the topography of Rome. These statues formed part of the celebrated Farnese collection, the remainder of which is now in the Museo Borbonico at Naples, and most, if not all, of which were found in the Baths of Caracalla.

#### THE CORPORATION AND PROJECTIONS IN THE STREETS.

As so much attention has been directed to the extraordinary proceedings of the officers of the corporation with reference to projections and signs in the public thoroughfares, we have thought it advisable to obtain a copy of the *Dublin Improvement Act Amendment Act, 1861*, and now reprint for the benefit of our readers those provisions of it which refer to the matter in question. We would counsel all those who receive notices of an unreasonable character to make a firm stand in defence of their rights, as it is by such a course alone that a stop will be put to this system of petty persecution:—

6. If any porch, shed, projecting window, step, cellar door, or window, or steps leading into any cellar or otherwise, lamp, lamp-post, lamp-iron, sign, sign-post, sign-iron, show board, window-shutter, wall, gate, fence, or opening, or any other projection or obstruction placed or made against or in front of any house or building after the passing of this Act (save and except such projections as are authorized by the rules specified in section nine in this Act), shall be an annoyance to the public in consequence of the same projecting beyond the line of building of any street, or into or over or being an encroachment upon, or being made in or endangering or rendering less commodious the passage along any street within the limits of this Act, it shall be lawful for the corporation to give notice in writing to the owner or occupier of such house or building to remove such projection or obstruction, or to alter the same in such manner as the corporation think fit, and such owner or occupier shall, within fourteen days after the service of such notice upon him, remove such projection or obstruction, or alter the same in the manner directed by the corporation, and if the owner or occupier of any such house or building neglect or refuse, within fourteen days after such notice, to remove such projection or obstruction, or to alter the same in the manner directed by the corporation, he shall forfeit any sum not exceeding five pounds, and a further sum not exceeding forty shillings for every day during which such projection or obstruction continues after the expiration of such fourteen days from the time when he may be convicted of any offence contrary to the provisions hereof.

7. It shall be lawful for the corporation, if any shed, lamp, lamp-post, lamp-iron, sign, sign-post, sign-iron, or showboard which has been placed or made against or in front of any house or building in any such street before the passing of this Act shall be an annoyance as aforesaid, to cause the same to be removed or altered as they think fit: provided always, that the corporation shall give notice in writing of such intended removal or alteration to the owner or occupier against or in front of whose house or building such shed, lamp, lamp-post, lamp-iron, sign, sign-post, sign-iron, or showboard shall be, thirty days before such removal or alteration shall be commenced, and shall make reasonable compensation to every person who shall incur any loss or damage by such removal, excepting in cases where the same may now be removable under any Act, in which case no compensation shall be made, and the amount of such compensation, if any, and the expense of such removal or alteration, shall be paid by the corporation out of the improvement fund of the said borough.

8. All notices to be given by the corporation for the removal of obstructions under the provisions of this Act shall be given within two years from the completion of the same or from the passing of this Act.

9. The following rules shall be observed as to projections from new buildings:—Every coping, cornice, fascia, window dressing, portico, balcony, verandah, balustrade, or architectural projection or decoration whatsoever, and also the eaves or cornices to any overhanging roof, except the cornices and dressings to the window-fronts of shops, and except the eaves and cornices to detached and semi-detached dwelling houses, distant at least fifteen feet from any other building, and from the ground of any adjoining owner, shall, unless the corporation otherwise permit, be of brick, tile, stone, artificial stone, slate, cement, or other fire-proof material: In streets or alleys of a less width than thirty feet, any shop-front may project beyond the external wall of the building to which it belongs for five inches and no more; and any cornice of any such shop-front may project thirteen inches and no more; and in any street or alley of a width greater than thirty feet any shop-front may project ten inches and no more, and the cornice may project for eighteen inches from the external wall but no more. No part of the wood-work of any shop-front shall be fixed nearer than four and a-half inches from the line of junction of any adjoining premises unless a pier or corbel of stone, brick, or other fire-proof material four and a-half inches wide at the least is built or fixed next to such adjoining premises as high as such wood-work is fixed, and projects an inch at the least in front of the face thereof: The roof, roof-flat, or gutter of every building, and every balcony, verandah, shop-front, or other projection, must be so arranged and constructed and so supplied with gutters and pipes as to prevent the water therefrom from dropping upon or running over any public way: Except in so far as is permitted by this section in the case of shop-fronts, and with the exception of water-pipes and their appurtenances, copings, cornices, fascias, window dressings, and other like architectural decorations, no projection from any building shall extend beyond the general line of fronts in any street except with the permission of the corporation.

10. No building shall, without the consent in writing of the corporation, be erected beyond the regular line of buildings in the street in which the same is situate, in case the distance of such line of buildings from the highway do not exceed thirty feet or within thirty feet of the highway where the distance of the line of buildings therefrom amounts to or exceeds thirty feet, notwithstanding there being gardens or vacant spaces between the line of buildings and the highway; and in case any building shall hereafter be erected contrary to this enactment, it shall be lawful for the corporation to cause the same to be demolished or set back (as the case may require), and the expenses attendant upon or incidental thereto shall be paid to the corporation by the owner of the premises, and if on demand of such expenses such owner shall neglect or refuse to pay the same, then such expenses shall be recovered by the corporation from such owner as damages, before one or more justice or justices of the peace, in the manner provided by the said recited Act, or the Acts incorporated therewith, for recovery of damages not specially provided for.

#### PURIFICATION OF THE LIFFEY.

THE following communication was read at a meeting of the Municipal Council on the 24th inst., and ordered to be referred to a committee of the whole house:—

To the Right Hon. the Lord Mayor, Aldermen, and Burgesses of the City of Dublin.

MY LORD MAYOR AND GENTLEMEN,—Referring to Mr. Neville's report on the sewerage of the city, dated April, 1853, and to his proposed plan for intercepting the sewage, so as to preserve the river from pollution, we beg to submit for your consideration the following proposal, whereby the idea suggested by him of intercepting the sewage, purifying the Liffey, and improving the health of the population, may be carried into effect in such a manner as to render the refuse matter of the city to some extent available for the reduction of taxation and the repayment of the cost of the intercepting, which the sanitary requirements of the city render imperative. Having submitted our views to large capitalists and others, who have given considerable attention to the subject to sewage utilisation, we have received such encouragement as warrants us in taking the preliminary steps of applying to Parliament for a bill this session on the not unreasonable assumption that we shall obtain the necessary approval and support of the Corporation. We have now the honour to submit to you a formal proposal for a concession from your body on the sewage of the city, and of the favourable terms we are prepared to offer, which proposal if accepted as the basis of the concession, we are prepared to convert into a

contract, in such form as may be approved of by the law advisers of the Corporation, and in accordance with the provisions of the act of Parliament which we propose to procure. The following are the terms we propose, from which you will see that we are ready to accept all the risks and responsibilities of a very large expenditure, and to share the profits with the ratepayers.

1. That the corporation shall grant the sewage of the city and all other sewage under their control to three gentlemen to be named by us, for a period of three years, on the following terms and conditions.

2. That the parties to be named in this grant shall, within a period of three years from the date of the concession, either form or arrange with a company duly incorporated, and with sufficient subscribed capital to construct the requisite works for utilising the sewage, and shall actually commence the work within that period.

3. That on the formation of the company and the commencement of the works, as stated in article 2, the right of the concessioners or their assigns to, and their control over the sewage shall be absolute and exclusive, and that they shall have, and have confirmed to them, these rights for a period of fifty years certain, to be reckoned from the date when the sewage shall begin to be utilised.

4. That at the expiration of that term of fifty years, the grant shall be renewed for twenty years on such terms as shall be agreed on, or as shall be settled by arbitration in case the parties differ, and so on for every future term of twenty years, or that the corporation shall have the right to purchase the works, plant, and property of the company, on terms to be mutually agreed upon, or to be settled by an arbitrator.

5. That the company shall either undertake the construction of the necessary sewers and main drains for intercepting the sewage within the city boundaries, so as to convey it to a point to be agreed upon, or shall undertake to provide the corporation with the capital sum requisite for the execution of the intercepting and collecting sewers to be constructed by the corporation by contractors of their own—in either case the city sewers to be constructed under the direction and with the approval of the proper officer of the corporation—and the corporation undertaking to secure by a mortgage of the sewers rate the sum or sums which shall be expended on the city sewers, or lent by the company for that purpose, the interest on the said capital sum not to exceed £5 per cent. with a power to the corporation at any time to pay off same by instalments or otherwise, no instalment to be of less amount than £5,000.

6. The company shall erect and provide at their own cost and charges all the requisite machinery and other appliances for taking away from the city boundary the sewage collected and brought there by the intercepting sewers, and also such works as may be deemed by them requisite for the utilisation of the sewage to be intercepted and collected by the aforesaid city sewers, and shall provide all connections to enable them to take the sewage from such a level and at such a place as the city engineer shall determine on as the proper discharging level for the city intercepting sewer.

7. All net profit realised by the company in excess of ten per cent. on their total outlay to be equally divided between the company and corporation, such profit to be verified by the company's auditor to be appointed by the Board of Trade, or by two auditors, one to be appointed by the company and the other by the corporation.

8. The corporation to give the aid of all their powers and privileges to the grantees and to the company, and to assist them to the utmost of their power, and, if necessary, to apply to parliament at the cost of the company to increase their own powers for the purpose of carrying out this object.

This, my Lord Mayor and gentlemen, is the proposal, and these are the general conditions which we respectfully submit to the Corporation as a basis for a provisional concession. We do not think it right to lay before you vague estimates of the profits that may be realised by the company and the Corporation from this enterprise. The proposed operation is at best an experiment, and the financial results are problematical. There are many difficulties to be encountered in carrying out the scheme, but those whom we represent are prepared to accept all the risks, and give you in exchange for what is now a source of nuisance and expense an equal share in all the benefits that can accrue after paying a far less interest on the capital to be risked than could be secured by the purchase of the most common-place business. The advantages of the plan we submit to the Corporation and ratepayers, apart altogether from the contingent profit, are of a character that we submit should prove satisfactory to the citizens at large, and deserves to be received with favour by the public. The improved system of sewerage, which must be constantly extended,

will, in the same proportion, increase the pollution of the river and render it more intolerable.

The formation of intercepting sewers has, therefore, become an immediate and pressing necessity. We propose to supply the means of constructing the necessary works, according to the plans laid down by your own engineer, in return for the concession of the sewage, at a moderate rate of interest, with liberty to replace it when you can at a still lower rate. This, however, we consider the least important part of the proposed plan, for if the sewers were constructed to-morrow, they would only concentrate in the city and on the shores of a tidal river all the noxious refuse of the city and house drains delivered there, where it must remain, as in the Thames, passing up and down every tide. This deposit we propose to remove, and by a large expenditure utilise it, thus promoting industry and increasing the productiveness of the country, while relieving the citizens from the presence of a perpetual nuisance at their very doors, offering them a fair and, we hope it will be felt, a just proportion of any profit that may result from our labour and expenditure in converting that nuisance into a profitable commodity. Should the proposed scheme prove a failure, the city can lose nothing, as we propose to take up the sewage at the level where your engineer proposes to discharge it by gravitation. Should it prove a moderate success, the city will participate in that success; and should it, by the application of skill and scientific researches, and by the expenditure of labour and capital, prove a great success, the ratepayers will have their sewage system rendered self-paying, and at the end of a period not longer than an ordinary lease will come into the enjoyment of a property which will have cost them nothing to create. We respectfully submit this project, then, to your judgment, relying rather upon its essential merits than upon probable profits, and confidently ask your assent to a proposal which has for its basis the improvement of the public health of the city, and the promotion of the industrial enterprise of the country.

BARRINGTON AND JEFFERS.

10, Ely-place, Nov. 14, 1864.

#### DECAY IN WOOD CARVINGS.

THE committee which was appointed to inquire into the causes of decay in wood carvings, and the means of preventing and remedying such decay, has made its report. This is an elaborate and very interesting document. A third subject of inquiry was proposed with regard to the effect of an inclosure of objects in glass-cases—whether or not such a course is likely to promote dry-rot or decay. This is answered in the negative. With regard to the first question—the causes of decay—a paper by Prof. J. O. Westwood, is comprised in the report. This attributes the mischief to three species of small beetles, of cylindrical form, belonging to the family *Pitidae*: *Ptilinus pectinicornis*, *Anobium stratum*, and *A. tessellatum*. The ravages of these creatures, under favourable circumstances, are stated to be such that a new bedstead has been “reduced to powder” in three years. The complete animal of the genus *Anobium* is known as the “Deathwatch,” from the noise made by it when at work. Saturation by creosote, when practicable, is effectual to a great extent against these creatures. Fumigation by sulphur, prussic acid, or benzine is believed to be most serviceable, especially if practised when the perfect beetles make their appearance, i.e., the first hot days in summer. Vaporization by carbolic acid, a pure form of creosote, was tried without entire success; chloroform and benzine were more potent; the fumes of the latter answered, so far as could be ascertained, the purpose in question, and this seems to be the most effectual vaporizer. Saturation with chloride of mercury dissolved in methylated spirits of wine, and applied by a brush, was next tried, and was found to be undesirable with regard to painted and varnished works on which it may be important to retain the original colour and unpolished surface of the wood; vaporization by means of benzine rendered saturation unnecessary. The plan of restoring works which had been injured that was adopted by Mr. W. C. Rogers, with regard to some carvings by G. Gibbons at Belton House, which were seriously attacked, was effectual, as proved by the lapse of seven years. This plan consisted of saturating the wood in a strong solution of chloride of mercury; this process injured the colour of the material, and that had to be regained by the use of ammonia, and by a “slight treatment with muriatic acid. After this the interior of the wood was injected with vegetable gum and strengthen the fabric of the carvings. A varnish of resin, dissolved in spirits of wine, was afterwards spread on the surface.”—*Athenæum*.

## IMPROVEMENTS IN ST. ANNE'S CHURCH, DUBLIN.

WE are glad to perceive that the improvements in St. Anne's Church, Dublin, are still advancing. Within the last month three very handsome memorial windows have been erected in the church by Messrs. O'Connor, of Berners-street, London.

One side of the church is now altogether filled with painted glass, with the exception of the window adjoining the apse, which is, we understand, about to be similarly adorned by the parishioners and congregation in memory of his Grace the late Archbishop of Dublin.

Of the windows at the south side, that nearest the western door has been set up in memory of the late Lord Chief Justice Doherty. At the base of this window stands the figure of Moses, drawn in a commanding attitude, with the rod in one hand, while with the other he grasps the Table of the Law. Under this figure stands the legend—"The law was given by Moses." Above is a large group representing the Judgment of Solomon. The moment is taken when the king stays the hand of the executioner, and the expression of the faces in this group is particularly striking and effective. The legend surrounding this is, "The Wisdom of God was in Him to do Judgment." The ornamental details show the serpent, emblematic of wisdom, and the laurel and olive, emblems of clemency. At foot is the inscription, "In Memory of the Right Hon. John Doherty, Lord Chief Justice of her Majesty's Court of Common Pleas in Ireland. Born, Jan. 7, 1787. Died, Sept. 8, 1850."

The window next this is erected by Edw. Cane, Esq., of St. Woolstan's, Celbridge, and of Dawson-street. The subjects represented are from the parables of the fifteenth chapter of St. Luke's Gospel—the Good Shepherd and Lost Sheep, the Lost Piece of Money, and the Prodigal's Return. The colouring of this window is, perhaps, not quite as effective as the others, but the top group merits the highest praise. The window is erected to the memory of Richard Cane, Esq., who resided for many years in St. Anne's parish.

The third window on this side has been already described in our journal. It was put up a year ago by Messrs. Charles and Robert Smyth of St. Stephen's-green, to the memory of their parents, and represents in beautiful drawing the figures of Faith, Hope, and Charity.

The fourth and last window on this side is that which is about to be filled with the proposed memorial to Archbishop Whately.

The series on the north side has been also commenced by the erection of a window, in memory of Edward Tickell, Esq., Q.C., late Chairman of Armagh, who died in July, 1863, aged 84. It also consists of three groups, the arrangement of which we think even better than that of any of the windows on the opposite side. A scroll rises round the top, with the text (taken from Micah), "Do justly, love mercy, walk humbly with thy God;" and the groups are severally illustrations chosen from Scripture of this three-fold injunction. The first, at foot, represents the scene described in 1 Samuel, xii., where the old judge appeals to the people—"Behold, here I am; witness against me, whom have I defrauded? or whom have I oppressed? or of whose hands have I received any bribe?" &c. The middle group, illustrating the words "Love mercy," is from the parable of "The Good Samaritan;" and the top, illustrating the latter part of the text, is from the parable of "The Publican and Pharisee." This window has been erected at the cost of Mr. Tickell's nephews. Besides the above a very handsome memorial brass has been erected by his son to the late Thomas Belmont St. George, Esq., of Dawson-street. Within a tabernacle of lilies angels are seen bearing a crown, and the text beneath is, "Be thou faithful unto death, and I will give thee a crown of life." All these memorials are by Messrs. A. and H. O'Connor, London, and they reflect much credit on that well-known firm. We only hope that before long the exterior of this church may be made more worthy of its much-improved interior, and of the purposes to which the building is consecrated.

## ARCHITECTURAL STUDENTS' ASSOCIATION, DUBLIN.

A MOVEMENT has been set on foot by some of the younger members of the Institute of the Architects of Ireland, assisted by some of the younger aspirants to the profession who are not connected with that body, the object of which is to form an architectural association of students in connection with the Institute. It is proposed that the meetings of the association should be held weekly or fortnightly, and that it should combine a sketching club and class of design with other objects of study and improvement.

It is suggested that young men who would fear to put forward their views—for there are some modest individuals connected with the profession—before a tribunal composed of Fellows of the Institute, would not fear to prepare and read papers before a society composed of fellow-students.

The following circular has been issued very generally to all architects' assistants and pupils, and to others connected with the Art Manufactures:—

"Office of Public Works, Custom House,  
November 28, 1864.

"DEAR SIR,—You are requested to attend a meeting to be held at the Office of Public Works on Friday evening, 2nd Dec., at eight o'clock, to take into consideration the practicability of forming an architectural association for the mutual improvement of the junior members of the profession.

"The proposition was brought under the notice of the Institute on the occasion of their last meeting, and received the unanimous approval of the members present. The Institute has kindly promised to aid the proposed society to the best of its ability, and its ultimate success therefore depends upon the promptness and spirit with which the students and rising members of the profession—for whose benefit solely the society is sought to be established—come forward to perform their part. At the forthcoming meeting the objects of the society will be fully explained and discussed, and a committee appointed. The principal objects, which it appears to the promoters most desirable to accomplish, are generally as follows:—To institute meetings—to be held as may be decided on—where papers would be read, architectural subjects discussed, sketch-designs made, and drawings and designs submitted for inspection and criticism.

"Another object which appears also to the promoters desirable to keep in view, is to provide a suitable room or rooms, to be at all times available for the use of students, and which would afford facilities for study and the preparation of drawings, not usually attainable at a private residence.

"The favor of a reply to one of the undersigned is requested.

(Signed) "JAMES H. OWEN, Sec., F.R.I.A.I.  
JOHN LANYON, F.R.I.A.I.  
THOMAS DREW, F.R.I.A.I.  
E. TREVOR OWEN, F.R.I.A.I.  
FRED. FRANKLIN, F.R.I.A.I.  
J. RAWSON CARROLL, F.R.I.A.I.  
G. C. ASHLIN, F.R.I.A.I.  
WM. SHILLING, Student.  
S. P. CLOSE, Student.  
CHAS. H. BRIEN.  
MORTIMER H. LINKLATER."

It is hoped that the society may be formed on such a basis as will admit to its privileges art-workmen and others desirous of studying architecture and the cognate arts—in fact to all who may desire to avail themselves of it; to many of these latter classes such a society would be an invaluable boon, and we sincerely hope that the Council of the Institute may see their way to making some arrangement by which the practical difficulties of working such a society in harmony with the parent one, may be obviated. We believe that these difficulties are not insuperable. The idea generally entertained at present, is that the occupations of the society at their meetings should include, not only sketching and making sketch designs for given architectural subjects, but also figure drawing and drawing from the round, and the delivery of lectures on perspective, coloring, and such-like subjects. The gentlemen whose names are appended to the circular have requested us to state that all those interested in the formation of such a society will be welcome at the meeting, as they will be glad to be in possession of the views of all who would desire to avail themselves of its privileges.

## AN IRON AND CONCRETE CHURCH, FRANCE.

AN interesting church has been erected at the Park of Vesinet, near St. Germain, from the designs of M. Boileau, the architect of the Eglise St. Eugene, constructed of wrought and cast iron, and concrete or *béton aggloméré*, M. Coignet's patent. The St. Eugene church was the first in which the application of cast and wrought iron was made to a considerable extent, and when the design of the Vesinet chapel was being made, M. Coignet requested M. Boileau to try the experiment on a large scale, by substituting the concrete for stone. This was agreed to, and the result is that we have a monolithic church, its walls being in one solid piece, as well as the columns and mouldings for the windows, the open-work balustrades, and all the decorations.

The eastern entrance, with a porch, is surmounted by a tower, and is flanked on each side by a small chapel in the line of the side aisles. The church is divided into nave and side aisles, separated from it by grouped slender columns of cast iron, which rise as high as the side walls. From these spring pointed arches, of iron also, over the nave and over the bays separating it from the aisle; these arches carried up to the roof completely relieve the walls of the pressure of the arches over the aisles. All the roofing is externally covered with two layers of wrought-iron plate, separated a few inches asunder by a hermetically imprisoned layer of air. The length of the edifice is 170 ft. 7 in., and breadth, 55 ft. 9 in., height to summit of arches of nave, 55 ft. 9 in., so that the breadth is equal to the height internally. The spire is to be 131 feet 3 in. high. M. Michel Chevalier said, in 1855, with regard to this new system of cast and wrought iron edifices—"The mass of materials to be lifted to great heights is considerably diminished; the arching is considerably lighter and more permanent in its form; the lateral pressures, so dangerous, are almost all reduced into vertical harmless ones; an iron roof does not weigh upon the walls, and therefore we have been able to suppress counterforts and buttresses; the thickness of the walls is reduced to almost nothing; in fine, with one half or perhaps with one-third of the expense (of a stone structure) we can enter into possession of a building of the same surface, of a greater height, and of an unhoped-for elegance."

The park of Vesinet, formerly the forest and wood of the same name, is situate at the borders of the Seine, at foot of the terrace of Saint Germain, and form a worthy rival to the surrounding enchanted spots—Clatou, Croissy, Bougival, Port-Marly, Le Pecq, Montesson, &c.

M. Pallu, the spirited proprietor, has organised a colony of rural habitations, possessing not only the charm of a country seat but the pleasures of a complete park, laid out with groups of trees, shady groves, rich flowers in abundance, cascades and rivulets. Some idea may be formed of the vastness of this enterprise from the fact, that the water-courses through the grounds are of a united length of nearly forty-five miles, and an engine of 120-horse power is constantly at work. All the houses have water laid on all the floors.—*Builder*.

## HEALTH OF DUBLIN.

(From the Registrar General's Weekly Return.)

During the week ending November 26 there were registered in the city of Dublin 165 births—75 boys and 90 girls; showing an increase of 58 when compared with the number registered during the week preceding. The number of deaths registered during the same period amounted to 135—62 males and 73 females; the number registered during the previous week was 128.

Diseases classed as "zymotic" proved fatal in 21 instances—including 6 from fever (being a decrease of 11 when compared with the number registered during the preceding week), 4 from diarrhoea, 1 from small-pox, 1 from scarlatina, 1 from diphtheria, &c.

Thirty-three deaths resulted from "constitutional" diseases—viz., 16 from phthisis or pulmonary consumption, 9 from hydrocephalus or water on the brain, 5 from mesenteric disease, and 3 from cancer.

"Local" diseases proved fatal in 63 instances, including 24 deaths from diseases of the nervous system (11 from convulsions, 3 from cephalitis or inflammation of the brain, 3 from apoplexy, 1 from paralysis, 1 from epilepsy, and 5 from brain disease, unspecified), 8 from heart disease, 24 from diseases of the respiratory organs (21 from bronchitis and 3 from pneumonia), and 7 from diseases of the digestive organs.

Fifty-seven of the persons whose deaths were registered during the week were under 20 years of age, 24 were between 20 and 40, 24 between 40 and 60, 26 between 60 and 80, and 4 were 80 years old and upwards, one of whom was a nonagenarian (a female who had attained her 92nd year).

Of the 165 births registered during the week, 76 occurred in the North City, and 89 in the South City District. Forty-eight of the deaths registered during the week took place in the North City, and 87 in the South City District. According to the census for 1861, the population of the former district was 109,143, and of the latter, 145,665.

The Registrar of No. 3, North City District remarks that "typhus fever of a bad type has been for some time, and still is prevalent in Hendrick-street, Barrack-street, Queen-street, Bow-street, Hammond-lane, and Manor-street. Church-street is now almost free from it. The disease, in almost all the houses where it visited, commenced among the children and young members of the family, who had it in a mild form; but when, from want of proper precaution, it extended to the older members of the family, it has been very fatal."



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UNIVERSITY OF VILLINOIS

## BELFAST TOWN IMPROVEMENTS.

It is with the greatest pleasure we observe that the sudden flow of prosperity, which has accrued to Belfast in consequence of the present scarcity of cotton in the market, and its effect on the staple trade of that important town, is bearing fruits in an energetic movement to improve the borough. As most of our readers are aware, the progress of town-improvement there, at one time nobly inaugurated, was suddenly stayed, and has been for years in an unhappy state of paralysis, in consequence of a Chancery suit in which the town council became involved, promoted by a certain clever, eccentric, and now notorious individual, Mr. John Rea, a local attorney. Now that this unfortunate business has been at last brought to a conclusion by the intervention of an act of Parliament, which has cost the special respondents to the suit and the townspeople an amount of money which, in the aggregate, would appear incredible, and now that the angry passions enlisted on both sides of the question are somewhat laid at rest, we may safely assert that no two honest men would be found outside the northern capital who would not admit, after watching the course of this disastrous litigation, that no single advantage worth taking into consideration has been gained by it, and that its only fruits have been a stagnation in the trade and progress of the town (only temporary and partial we rejoice to say), and the pecuniary embarrassment, and in some cases, premature death of some of its most influential citizens, who were weighed down by their serious and undeserved position as respondents in the Chancery suit. Poor widows and other persons of small means, who had invested their little all in the hands of the corporation, have for upwards of twelve years been without return of principal or interest from their little hoard. The so-called unsecured creditors of the corporation were almost without exception of the classes above mentioned, and the miseries which the Chancery suit entailed upon these poor creatures alone would be sufficient to make all good men execrate its very name. But now happily all this is at an end, and, as there was much mischief in its existence, so now is there every advantage to be gained by the townspeople of Belfast for getting it, and all their local civisquabbles with it, and setting themselves with renewed energy to developing the resources of their town. Never apparently have more prosperous days shone upon the town and trade of Belfast, rendered all the more bright by the preceding depression. It has been stated that since the American war broke out the number of power-looms at work in the linen factories has been doubled or nearly so. The increase of population in Belfast has been always sufficiently remarkable, but a statement of this fact—which was referred to by his Excellency the Lord Lieutenant at the Mansion House banquet on the 24th ult.—is sufficient to suggest a necessary, consequent, and corresponding increase in population, which is startling. This involves a sudden accession of responsibility to the local councils of the town which it is impossible to overrate. Street after street of the same unending series of little monotonous brick houses go stretching out towards the green hills which encircle the town; whole districts spring up, we had almost said like the gourd of the prophet, in a single night. These have to be lighted, sewered, paved and watched, and that with a degree of promptness and energy which few corporations—certainly not that of our city—would display. This should be grappled with boldly if the townspeople of Belfast would not see the outskirts of the borough become hotbeds of disease, disorder, and the inevitable immorality which ever follows in the train of dirt and neglect.

We often begin reformations at the wrong end; or at least in our blindness neglect many minor agencies in effecting the well-being of a commonwealth, which are, in the aggregate, none the less potent that they do not appear upon the surface of things. A very small amount of prevention is worth a very vast amount of cure; and, inasmuch as the swift and just vengeance of the law is startling to the minds of the community, it is to some extent transitory in its impression; in as great a degree are the unobtrusive workings of philanthropy, in its lowest or highest fields of labour, more really effectual and lasting in their results. We do not charge Belfast with neglecting its duties culpably in the latter respect; looking at it from our point of observation, we see religious edifices of different kinds springing up in a number, and with a rapidity which is creditable in the highest degree to the different bodies of Christians who originate them. The spirit to which this movement owes its life is perhaps without the province of this journal to comment on, but we claim for what is within our province, the cause of sanitary science, a place of para-

mount importance. The very nature of the question, from its indirect influence, renders it unnecessary for us to trace immediate correspondence between causes and effects, but however remote may be the results achieved by sanitary improvement, we would estimate them as worth more in the end than a whole brigade of an extra police line. One shortcoming Belfast must be charged with, a neglect to provide a proper supply of the greatest necessary of life, safety, and decency—water. We are glad to notice that steps are being taken at last to remedy, in some measure, this great evil; but we cry shame on the petty local dissensions and penny-wise spirit which has delayed a project which should have been carried out years ago. The town has gained an unhappy notoriety among insurance offices. This year its reputation has not been improved by the prevalence of fevers and other epidemics attributable to this cause, and though we have no tangible mode of arriving at it, we would say that the effect upon the morality of the poorer classes, however unobserved and unnoted, is probably more serious than the amount of the other two added together. But we hope better things from the really sterling common sense of these northern Athenians, which really underlies the surface of petty consequence and local hostility which sometimes appears most prominent to strangers. They manage, nevertheless, to carry out great and substantial improvements in their town and harbour, of which they may well be proud. The turbulence of a rabble and the lawlessness of an immigrant population of the lowest class, which has proved a formidable evil of their social condition, is in reality no stain upon the character and respectability of the town. Yet these poor they must always have with them, and if Belfast would do its duty it must care for them, and that with extraordinary activity. So long as we see great improvements carried out in a spirit of independence and mutual forbearance of petty civic strife, and the citizens avoiding to think "the petty babble of their burgh the murmur of the world," Belfast is worthy of all our respect, and something to which Ireland may point with pride.

We give particulars below of a proposed improvement which is on foot in Belfast. It is not a new one, as we are aware, for the question has been mooted any time this twenty years. A glance at the map and a trifling acquaintance with the thoroughfares, will suggest to anyone the desirability of some great leading trunk or artery through the system of streets, and which would pass directly through the heart of the town; by a singularly fortuitous circumstance there are great facilities for effecting this most desirable purpose. Donegall-place is about a quarter of a mile or less in length, and is the Sackville-street of Belfast; at its southern end it is faced by the Linen Hall, an important square of places of business; but the traveller proceeding from this point, and wishing to cross the town in a northerly direction, is obliged to turn off at right angles at the northern extremity of Donegall-place, and passing down High-street turn again up Bridge-street, thence, after another turn, up Donegall-street, and by this circuitous route accomplish his purpose; either this or he may reach his destination by a direct passage through a system of lanes and alleys of about half a mile in length, which thread localities distinguished chiefly by butchers, slaughter-houses, thieves, prostitutes, dirt, poverty, and objectionable smells, which make a promenade within its precincts the result of necessity more than choice. By a happy circumstance the production of the line of Donegall-place through this agreeable neighbourhood in a northerly direction almost meets the southern extremity of York-road, a street of noble proportions both in width and length, and the main thoroughfare to the terminus of the Northern Counties Railway, and also to the Antrim shore of the lough, where Belfast merchants love most to abide in edifices palatial or pretentious, cut-stone or stucco, in solemn segregated dignity, or in a modest semi-detached-villa walk of life. It is now proposed to carry out this junction of the two streets, we believe by the agency of a company, who think that they will find remuneration in the increased scale of ground rents which they will acquire. No matter whether the scheme is effected by their agency or that of the corporation, it is one so evident in its use and practicability, that it must be carried out at no distant day, and the sooner the better, for we know of no improvement so calculated at so small a comparative outlay to effect such a change for the better in the town.

We quote the following description of the scheme from the *Belfast Newsletter*. It will be observed that new markets are one of the objects contemplated in connection with this matter; we can only say we wonder how Belfast has done without these for so long a time:—

"Some weeks since we directed our attention to the shocking condition, in a moral and sanitary sense, of the district of the town which lies between Hercules-street and Smithfield, and advocated the desirability in connection with the long-contemplated diversion and widening of Hercules-street and John-

street, of acquiring possession of all the district in question, and constructing a covered market large enough to accommodate not only the butchers, poulterers, and fish-dealers of Belfast, but the fruiterers and green-grocers as well. We are glad to know that no one who carefully considered the proposition did not give it a hearty approval. It would not be easy to find in any city in the three kingdoms a locality in every feature more repulsive. The lanes and alleys are nests of filth and hotbeds of fever. Poverty and disease, crime and misery, go hand in hand in those abodes of the dregs of the population; and as a mere sanitary precaution it behoves the town not merely to abate, but utterly to sweep away, the dangerous nuisance. There is reason to believe that at least to a considerable extent this most desirable improvement will ere long be effected. A private company, consisting of gentlemen of wealth, position, and influence, has been promoted for the purpose of constructing a new street almost on the site now occupied by Hercules-street, and continuing it out in a line as straight as is practicable to open opposite York-street in Donegall-street. In connection with this improvement it is intended to make other street improvements in the same neighbourhood, which would have the effect of quite re-modelling that portion of the town, and sweeping away some of the worst districts which now disgrace it. The plans cannot be said to be yet finally settled, but the general outline of the project is as follows:—The new street would open into Castle-place, and form a continuation of Donegall-place. The houses from the Ulster Club to the corner would, therefore, be taken away, and the thoroughfare would open where they stand. Round Entry, on the one side of Hercules-street, would be taken down, and the new street would be continued, as we have said, until it finally opened in Donegall-street. John-street would be completely shut up, and new frontages would be obtained in the new street on a rather different line. Some divergence of a portion of Church-street is also proposed. Another new street would be made at right angles to open into North-street, almost opposite to Long Lane, and to run direct to the north side of Smithfield, making an important thoroughfare. By this part of the improvement Hudson's-entry, one of the abominations of the town, would be swept away. There is some talk of diverging the line of North-street a little where the new street would cross it; but this should be avoided, if possible; and probably will be avoided when the plans are matured. It is proposed by the company to take ample land to make their frontages very valuable; and should they be enabled to carry out their improvement, the event will mark an important era in the history of Belfast.

"The plans have, we believe, been submitted to the Improvement Committee of the Town Council, and the company propose to go to Parliament for powers, provided the Corporation contribute a reasonable sum to assist in carrying out the works. The sum fixed upon, we believe, is £15,000; and we must say that if for this amount the town can have the projected improvements made they will get an excellent bargain, while, at the same time, the company, if its affairs are prudently conducted, cannot fail to make a handsome profit in the end. The town will benefit, not only by the greater convenience for traffic and otherwise, but by the largely enhanced valuation of the district through which the new streets are to be made. After a few years the interest on £15,000 will be more than made up by the increased return of rates.

"In connection with these proposed and perfectly practicable improvements we would again urge upon the notice both of the Town Council and the company the propriety of constructing a retail market on the site of some of the lanes and alleys which still exist, and would otherwise be left to exist, between Hercules-street and Smithfield. In the plans sketched out by the town surveyor for improvements in another direction it is proposed to have a covered retail market close by the present wholesale markets in the neighbourhood of May's Fields. The proposal shows that the necessity for having such a market somewhere is admitted; but it would be little less than absurd to have it in a corner of the town, and especially when, by choosing a central situation not only public convenience can be consulted, but sanitary improvements carried out. The site between Hercules-street and Smithfield is the very centre of the town, and can be approached with equal ease from every quarter. When Hercules street is demolished, the butchers must find some place to resume their business, and what moment so fitting for providing them with a commodious market, of which, under a proper system of regulations, Belfast might be proud? The rents of stalls would, in the opinion of practical men, pay more than ten per cent upon the outlay. At present we have butchers', poulterers', and green-grocers' shops scattered here and there in our streets. What is required is a well constructed market, covered in with glass, where the inhabitants could make their entire marketing with comfort in all weathers. We

want all slaughter-houses removed outside the inhabited district; and it is possible to procure all these conveniences in conjunction with the street improvements which we have described. Public opinion is in favour of the project we advocate, and the public health and convenience will be consulted by carrying it into effect."

### ÆSTHETICS OF ART.\*

ÆSTHETICS, in relation to those departments of art which are comprehended by the generic term architecture, may be described as the effect of a work of art on the mind of its beholder. The nature of this effect must be variable, but the æsthetical condition obtains whenever it is produced through the medium of the observer's perception. The derivation of the term æsthetics, from the Greek *ἁισθησις* to perceive, (whence *ἁισθησις*, perception) sufficiently explains its true significance, though conventional use has apparently modified its meaning. On the present occasion I propose employing it with respect to the original import. There are three elements concerned in the production of the æsthetical condition. 1st, the art embodied in its work, and possessing a power to affect the mind of its beholder. 2nd, the mind of the beholder endowed with a faculty of perception, in greater or less degree of development; and 3rd, the sympathy of the power in the art with the faculty in the man, or, in other words, that adaptation of the one to the other which renders an intercommunication possible. At first sight this division of the subject may appear more imaginative than essential, but, if I mistake not, further consideration will change the judgment. It cannot be doubted that there have been epochs in the history of art when the power embodied in certain of its works has been both unfelt and unrecognised by the mass of men who witnessed them. The art sense of the time was not adequate to its appreciation. Though true chords were struck, their music sounded discordantly to ears incapable of harmony. But succeeding generations of men inherited mind in a higher degree of development, and hence the discovery of powerfulness in works which were no less powerful when their unenlightened ancestors failed to feel their influence. And not only is the faculty of perception necessary to æsthetic, but that faculty must be subjected to a process of education before its full functions can be brought into relation with the external world. And this is true, not only in respect to the higher qualities of taste and discrimination, but to the act of visual perception itself, irrespective of its more subtle properties. For example, a person born blind, but afterwards receiving the power of sight, is unable to realise the pictures formed on the retina of his eye. Solidity, distance, and even form and colour, cannot be ascertained by the sense new to him until the course of training to which it is subjected by his other senses has resulted in its mature development. But not only may the æsthetical state be rendered impossible by a defect in the perceptive faculty of the beholder. It will fail also if the work of art be imperfect, if the significance it bears be too vague or too confused for the production of a definite impression. There must, therefore, be a sympathy or affinity between the faculty of perception and the power which strives to operate upon it, and it is this sympathy to which I have referred as the third element in æsthetics. From these considerations it will be evident that the study of æsthetics (properly so called) involves, on the one hand, a close scrutiny of the progress of art from the earliest traces of its existence to the last step in its advancement, and, on the other, a methodical investigation of the growth of intellect and the parallelism of these two progressive developments will determine the relations which have subsisted between them at different periods of their course, and the record of these relations will be the history of æsthetics. The necessities of such a task must obviously far exceed the limits of the present paper, and I shall content myself with the suggestion of a method by which I conceive the science of æsthetics may be most readily and properly investigated. At the threshold of our inquiry, however, it will be important for us to form a passing estimate of the two principal methods in which art makes the appeal to our sensibilities necessary to æsthetic—the *Imitative* and the *Suggestive*. Their distinctive qualities will be best characterized by comparison. Suppose, first, the case of a painting designed to portray some object peculiar to civilized life—say, for example, a steam carriage. Let the picture be simply a correct imitation of the form and colour of the object depicted. What would be the æsthetical value—or in other words, the effect—of such a work of art on the mind of an uncivilised spectator—one who had never seen the original of the portraiture? It is easy to see that he must utterly fail to comprehend the nature of the representation before him. But now suppose that, instead of merely imitating his view

of the steam carriage before him, the artist contrived by the peculiar treatment of his subject and the management of its accessories, to suggest or imply the property of locomotion. The whole effect would be changed. The man who in the former case looked on the imitative portraiture, and wondered at its strangeness, would in the latter instance, realise the idea of motion suggested, and combining the idea so realised with that which before only excited his surprise, he would obtain the knowledge of a new locomotive vehicle. Or, again, to take an example from the higher functions of art, suppose the case of a painter seeking to imply the spirituality of a supernatural being under the semblance of a human body, and it will be evident that all that is superadded to the portraiture of a man, to make it awaken the idea of divinity in the mind of the beholder, must be suggestive, or in other words, powerful, to call into action the imaginative faculties of his intellect. There could be no original to imitate, yet there would be a reality to suggest. The work of suggestion may be imperfectly performed, or the observer incapable of imagination, and the æsthetical effect consequently impaired or altogether impossible; but the task of the artist, in whatever degree it is accomplished, must necessarily be something more than mere imitation. Nor is it essential to the perfection of a suggestive work of art that the material element (or, more correctly, the imitative part) of its composition should be strictly accurate. It not unfrequently happens, as in many works of the Italian and other schools of painting, that the objects forming the material of a picture are false to every known fact of the classes from which they are taken, or, as in some Mediæval works, so conventionally treated as to become non-natural, and yet, in spite of these anomalies, a lesson powerful enough to enlighten and influence the whole mental and moral organism of the beholder may be suggested. And, in virtue of the difference which exists between a purely imitative and a suggestive work of art, the latter has the advantage of being independent of the experience of the beholder (as we have seen in the case of the portrait of a steam carriage), whilst the former can produce no æsthetical effect, but remains unintelligible to the person who is unacquainted with its original. The inexperienced observer, in the presence of a mere portraiture of unknown objects, is amazed, but uninstructed. He has something to learn concerning them which a purely imitative art is incompetent to teach him. There can be little doubt, therefore, that the higher class of art teaching must be accomplished by a method which can do something above and beyond the mere transcription of natural objects, and if I mistake not, the method that shall be found capable of such an enterprise will not only employ the materials nature has provided for the handicraft of her disciples, but search out the processes that are employed in her studio and embody them as the governing principles of its own practice.

The peculiar faculty in the mind of man which responds to the suggestive stimulus of a work of art is exactly analogous, if not indeed identical, with the powers of imagination. And it does not seem altogether improbable that the hypotheses of that philosophy which locates the more important elements of every scene in the mind of its beholder, and regards the material object before him as mainly serving the purpose of a key-note to the harmony it awakes within his own chambers of imagery, may have more of truthfulness in them than we have been wont to recognise.

One circumstance at least must be conceded to such theorists—the most poetical, or, in other words, *imaginative* of observers, will see more in a work of art than the prosy and realistic. And it is a circumstance worthy of notice that the faculty of which we are speaking is peculiarly wakeful in the earlier stages of national development, and in the childhood of an individual. Hence the puerile mythology of a remote antiquity amongst every people, and hence also alike the vivid idealism and the groundless terrors of infancy. Indeed, there would appear to be a natural phase in the history of man's development where a remarkable affinity exists between the perceptive faculties of his intellect and the suggestive significance of the objects around him—when the *unknown* exerts a peculiar influence upon him, and natural objects attain false magnitude as they loom through the haze of an unexplored obscurity. Nor will it surprise us to find that the art work of such a period accords very closely with the degree of mental development evinced by its workers.

The towering mass of rock which rose before the man of remote antiquity, with its gigantic proportions unmitigated by a comparison which subsequent creations of his own skill have rendered possible, must have impressed him with a grandeur of which we can form little conception. The height, the stupendous mass, big with suggestions of weight and powerfulness, must have awed him. The rugged shore that hurled back the sea wave in myriad fragments, and the furious assailant itself, must have called forth emotions of a subduing character as he gazed on them,

and it is scarcely wonderful that a person so impressed, when he began his art work, should employ not only the forms but the formula in which the world around him had so powerfully affected his own consciousness. And hence the art of the earlier ages of development came to express itself in forms of exaggerated proportions and for the most part colossal dimensions. Nor has the suggestive significance of magnitude lost its influence upon the mind of man in virtue of his greater maturity.

The earliest and simplest forms of art work are contemporary with the lower degrees of intellectual development, whether they obtain in the case of an individual or that of a nation, and for each successive stage of enlightenment is there a correspondent formula of art. But art progress is rightly described as a process of growth, and the seedling is not superseded by, but developed into, the fruit-bearer. So it is with art. The perfected handicraft of the most advanced period could no more exist independent of the principles involved in the personal decoration of a South-sea Islander than could the foliage of a forest tree expand in its beauty severed from the unsightly root which happily lies hidden in the earth beneath it. The simple characters in which the most unlearned of workers in the past ages of a nation's history has spelt out the infant praise of art, still form the alphabet from which the most erudite of her votaries must compose his poetical passages. And the application of this principle will immediately suggest the inference that it is low down in the scale of mental intelligence, and far back in the history of art work and art workers, that we must seek the elements of the wondrous science of æsthetics so involved in obscurity.

The system, then, which I suggest for the study of this subject is founded on the hypotheses—1st, that there exists a distinct series of elementary forms or symbols of art having definite significances; 2nd, that these forms or symbols are so constituted that they will combine amongst themselves in definite formulæ, and in these only; and 3rd, that the æsthetical condition will not obtain unless the power of provoking perception (which is located in the work of art itself) is adapted to the special faculty of perception in the observer. In illustration of the two last propositions, it will suffice to remind you, 1st, that it is impossible to produce harmony in musical composition unless the notes of every chord are combined in conformity to the known laws of harmonics; and the laws of architecture must be amenable to the same general requirement; and 2nd, it is very obvious that those works of art are the most successful which are distinguished in the greatest degree by the possession of a power which sets the imagination of the spectator in lively exercise. Further examination of the subject will bring out the application of these principles.

The theory I have adopted, therefore, assumes the existence of a complete art language, of which the elementary forms or symbols already referred to constitute the alphabet. Unfortunately, however, this language of art is almost unknown to us, and of the many beautiful passages which have been composed in it by the almost isolated master minds of the past, we comprehend little. A vague sense of beauty in their style, and a faint response to the harmonious rhythm which distinguished them, are all the emotions they arouse in our unskilled consciousness. We are, therefore, practically, in the same position as regards the language of art, as the philologists of our own time have been to the mother tongue of the ancient Egyptian. And exactly as it has been their task to discover an alphabet from the inscriptions which have been so mysteriously preserved for them, it is ours to review the entire range of art works of every age, and amongst all nations, and to decipher the wondrous passages that are embodied in them, and when we have done this our labours may be rewarded by the discovery of an etymology, from the study of which it will be possible to develop the laws of a syntax and prosody, which shall complete the grammar of art, and enroll its *principia* amongst the number of the natural sciences. But the analogy of search for the forms of art with that for the letters of a lost alphabet may serve a greater purpose than that of mere illustration. Not only are the conditions identical, and the results to be attained similar, but the methods to be employed are remarkably correspondent. As the philologist pores over the mysterious signs traced by the unknown hand on the stone before him, the kind of evidence which determines his judgment is the manner and frequency of their employment. If he finds the same symbol often repeated, and in association with circumstances of which he has discovered the significance, he comes by degrees to attach a definite meaning to the sign hitherto inexplicable. And in this work a knowledge of the elements of an universal language is the basis of all his operations. He reasons from the known to the unknown. And a similar course must be pursued by the student of art symbols. He, too, must recognise the existence of a certain international and anachronistic system of formula, by which the interchange of art, thought, and feeling

\* By J. Mortimer Granville. Read before the Bristol Society of Architects, Nov. 2nd, 1864.

may be possible, irrespective of the conventionalities of time, place, and circumstance.

Now, on examination, it will be found that the universal language which the philologist employs as the medium of his communication with an unknown tongue, is composed of two parts, 1st, that which falls on his ear, consisting of articulate sounds of the simplest character, and emotional utterances, as the tones of grief and joy, of anger and benevolence; and 2nd, of that which meets his eye, being the phonetic signs of the simplest vocals, or the hieroglyphical forms of familiar objects.

And turning to the language of art, we find it constituted on the same principle, having a part which is audible as well as one which is visible, and whilst we at once refer the former to the speciality of music, it is impossible—in view of the analogy I am attempting to trace for you—not to recognise the intimate relation which it bears to the pictorial and representative, and so to discover a fresh evidence of the unity which subsists between all the departments grouped under the term art.

But, directing our attention more closely to that part which meets the eye, we shall, if I mistake not, find the analogy between a written language and the formula of art developing itself into an actual identity; and, as the earliest type of the former is the hieroglyphical character which presents the semblance of the thing communicated, the act of portraiture, which is essentially an art work, discovers itself as the simplest and most universal method of conveying information. And whilst, on the one hand, thought is no longer expressed by portraiture when the written language is sufficiently matured to embody a code of technical formula, art is found developing its special work into the higher and more refined method of symbolism, which I have previously termed the suggestive; and, as the written character of a language is the vehicle of its developed literature, so is the higher suggestive symbolism in art the medium of its higher and more æsthetical communications.

The purely imitative power is at best but a well developed system of hieroglyphical rendering, and as such very much limited to the reproduction of familiar appearances, whilst that which is capable of suggesting new ideas and awakening hitherto unmet emotions in the mind of the spectator, is analogous to the more perfected system of characters, not only reproducing the imagery of known objects, but communicating much which must otherwise remain unknown concerning them. The universal language of art is, however, undoubtedly portraiture, or the imitation of natural appearances; and the method we must employ in our search for the elements of the higher system of symbols is to examine the manner in which art workers of various ages and degrees of mental culture, have treated the familiar objects around them. What objects have they most frequently represented? and how have they depicted them? The limits of the present paper render the production of special examples impossible. There are, however, certain considerations which I may venture to suggest for your scrutiny.

You will scarcely disagree with me when I affirm that it is impossible to regard many of the conventionalities of art as arising in ignorance or wild eccentricity. For example, the love of colossal proportion, to which I have already adverted, must possess some significance. The exaggeration of prominent details so common in the works of certain nations, the full eye of the profiled face, and other anomalies, cannot be regarded as the result of oversight, or without import. Indeed, the theory I have stated to you attaches the last importance to these peculiarities, and amongst them primarily would it seek for the elements of a perfect æsthetical symbolism. It believes, for example, that the men who embodied their art in forms of unnatural magnitude did so because the effect of a stupendous mass on their minds was to awe and humiliate, so that size became to them *symbolical* of power and supremacy. It believes the distortion of form practised in certain ages had for its object the emphasis of particular parts of the lesson the whole work was designed to communicate. The full eye of the Egyptian it ascribes to the fact that the artist sought to impress the beholder very strongly with the personality of the being he represented. The so-called conventionalities of art are therefore its *symbols*, and these bear relation not only to form and proportion, but also to colour. Whether or not it may be possible to elicit from the entire range of art works a complete system of symbolical characters, each bearing a definite meaning, can only be determined by direct experiment. And if some sufficiently erudite student of art history would attempt the task, I doubt not that he would reap his reward in a more perfect development of the science of æsthetics, which is essentially natural. I must, however, content myself with a very general survey of a field with which I am only imperfectly acquainted. The classifications I shall adopt, though slight, are arbitrary, and perhaps very erroneous; but I am not so much concerned to be exact in the details as to set forth the principles of my theory. And if, as is probable, the remarks I am

led to make on this subject are more didactic than befits either the argument or the speaker, I must ask your indulgence on the ground that the ideas I am seeking to communicate, in the form of suggestions for more skilled research, are little more than crudities in my own conception.

(To be continued.)

#### DUBLIN LODGING-HOUSE BYE-LAWS.

THE following are the bye-laws passed by the corporation for the regulation of common lodging-houses, under the Dublin Improvement Act, July, 1864:—

1. That all persons and every person in the beneficial receipt of rent of any house or part of a house in said borough, usually or occasionally let in separate tenements for human habitation for any shorter period than one month at rents not exceeding three shillings per week, shall, before such letting, cause the roof, walls, and chimneys of such house to be put and kept in proper repair, impervious to wet and damp, and shall also cause each window of such house to be opened from the top, or raised from the bottom, to the extent of one-fourth of the glass in each such window, the same shall be glazed and kept glazed and cleansed, and in proper repair, and that the doors, floors, and fireplaces and hearthstones shall also be put in good order, repair, and condition, and kept in such like good condition during such occupation, under a penalty not exceeding forty shillings and costs, for every breach of any portion of such bye-law.

2. That every such keeper of every such house shall also, before such letting, cause the entrance and hall, walls, staircase, and lobbies thereof to be put and kept in good repair, and in a cleanly state, and shall so keep same from time to time during such tenancy, and shall cause to be made and attached to such house a properly constructed ashpit and two privies or water-closets, and a properly-trapped house-drain to communicate with the main sewer (if any) within 100 feet from such house, and cause such ashpit, privies, or water-closets and house-drain to be at all times kept cleansed, and in proper repair, under a penalty not exceeding 40s. and costs, for every breach of any portion of this bye-law.

3. That any occupant residing in any such house, or other person who shall throw from any window to or upon any roof, shed, yard, or passage, any water, foul liquid, or other offensive matter or thing, or shall wilfully throw or drop same in or upon any entrance, staircase, lobby, street, or place, other than that provided for the proper deposit thereof, shall, for the first of any such offences be liable to, and, on conviction, incur a penalty of not less than one shilling, or more than five shillings and costs, and for any subsequent offence, a penalty of not less than five shillings, or more than forty shillings.

4. Any person who shall wilfully damage, render ineffective, or wantonly destroy any matter or thing whatever to which any of the foregoing laws relate, shall incur, for every such offence, a penalty of not less than five shillings, or more than forty shillings.

5. Every officer of the corporation or other person duly authorised by it for that purpose, may at all times, between the hours of nine in the forenoon and four o'clock in the afternoon, inspect and make all necessary inquiry relating to any such house, for the purpose of the foregoing bye-laws.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS—SCHOOL OF ARCHITECTURAL DECORATION.

At the ordinary general meeting of the Royal Institute of British Architects, 9, Conduit-street, Hanover-square, held on Monday, 21st November, 1864, Ewan Christian, Vice-President, in the chair, a report from the general committee on the establishment of a school of architectural decoration having been read, Mr. Ashpitel, fellow, moved that it be received, and, in doing so, spoke of the difficulty the committee experience in adopting a suitable title for a school, remarking that at last they decided it would be better to bring the subject before the Institute. Mr. Kerr, fellow, seconded the reception of the report, which was agreed to. Mr. G. G. Scott, R.A., fellow, said he might in some respects be considered the originator of this scheme, inasmuch as he had urged upon the younger members of the architectural association, in a paper he had read before them, to do all they could to promote an improved state of education in the higher branches of art amongst architects, particularly in the drawing of the human figure, in animal drawing, and the drawing of foliage, and in coloring, as applied to architectural decorations. He did not urge architec-

tural drawing, because that was best taught in an architect's office, but there were points in art in which architecture came in direct contact and united itself with the sister arts of sculpture and painting, and these were the branches for which no proper provision was made in the instruction of young architects. The school suggested would be carried out beyond a doubt, and it was for the members of this Institute to say whether or not they would take part in the great work, or leave the students to do it for themselves. Mr. J. W. Papworth, fellow, urged the necessity of referring the report back to the council, asking them to give it all the support they could, and moved a resolution to this effect. He was afraid the terms for instruction were too high. Mr. C. F. Haywood, hon. sec., argued that this Institute must not be held responsible for the success or non-success of the suggested scheme. They were an examining but not an educational body, and he did not hold with doing anything which would be like establishing a college for the instruction of members generally. The school would be carried out independently of the Institute, who had only a share in the conduct of it, and as a body could not be responsible for anything connected with it, though it had used all its influence and machinery to start the new school. Mr. J. H. Christian, President of the Architectural Association, and Mr. Kerr, fellow, had no doubt of the success of the plan if carried out. The latter gentleman said that the project wanted a little polishing. The present age was eminently an age of detail, and they ought not to look doubtfully at the plan proposed because it was not sufficiently detailed. He should object to the Architectural Association and the Institute meeting on equal grounds, as this was the one society of architects of the United Kingdom, and there was no reason why they should be otherwise. Mr. Morris, associate, Mr. Jennings, fellow, Mr. Henman, fellow, Mr. R. P. Spiers, associate, and others having offered their opinions on the scheme more or less favourably, at the request of the chairman Professor Westmacott, R.A., addressed the members. He said that what they wanted as the leading body of architects was a school of accessory art. He alluded to one or two objections to a life academy, and recommended students to copy first from the best statues founded on nature. In the Royal Academy students were not allowed to go into the life academy until they had drawn for some time in the antique academy. This was essentially, he said, an age of detail, perhaps too much so. They were losing broad masses and generalizations. He hoped this scheme would be carried out, and that this Institute would give it their best support, because whatever tended to the advancement of art would tend to the elevation of the artist, and he had a sort of Catholic feeling and desire to see the English artists taking the position they ought to do.

It was then resolved that the report be received and adopted, and that it be referred back to the council to nominate four gentlemen who shall act with the president in accordance therewith. It was then recommended that the name of the school be "The School of Art, accessory to Architecture," and that the fees be reduced to one guinea and a-half per term, or three guineas per annum.

The meeting then adjourned to the 5th of December, when a paper will be read by Mr. E. J. Aulton, fellow.

The *Morning Star*, March 7, 1861, speaking of Benson's Argentine, says:—"It must commend itself for its cheapness, as well as for its similarity to the more precious metal." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the Argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea, and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c., &c., &c. A sample spoon will be sent post-free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full-price list of the various manufactures, both in Argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for "excellence of manufacture, Argentine and electroplate." Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate Hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. The Prince of Wales.

## MILTOWN NEW CHURCH.

THE illustration for the present number is of a new church which is about to be erected at Temple Road, on a site granted by the Right Hon. Viscount Palmerston. The church will accommodate 200 persons. Mr. Thomas Drew, architect.

The illustration not having been satisfactorily completed at the time of going to press, we are obliged to postpone its issue until December 15th, when it will appear in addition to the ordinary illustration accompanying the number appearing then.

Architects are respectfully requested to favour us with subjects for illustration at least one month before they are to appear, as otherwise it is impossible that we should be able to present subjects drawn and lithographed as they should be. We also would most respectfully urge upon architects the desirability of forwarding to us, at one time, drawings of all buildings which they may desire to have illustrated, that they may be drawn with care, and a selection made as may appear desirable. The greatest care will be taken of all original drawings entrusted to us, and returned at once when required.

## ROYAL DUBLIN SOCIETY.

THE first scientific meeting for the session was held on Monday evening, 21st ult. There was a large attendance of members and visitors.

GEORGE W. MAUNSELL, Esq., J.P., in the chair.

Mr. W. Lane Joynt read a paper entitled "Suggestions for the amendment of the Arterial Drainage Laws." The following is its substance; we are precluded from giving it *in extenso*:—He reviewed at length the labours of the Irish Parliament since 1715—of the Bog Commissioners of 1809, of the Devon Commissioners of 1843, of the Drainage Commissioners from 1842 to 1846, of the Board of Works, from 1846 to 1864, in the reclamation of waste land, and the arterial drainage of the great watercourses of Ireland. It was not too much to say that at least as much more of arterial drainage in Ireland remains to be done as has been accomplished, though no such heavy cases of rivers or navigation remain to be dealt with. No doubt many of the most pressing cases were those which were carried out at first, but those which yet remain to be done, and upon which the thorough drainage of the adjoining estates depends, are of national importance and urgency. How then is this work to be done? It might be readily answered, under the Drainage Acts of 1863. Mr. Joynt then reviewed the controversy between the Irish proprietors and the Board of Works, which commenced shortly after the passing of the Summary Proceedings Act, and the making up of the final awards under the Act of 1842. They principally arose from additional works and extension of areas to be drained, and also from the fact that the estimates for the works to which the proprietors had in the first instance assented, were found in many cases to be wholly inadequate to complete them, and also from the disputes which arose as to the superiority of the two systems of deep and shallow drainage. So successful were the first works undertaken, and so definite and satisfactory were the principles laid down both as to estimates and valuations, that the public gradually acquired confidence, and the applications for preliminary surveys became rapidly more numerous and more important. From 1842 to 1848 matters went on smoothly enough; but in the latter year the Treasury became alarmed at the outlay. They directed no more works to be undertaken. Mr. Joynt proceeded to say:—Matters were at length adjusted, the districts commenced were finished, the Government allowed the excess of expenditure over the estimates to be remitted, but the ill effects of the quarrel between the proprietors and the Board of Works has lasted to the present hour. The proprietors accused the board of excessive expenditure, of acting without consulting them, of over-estimating the good effects of the drainage, and of undertaking unnecessarily, in the awful times of famine and distress, and at a time when the price of land itself fell 50 per cent., to complete or perfect the works which would be as useful if done on the shallow or half system of drainage. In order to encourage the local proprietors, a greater assistance in the advance of the money for the works should be given. The security is undoubted and of a first-class character to the Government and the Commissioners of Works. No such complaints could ever arise again in the repayment of advances as occasioned so much trouble before. The operation of this act is this, that two-thirds of the proprietors are to carry the project on, and to find a moiety of the money required; in other words to find the money for themselves and the unassenting or dissenting one-third proprietors

of the district. Practically this is a complete impediment to the general adoption of the act. It may do in small districts where few proprietors are concerned; but in large districts it is a total barrier, or, if not, will force the trustees to borrow money indirectly or evasively, as in certain railway projects, at a very high rate of interest. The proprietors giving their consent to secure the moneys advanced on their estates, amply and broadly, did all they could be asked to do; and, if the Board of Works saw that none but useful and practical schemes were undertaken, not one shilling could be lost to the public. Out of £902,148 13s. 6d., charged on the lands for 123 districts, £686,337 17s. 4d., or two-thirds, was already repaid. The railway laws have, since 1846, been improved, amended, and expense and time saved in their procedure. Why should the reverse be the case with the drainage laws? It remained for the public and the House of Commons to decide. But for his part he felt it a happy augury that the paper he now submitted, though imperfect, and not as worthy of the Royal Dublin Society as he could wish it to be, was the first read there under the presidency of the noble lord, her Majesty's representative in this country. He was quite sure of that noble lord using his commanding position and great abilities to forward any practical and useful measure calculated to develop the material resources of Ireland. The Right Hon. gentleman, the Chief Secretary for Ireland had already shown in the assistance he gave to procure the loan for the waterworks for the people of Dublin, that he was anxious to help every useful effort for the advancement of Ireland, and if they could go with the approval of the Irish Government to the Treasury, he felt that the Chancellor of the Exchequer, unapproached in eloquence as he was unapproached in finance, would be happy to comply with any reasonable request to improve and develop the resources and employ the people of Ireland.

## CHURCH BUILDING, ENGLAND.

TORQUAY.—A much valued correspondent, writing to us from Torquay, says, "permit me to give the readers of your valuable periodical some brief notice of new ecclesiastical structures in this fashionable watering-place, as there are a few points of novelty and interest worthy of notice in their designs:—St. Luke's is a new church, erected under the superintendence of Mr. Bloomfield, the well-known London architect, and much care and thought is evinced in its design. The style appears to be a modification of Early French. At the west end is a narthex or porch running along the whole front. It has a 'lean to' roof, and is lighted by small lancets with shutters in several of the openings instead of glass. This passage has doors at each end (north and south) and it passes under the tower, which, standing at the west end of the north aisle, projects from the main building the width of the narthex. The north entrance to the tower and porch is under a very picturesque kind of alcove, supported on short pillars, and with a sort of apsidal roof. The west end of the church stands up very boldly, being built on a very abrupt hill-side, there being nearly as much walling beneath the level of the narthex (which is reached by rising paths and steps) as there is above. This hilly situation gives effect to the tower, which is low, and the spire which is very short and blunt. The west window of a geometric character, but not large, and a very high-pitched gable complete the composition. The ground plan of the church consists of a nave, aisles, and chancel, with a pentagonal apse; the organ chamber and vestry corresponding with each other. The aisles are arranged in a series of four bays, running transept-wise, and each with its own gabled roof. Inside there are the usual range of arches of a plain chamfered order, on either side of the nave, supported on short iron cylindrical columns, with high stone bases, the iron portion being about four feet high, and about a foot in diameter. They are painted in metallic colour, as reddish bronze, picked out with green and white. Above the stone arches is a line of color a single brick in thickness, following the extrados of the arch. None of roof timbers are shown except the beams which support the gabled compartments of the aisles, and which bear upon the piers of the nave at right angles to its axis. The roofs are ceiled and coved, being hexagonal in section, and of high pitch, divided into panels and having stencil ornaments round each compartment. At the west end of the nave arcade two low segmental arches, instead of the high ones, mark the portion of the end of the nave covered by the west gallery. The chancel arch, which is a very bold one, has its margin inlaid with segments of dark marble, and the pillars which support it are corbelled and terminate with an exquisitely carved angel on each side. The pulpit, semicircular in plan, is composed of bands of rose-coloured sandstone with columns of variegated marble. In a different part of the town

St. John's Church is being rebuilt from the designs of Mr. Street. As yet only the chancel and vestry are completed. The building is very lofty, and is in the Early French style. The walls are of bluish limestone, with yellow stone facings. Inside the random stone-work is plainly shewn, no plaster appearing anywhere. The chancel is vaulted with white and yellow bricks, very bold but plain in design. The lighting is arranged in a series of gas jets of fleur-de-lis design, which run continuously along the walls at a convenient height above the floor.

The Earl of Zetland has promised £1,000 towards a new church at Marsh, in York-shire, and the Duke of Cleveland has undertaken the restoration of the chancel of St. Cuthbert, Darlington, at an expense of £1,500.

The church of St. Andrew, at Portslade, has been consecrated by the Bishop of Chichester. The building is in the Early English style, and has been very substantially erected by Messrs. Cheesman and Co. It is built of flint, with Bath stone windows and dressings. The roof is covered with dark-coloured tiles, relieved on either side with three courses of red tiles. On the top of the roof is a small open belfry, with one bell. It has an octagonal chancel at the east end, and a small vestry on the north side. The interior is filled with open seats of stained deal, and will accommodate 352 persons—seats all free and unappropriated. The roof is also of plain deal.

St. Edmund's Church, Dudley, is to be restored at a cost of £1,100 or £1,500, towards which the Earl of Dudley has promised £500.

The Bishop of Rochester has consecrated the church of Radlet, near Aldenham, built mainly at the cost of Captain Phillimore.

Among churches re-opened we may mention Stowe, Salop, and St. Peter, Liverpool.

The foundation-stone of a new and beautiful church, to be dedicated to St. Mark, at Broadwater Down, a rising district of Tunbridge-wells, has been laid by the Countess of Abergavenny.

The following is a description of part of Yarmouth Parish Church, which has just been re-opened after alterations, from designs by Mr. Seddon, which have comprised the central tower, the arcades which form the abutments thereto, the parapets and pinnacles to the same, and the whole of the chancel proper:—The tower has been thoroughly restored; the defective portions of the walls (including the whole of the facing of the lower and central parts) having been cut out and reinstated with sound and durable material. The existing features of the tower, such as the Norman Arcade and the range of small arches immediately over the same, have been carefully retained and restored. The Early English triplet windows of the upper part of the tower have also been restored, and the walling between and above them refaced with ashlar where necessary. In order further to strengthen the work, bands of wrought-iron, running entirely round the tower have been let into the top beds of the stone string-courses, &c., at different heights, and good solid quoins have been carried up at all the angles. The parapets and pinnacles are entirely new. The parapet is pierced with trefoil openings, with coping and moulded cornice underneath; the gurgyles at angles representing the emblems of the four Evangelists. With a few minor exceptions the tower is now completed, and requires only the crowning feature of a new spire to give great dignity and character to the whole edifice. The walls blocking up the arches, which divide the church from the chancel and its aisles, have been taken down, thus throwing open the whole of the immense area. The arches themselves have been restored, and new caps and bases inserted. The caps to the arch dividing the south transept from the south chancel aisle are richly carved with conventional foliage of Early English character. The piers and arches of the chancel arcades have been restored, the central pier on the south side of the chancel having been entirely rebuilt. The east end has been taken down and lengthened to the original extent; the new work having been erected on the old foundations, which were found in a very solid and perfect state. A noble five-light window, of the geometrical decorated period, with bold angle turrets on either side, forms the principal feature of the new eastern facade. The tracery head of the above window is filled in with stained glass by Messrs. Morris and Marshall. The remainder of this window, and the whole of the two new side windows are filled in for the present with clear glass in quarries. The whole of the chancel is covered in with a substantial new roof of English oak, boarded inside with wrought oak, with moulded ribs at intervals, and is intended to receive painted decorations. The rafters rest on a moulded stone cornice, running the whole length of the walls, on the top of which is an oak battlemented cornice. The roof is covered externally with lead, and is to be finished at the ridge with ornamental lead cresting. A new sedilia has been erected, the design for which is based on that of the old, and consists of recesses divided by clustered columns, with moulded caps and bases sup-

porting arches and gables, ornamented with crockets and finials carved from natural foliage; with carved angels to form terminals at the intersections, and small pinnacles with crockets and finials over same. The reredos is not yet taken in hand. The portion of chancel east of the altar rail is being laid down with encaustic tiles. Certain modifications of the existing arrangements of the stalls, &c., are being made in the church itself, and also in the floors under tower, consequent on the chancel being once more thrown open for divine service. The stone used in the construction of the works is Ancaster stone, from the quarries of Mr. Thompson, and great care has been exercised in the selection and working of the same, so that all stones are on their natural or quarry bed, and are free from soft beds and flaws.

Lord Ashburton has decided upon rebuilding Igborough church at his own expense, and in the style of the original fabric, which dates from the 13th century.

#### MONUMENTS, STATUES, ETC.

The daughters of the late Mr. W. M. Thackeray have presented to the scholars of the Charterhouse the iron bedstead on which their father died, and it is now in the head monitor's room. The following has been inscribed on it:—"Hoc lecto recumbens obdormivit in Christi, Gvlielmvs Makepeace Thackeray, ix Kal Janvar, MDCCCLXIV. Scholæ Carthvsianæ qvondam discipvlvs matrv ætate hvysce loci amantissimvs vti testantur eivs scripta per orbem terrarvm divulgata vixit annos lii."

The artists intrusted with the execution of the sculpture for the Prince Consort Memorial in Hyde Park are Messrs. Foley, Macdowell, Marshall, Weekes, Bell, Theed, Thornycroft, Lawlor, and Baron Marochetti. The sketch-models were delivered to the committee for inspection, by their respective artists, on Monday.

The inauguration of the statue of Daubenton, at the Zoological Gardens in the Bois de Bologne, has taken place. It is the work of M. Godin, and is considered to be one of the finest specimens of modern sculpture.

The magnificent cemetery of Pere la Chaise, Paris, now contains upwards of 16,000 monuments, which have cost about 14,000,000*fr.*

The monument to the late Gen. Havelock, K.C.B., has been erected in the cloisters of the chapel of the Charterhouse, in the school of which he was educated. It is intended also to commemorate other distinguished Carthusians who have fallen in war, by inscribing their names on fifteen compartments, into which the face of the monument is divided.

Some of the former school-fellows and admirers of the late Mr. Thackeray, and Mr. Leech, propose to erect in the Charterhouse School a testimonial to their memory.

The Combermere equestrian statue, subscribed for by the gentry of Cheshire, is to stand in front of Chester Castle. It is by Baron Marochetti, and will cost £4,100.

Mr. David Sassoon, the well-known Jewish merchant of Bombay, has applied to the Secretary of State for permission to erect a statue to the late Prince Consort in the gardens of the Victoria Museum at Bombay.

#### ARCHÆOLOGICAL.

A discovery, interesting to the lovers of antiquities, has been made at Beaumont-sur-Oise, about 40 miles from Paris. In digging the foundations for a house, the workmen found an ancient dish, bronzed by the earth. It has a head in relief, around which are the words in distinct letters, "Marcos. Tullios. Cicero. Cos." There is a circular legend in similar characters, not legible. There were also some ancient medals of a metal resembling tin.

From Gibraltar we learn that considerable interest attaches to the recent visit of Sir Henry Holland, Dr. Falconer, and Mr. Buck, the result of whose researches is likely to prove of great importance in the furtherance of our knowledge of geology. It seems that some credit is due to the governor of the military prison, who, in digging for the foundation of a wall, accidentally opened the entrance to a fissure in the Rock, and finding that it contained some bones and other remains, brought them to the notice of Sir W. Codrington, by whom he was encouraged to persevere. The examination of these remains has afforded the eminent geologists above mentioned the greatest satisfaction; for although the human bones are of no great antiquity, dating perhaps to a period no further back than the Roman occupation, yet the discovery of the remains of the elephant, rhinoceros, and several others, together with the general structure of the Rock and other data, lead to the conclusion that this barren mass of stone was formerly covered with a luxuriant vegetation, and that at no very remote age (geologically) Gibraltar, and of course the hills of Spain were connected with the opposite coast of Barbary.

#### SCIENTIFIC.

**A NEW THERMOGRAPH.**—M. Marcy has addressed to the Academy of Sciences the following description of an instrument for marking small variations of temperature. It may, we believe, be rendered intelligible without a diagram. 1. The first part of this thermograph consists of a copper tube a metre in length, the interior diameter of which is capillary, not being more than one-fifth of a millimetre. It is open at one end, and soldered to a hollow copper ball at the other. 2. The second part of the apparatus consists of a wheel resting upon knife-edges, like those of a pair of scales, whereby a very delicate oscillation may be imparted to it. The axle of the wheel carries a long vertical needle, marking the degrees on a circular scale. To the circumference of the wheel is fixed a glass tube six millimetres in diameter, and bent in conformity to the curvature of the wheel, and so situated that the middle of the tube lies vertically underneath the needle when the wheel is at rest. One of its extremities is hermetically closed, while the other is open. Now, if a little mercury be poured into this tube it will settle at the lowest point, and the interior of the tube will thus be divided into two chambers, one closed and with air confined in it, the other open. 3. Now introduce the copper tube into the glass one, giving it of course the same curvature, and so that its extremity may pass through the mercury, thus establishing a communication between the hollow copper ball and the confined chamber, and the apparatus, with a few accessory appliances, will be complete. The end of the copper tube dipping into the mercury should be varnished to prevent its being attacked by the latter metal; or better still, the end might be made of platinum. 4. To use this apparatus, put your hand to the copper ball; the warmth thus imparted to it will dilate the air it contains, and drive part of it into the confined chamber; the mercury will therefore recede, and thereby make the wheel turn round its centre of gravity; the very small arc thus described will be revealed by the needle, the difference of its present position with its previous one when at rest. If, on the contrary, the copper ball be cooled, by water for instance, the air inside will be contracted, a portion of the air of the confined chamber will rush in, and the mercury will be driven forward, the needle turning in the inverse direction. By means of this apparatus very delicate physiological experiments on animal heat may be conducted.

A new continuous source of ozone has been announced by M. R. Böttger. He combines in a capsule of porcelain, at ordinary temperature, by means of a glass rod, two parts troy weight of perfectly dry permanganate of potash with three parts of hydrated sulphuric acid. When this mixture is introduced into a large flask with a glass stopper, ozone is continuously produced through the decomposition of the permanganate of potash.

**APPLICATIONS OF MAGNESIUM.**—This metal was obtained from its earth, by means of the voltaic battery, by Sir Humphrey Davy in 1807. It remained little else than a chemical curiosity until 1862-3, when Mr. Edward Sonstadt patented a series of processes, whereby it may now be produced in any quantity. Magnesium is a metal white as silver, and very light, its specific gravity being 1.74, or about one-fifth the weight of copper. In the form of wire, it may now be purchased at 3*d.* per foot at all the principal metallurgists, opticians, and photograph-material dealers. If the end of a piece of wire be held in the flame of gas or candle, it at once takes fire and burns gently, with a dazzling white light, by which a photograph may be taken with a perfection equal to sunshine. A lamp has been constructed with the view of employing the wire for illuminating purposes. The metal is also exceedingly valuable for chemical processes in the laboratory.

#### LAW INTELLIGENCE.

##### DILAPIDATED HOUSES.

Complaints were made by Mr. Smyth, on the part of the Dublin Corporation, against the owners of houses in the city, which were in such a dilapidated condition as to endanger public safety.

Mr. William Digges La Touche, as owner of the houses 17 and 18, Longford-street.

Mr. Neville, engineer to the corporation, described the condition of both houses. Part of No. 18 had lately fallen, and the roof of No. 17 was quite rotten.

Mr. La Touche said that the houses were rented to a party who had them let in tenements, but he would undertake to have the necessary repairs carried out, and provision made against accident.

A fortnight's time was granted for the commencement of the work.

Patrick York, owner of the house 2, Kevin-street. This was a very old house, with a new front wall which was bulged out and threatened to fall. The

owner promised to secure the premises against accident, and was allowed a fortnight to do so.

John Drake, for the houses 8, 54 and 55, Back-lane.

Mr. Neville described No. 55 as a very bad old house, with a party wall tumbling into No. 54. Nos. 8 and 54 were also very bad old houses, utterly unfit for occupation. They were a disgrace to any civilized place. He (Mr. Neville) had visited the purlieus of London, Liverpool, Newcastle and Glasgow, but he had seen nothing comparable to the wretched condition of these houses, the occupiers of which were actually lying in water. One apartment was occupied by a picture-frame maker, and there was danger of the hammering shaking and causing the building to tumble. He had thought of calling upon the Lord Mayor to clear out the occupiers under the new act.

Mr. Drake said it was not an easy matter to do some things all in a moment. He had removed the tenants from such apartments as prudence directed, and he only wanted time to commence the necessary repairs of the property.

A time was specified, and agreed to by both parties.

##### HOARDING AT BUILDINGS IN COURSE OF ERECTION.

A charge was preferred against Mr. Moyers, builder, for obstructing the public thoroughfare by continuing to have erected a paling round the site for the Union Bank Building, College-green, beyond the time specified in the agreement.

Mr. Smyth said the paling was a great public inconvenience, and attention had been called to it by the Chamber of Commerce.

Mr. R. K. Clay appeared for Mr. Moyers. He agreed that the paling had been allowed to stand beyond the specified time, but this was in consequence of the progress of the building having been delayed by a tenant of a house which stood upon part of the ground on which the building is being erected having hesitated to give up possession.

Mr. Wyse considered the paling a great nuisance. When passing it he had been obliged to walk out on the carriage way in the mud. The corporation were called upon in such cases to enforce the law. He would order the removal of the paling within a month, a hand rail to be erected round it in the meantime.

#### IRISH NEWS.

A new block of cottages, four in number, has been lately erected by the Earl of Clancarty, at Deer Park, Ballinasloe, for which he has obtained the gold medal of the Ballinasloe Farming Society, both for design and construction. The ground floor in each comprises kitchen, bedroom, and scullery, with two rooms in attic, having fire-places in each, and ventilation opening into the ceiling; the rooms in the attic are lighted by skylights. The walls are of the limestone of the locality, neatly dashed. The windows on ground floor are casement lights. At the eaves are privies, ash-pits, and piggeries, &c. The cost is £280. The noble earl has also erected some pairs of cottages on a similar plan, with somewhat reduced accommodation, the cost being £190. Mr. William Maxwell, architect; Mr. John Clarke, contractor.

At the monthly meeting of the Governors of the Hospital for Incurables, Donnybrook-road, on the 15th ult., Mr. McCurdy, architect, attended. Tenders were opened for the second new wing. Seven competitors presented themselves, and Mr. John Nolan, of Meredith-place was declared contractor at £1,000. The architect received instructions to prepare plans for a laundry suitable to the now increased size of the establishment. The new wing will give an additional accommodation of 42 beds.

At the Tralee road-sessions, on Tuesday, 22nd ult., the state of the Old Bridge of Castlemain was brought under discussion, and a sum of £230 granted for widening it. The chairman, Edward Rae, Esq., described the present condition of the bridge, which, he said, was but eleven feet broad at both entrances. He detailed the efforts made from time to time to build a new one or repair this, which was built in the time of King John, and on which the ruins of one of the castles of the Earl of Desmond still remain.

The Carmichael School of Medicine (illustrations of which appeared in our numbers of October 15th and November 1st) has been formally opened.

#### MESSRS. ANDREWS', DAME-STREET.

In our notice in last No. of the improvements in the premises of Messrs. Andrews and Co., in Dame-street, we omitted to state that the plate glass in shop fronts was supplied by Messrs. Sibthorpe and Son, of Cork-hill, who are the agents here for the Union Plate Glass Company.

CYCLONE IN MEXICO.—Whilst walking with my brother on our *azotea* (flat roof), we observed a small cloud in the north-east, of a leaden or ashy colour. We watched it attentively. It very soon assumed larger proportions, which rapidly increased, until the whole heavens were covered. The clouds appeared to assemble from all parts, and to engage in desperate battle. Several powerful chiefs gathered their hosts around them, manifesting their independent action by a whirling motion. At length a big fellow came upon the field, and swept everything into its powerful vortex. Then there was one large whirl, and occasionally (I suppose when taking breath) a huge tail of a waterspout made its appearance, to be dragged up again as soon as the whirl recommenced. When nearly over our heads, the stupendous artillery began to play, and for about three-quarters of an hour we had one continued roll of thunder, the result of an uninterrupted display of the most magnificent lightning that I ever beheld. As darkness came on, the lightning assumed a purple colour; it was one continued play of up and down, horizontal, diagonal—every imaginable direction, and at the same moment; one flash crossing another, and forming the most fantastic shapes, the W, as usual, being the most frequent. I have not heard of any accident. A deluge of water fell, and the next morning the whole valley was steaming under a cloudless sky and a hot sun. There had been (apparently) for some time a great excess of electricity in the atmosphere, and the storm I have attempted to describe was the first discharge of the surplus. The second discharge came in the form of an earthquake, which roused us out of our slumbers at five minutes to two on the morning of the 3rd of October. I immediately arose and lighted my candle, but there was not anything hanging in my room to indicate the direction of the shock, which, however, appears to have been, as usual, from north-east to south-west. Of course the time of the occurrence and its duration have been variously stated according to the ever-varying character of all earthquakes in different localities. To me (after waking) it appeared to last about a minute. As the first movement was that of trepidation, which is reported to have been repeated three or four times, I probably only woke up at the last perpendicular expansion, for I was only sensible of the oscillatory movement. It was felt much more violently in the city of Mexico (about four miles distant), but no damage of any moment was done, and no lives were lost. In Puebla, the dome of one of the principal churches, a portion of a convent, a corner of the Governor's palace, and several houses, were brought to the ground, and some thirty or forty people were killed or wounded, among

them seventeen French soldiers. The number of victims has not yet been ascertained. Tehuacan, rather a large town on the road to Oaxaca, is said to be in ruins and abandoned by its inhabitants. About twenty persons are reported to have been killed at Chatchicomula, near Orizaba. It appears to me that the current traversed was what I call my imaginary route, theory, or whatever it may be worthy of being called, i.e., along a belt including Iceland and Tenerife in the north-east, and the Sandwich and Society Islands in the south-west, the said zone being, of course, only a portion of my "system." I shall not be surprised to hear that some terrible earthquake has occurred at Guadaloupe, or that a magnificent eruption of the *Mouona Kaua* (?) in the Sandwich Islands was observed by the captain and crew of H.M.S. Moonshine at some inconceivable distance from the land.—*Athenæum*.

The *Daily News*, July 1st, speaking of Benson's watches in the Exhibition, says, "Here are arranged a fine selection of watches manufactured by him on the latest and most approved principles of horological science. When we compare them with the specimens of ancient watch-work which are placed beside them, or even with those worn by our grandfathers, the immense advance in this branch of the mechanical arts is at once apparent." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's Illustrated pamphlet on watches (free for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate-hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

THE ATLANTIC CABLE.—The entire length of the Atlantic telegraph will be 2,300 miles. There are seven copper wires to form the conductor, so that there are 16,000 miles of copper wire. Every portion of this copper wire is subjected to electrical tests to ascertain its quality for conduction before it is allowed to be worked up. The next stage is to coat these wires with eight successive coats of the insulating material, equal to an aggregate length of 18,400

miles. This core is next covered with jute wound round it in 10 strands, making 23,000 miles of jute yarn. Then comes the outer coating formed of the 10 covered iron wires. The iron wire itself is 23,000 miles in length, and each wire is covered separately with five strands of tarred hemp, 135,000 miles of the latter being required, making together an aggregate length of material employed of 215,500 miles.

THE DROGHEDA WATERWORKS.—Messrs. D. Y. Stewart and Co., of Glasgow, have been declared the contractors for supplying the necessary piping for the above important works.

THE DUBLIN TRUNK CONNECTING RAILWAY.—It has been determined to proceed with the construction of the tunnel under the Liffey as the first part of the Dublin Trunk Connecting Railway.

TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

The back numbers of this Journal, from its commencement in January, 1859, can be had on application at the office, 42, Mabbot-street, Dublin.

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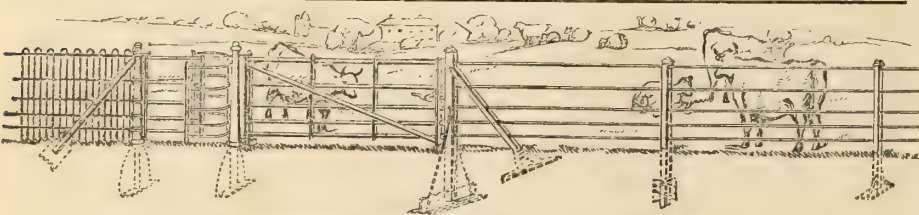
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# The Dublin Builder.

VOL. VI.—No. 120.

## THE HISTORY OF OUR HIGHWAYS.\*

ONE hundred and nineteen years ago, there lived in Capel-street, a certain architect, of some eminence in those days, Samuel Kilburn by name, and on a certain first of November was born to him a son, who afterwards became known to Fame as the most famous calico-printer in the world: this Kilburn established himself at Wallington, in England, and we read in the record of long-forgotten vanities how he presented a dress of muslin chintz to her Majesty Queen Charlotte of the "seaweed" pattern designed by himself, and we learn that the fine ladies of the court of George the Second thought a guinea a-yard no exorbitant price to pay for a dress of Kilburn's world-famed chintzes; and that Ireland and Irishmen were not indifferent to this manufacture, we gather from the fact that Edmund Burke brought in a bill to protect the manufacture of these wonderful chintzes.

When we talk of Burke, we always, however absurdly, feel inclined to add the epithet of "the sublime," so ludicrously appended to his name in the well-known epitaph on Lady Olivia Shepherd. It is no easy task for the most imaginative disposition to connect sublimity in any way with an apothecary's shop, yet there is little doubt that it was at Mac Dermott's on Arran-quay that the greatest of British orators first saw the light.

After all, a good faculty of *believing* is in itself a great thing not common in these our days, people do not now turn white at the mention of the Cock-lane ghost, or believe in the touch of royalty as a cure for the king's evil; and in spite of a temporary reaction in favour of table-turning, and the humbug of spirit-medium *seances*, the spirit of credulity is on the wane. It was a comfortable creed we say, for to which of us may not the same good fortune come that came to George Home, whose prosperity is said to have had its rise from his having received a Queen Anne's farthing in the course of business, when serving behind his master's counter at a confectioner's shop in Grafton-street, where Robertson's now is, and this George Home waxed prosperous and built the Royal Arcade. Let us hope and fully believe in the efficacy of this charm as we faithfully did in the days of our childhood, in that wonderful animal the learned pig that knew his letters, and here met his miserable and lamented end in this same Royal Arcade in the destructive fire which burnt it to the ground in 1837. Spadaccini's Hotel, which now occupies a portion of the site of the Arcade, will, alas! never give us back this porcine celebrity, held up as an example to our idle childhood, and what little book lore we may have acquired since, will never efface the feeling of awe with which we have ever regarded this accomplished grunter.

It cannot but be with a feeling of regret that we see the few mansions still possessed by noble owners passing from their hands, no matter what may be the uses to which they are to be dedicated. Rumour has it that one of the few which remains to us as the residence of a nobleman, is about changing hands, and that the hatchment which is still hanging over the entrance is the last which will there

record the decease of one of the title and lineage of Charlemont. We are apt to forget that this solemn house in Rutland-square holds a collection of works of art by painters and sculptors of the ancient school, of which any nobleman might well be proud. We learn that it is in the contemplation of the present earl to remove the collection to a mansion which he is about to erect at Marino, and that he has engaged the services of Messrs. Lanyon, Lynn and Lanyon to reproduce there the suite of apartments in which the principal art-treasures of his collection are at present deposited. It was to this house that the Royal Irish Academy adjourned their meetings in 1799, out of respect for their noble president, whose failing health confined him within his walls; and it was here that Charlemont—he of the Volunteers, who made Charlemont a name—breathed his last before the accomplishment of that treaty of Union which he had opposed with his latest breath.

These were stirring times in Dublin, which we of this generation can scarcely realise; for the streets are little less changed than those who frequent them. Let us think of our present Lord Chancellor, or yet of his eminently peaceful predecessor, who devotes his learned leisure to the moral edification of young men, and we feel like the unfortunate undergraduate who was asked to draw an historical parallel between Alexander the Great and Annie Laurie, when we attempt to compare them with a certain ex-Chancellor Fitzgibbon, more generally known by the *soubriquet* of "Black John." Let us imagine him then, striding gloomy and all alone, with knitted brows, through the crowded street to his house in Ely-place, men involuntarily turning from his path and making way for him, and the contrast is sufficiently difficult to realise. For Chancellor Fitzgibbon was more dreaded in Bully's Acre than upon the woolsack, and the pistols of "Black John" were a more summary settlement of disputes than the judgments of the High Court of Chancery, over which he had the honour to preside.

We have said that the streets are little less changed than those who frequent them—they are much less so. Let us compare, in our mind's eye, the staid sober demeanour of those who daily ascend and descend the steps of Powerscourt House, to do business with Ferrier, Pollock and Co., with the motley crowd who streamed in in 1788, to see Richard, the third Lord Powerscourt, lie in state, in emulation of the Viceroy Rutland's obsequies, whose mortal remains, a year previous, lay in solemn state in the Parliament House, the gazing-stock of the mob. It is pleasanter to walk up William-street now (particularly if you have a cheque of somebody else's, payable to bearer, on the Provincial Bank) than it was in those days, when by day and night a half-savage mob of idlers hung about the steps of Powerscourt House—mischievous link-boys and drunken chairmen; when highwaymen of gentlemanly habits had it all their own way in the adjoining bye-streets, before the advent of our blue-coated "force," and when the blessings of the Alliance and Hibernian Gas Companies had not entered into the imagination of the wildest enthusiast.

It was in this same William-street, yet a little farther down, that John Philpot Curran—a certain briefless barrister—found it all but impossible to pay his modest rent, and here it was that in one despairing day he found his first brief awaiting him with a twenty-guinea fee, and he took his first step on the ladder of fame and fortune.

It was in William-street that a book of world-wide celebrity was written, and which

has since had two of the strangest editors which could be conceived, both of them remarkable in their way for leading in new and different schools of thought. Here Henry Brooke wrote that highly moral novel which John Wesley edited and introduced to the world as "*Henry, Earl of Moreland*," and which in our day has been re-edited under its second title of "*The Fool of Quality*," by the Rev. Charles Kingsley.

While we haunt this neighbourhood we must not be oblivious of our brother craftsmen; and yet, good brother architects, how many of you have ever heard the name of Richard Castle? We are all familiar with the works of Francis Johnston, and can talk flippantly of what Gandon did for the architecture of our city. All of us know that oft-told anecdote of Gandon, when he was forced to add the Corinthian portico to the Ionic House of Parliament, and how he remarked, in his wrath, that it was the "order of the House of Lords, &c." We may remark that the story, if not historically accurate, is *ben trovato*. It may spoil the point of the anecdote, but we think that the difference in level between the two fronts had something to say to Gandon's adopting the Corinthian order at the peers' entrance, and we think if Gandon were to rise from his grave in these days in which Vitruvian rules are disregarded, he would take credit to himself for the bold device of placing Corinthian columns under an Ionic entablature, to avoid the necessity of a lofty plinth and dado, which, in consequence of the level of the street, would have been involved by the adherence to the order prevailing in the noble southern façade.

And yet how few of us are there who daily pass, and are proud of this noble colonnade of the southern front of the Parliament House, and take any thought of its author. Looking over the engrossing pages of Gilbert's History of Dublin, where the story of the Parliament House and its architects is to be found, we are tempted to observe how even things architectural repeat themselves in cycles. We find that a certain Sir Edward Lovet Pearce, his Majesty's Surveyor-General of works in Ireland, captain in his Majesty's foot, like a certain captain of Royal Engineers of these days, reaps all the architectural glory while another does the work. We know very little otherwise of this Captain Sir Edward Lovet Pearce, and what is more, we are not one whit more inclined to believe in his "heaven-born" talents that we would in other instances we might name.

Contemporary gossip tells us that Castle designed the Parliament House, and that Pearce cheated him out of his due recompense, and there are extant some epigrams on the subject, of unmistakable hostility, and rendered in questionably accurate Latin in which the "talented young captain" gets the very worst of characters. We are more inclined to put our trust in Castle, as being the real designer, for we know as a matter of fact that he was the architect of Leinster House, Powerscourt House, Tyrone House (where the present National Schools are), the Lying-in Hospital in Rutland-square, the Printing House, and the cupola of the chapel in the College, and a number of other works which are sufficient to attest that Castle was a thorough master of his profession. The case for Captain Edward Pearce may be strong enough for those who would believe in the omnipotence of heaven-born genius, and the beauty of the "Brompton boilers," but it will be useless to attempt to persuade any architect, who has a decent respect for the mystery of his profession, that this noble, carefully-

\* See page 240 ante.

studied design of the Parliament House was the work of an inspired foot soldier, or an amateur dashing bold dragoon. We are more particular in claiming the honour of designing the Parliament House for Castle, as it has been again publicly claimed for Pearce by an eminent authority, Mr. Whiteside, in his lectures on the Irish Parliament. We may remind our readers that the House of Parliament was erected on the site of Chichester House, where the meetings of Parliament had been temporarily held, and which had, in 1720, fallen into a state of great decay.

We have recourse again to Gilbert's invaluable history—a very mine of laboriously collected gossip—for some account of the life of Castle. We quote his notice of him:—

"In Suffolk-street, in 1720, resided Richard Castle the architect of many fine edifices in various parts of Ireland. Castle is said to be a native of Germany, to have made the "grand tour" of Europe, and to have come to Ireland on the invitation of Sir Gustavus Hume, for whom he designed a mansion at Castle Hume, county of Fermanagh. The report of Castle having furnished the design for the Parliament House has been already mentioned, and some artists have considered that his style is recognisable in this edifice; but his name does not appear connected with it in any authentic record; and its plan was ascribed to Capt. Pearce in the official documents and public prints of the time; amongst the latter we find the following lines on this subject in a broadside, entitled 'The Speech of the first stone laid in the Parliament House to the Government, February 3, 1728-9,' by Henry Nelson:—

"Next let my gratitude and due respect  
Be humbly paid to the great architect;  
And as his merit, let his praises ring,  
Who did me first to this great honour bring.  
Let ev'ry tongue in softest note rehearse,  
Time after time, the worth of Captain Pearce;  
All hail to thee! who only is the man  
That by your art has formed this noble plan,  
And as the structures on my shoulders rise,  
So shall your praise, exalted to the skies;  
The pile majestic shall its beauty show,  
And all its beauty to your judgment owe;  
To future ages celebrate the name  
Of its projector, and record your fame."

"In 1736 Castle published 'An Essay toward supplying the city of Dublin with water,' the practical principles of which treatise he states to have been collected by him from some remarks made in his travels, on the best water-works then existing. The first stone lock in Ireland—that on the Newry canal—was erected by Castle, who was engaged under the Board of Inland Navigation till dismissed by its Governors in 1736. The principal buildings in Dublin designed by Castle were the Lying-in Hospital; the cupola of the College Chapel, the College Printing Office, Leinster House, Tyrone House in Marlborough-street; and the Music Hall in Fishamble-street, which Handel pronounced to be one of the most complete and best sounding rooms of the kind in Europe. Castle was remarkably ready at drawing, and so clear in his directions to workmen that the most ignorant could not err. 'He was a man of the strictest integrity, and highly esteemed by the nobility and gentry, not only as an artist, but as an agreeable companion. His extensive engagements gave him opportunities of acquiring much wealth; but he was improvident, and frequently distressed. He sacrificed much to Bacchus, and, when in Dublin, passed his evenings with Dr. Mosse of the Hospital, and a few more, at a tavern, which they seldom left before three or four in the morning. He was whimsical in some things: he had an aversion to shaving himself, and was cautious of those he employed; he fixed upon a Mr. Simpson, a stucco-worker, who performed that operation for some years, and was so well pleased with his performance, that he recommended him to much business as a plasterer. When the effect of his works was not such as he liked, he frequently pulled them down; and whenever he came to inspect them, he required the attendance of all the artificers, who followed him in a long train. He married a lady in Lisburn, who died before him, but had no children. He continued a widower to his death, which happened at Carton [on the 19th of February, 1751]. After dinner he retired to write to the carpenter who was employed at Leinster House, then erecting. He was seized with a fit, as was supposed, and suddenly expired; for he was found dead in his chair. He had long been afflicted with the gout, acquired by intemperance and late hours. At his decease he was between fifty and sixty years old, and was interred in the church of Maynooth."

"Castle introduced so fine a taste for architecture in

this kingdom, that, says a writer in 1751, 'had he lived a few years longer, the edifices of our nobility and gentry might vie with those of every other country whatever; in short, his death is a great loss to the public, but his buildings will be monuments of his worth to latest posterity.'

"Towards the close of the last century, Thomas Milton, the engraver, appears to have possessed materials for a memoir of this eminent architect, whose name, it may be observed, has been variously written—Castle, Castles, Cassel, and Castell."

Castle, we believe, bequeathed to the inhabitants of the town of Lisburn in the County Down, or Lisnegarvy as it was in those days, a public pleasure-ground called after him the "Castle Grounds," and not, as is now erroneously supposed, from the original proximity of an imaginary castle. We remember a trace of him in the neighbourhood, in a church of the Georgian era at Knockbreda, whose inhabitants preserve the tradition sufficiently well to hand down that its architect was the architect of the House of Parliament: adding, however, with a trifling anachronism, that they believe his name to have been Sir Christopher Wren.

Castle was buried under the shade of that great yew-tree in Maynooth churchyard. We do not know if the spot is even marked. It requires little imagination to fill up the picture of the life of which we have such scanty records; of the clever, eccentric, and unhappily dissipated artist with noble impulses of Art far beyond his day and generation, whose talents others appropriated, and whose name has all but vanished from the roll of fame.

Here we are reminded that to all space there is a limit, and to gossip—particularly at this season, when business presses—there must be an end, long before we have exhausted the memories of this historic locality, and we hope in the leisure of another year to return to it. It is not wanting in memories suitable to the season.

Not far from the spot where the new St. Andrew's Church is tardily rising from the ashes of the church destroyed by fire some five years ago, King Henry the Second held his Christmas feast, as best he might, in a temporary pavilion of wattles and mud, and astonished the rather unsophisticated Irish nobility who frequented this primitive court, with the partiality which he and his retainers displayed for roasted cranes, just as one of the next British sovereigns who visited this kingdom in 1821, after a considerable interval, exhibited an extraordinary ability for the consumption of goose-pie. The connection between eating and drinking and Christmas times is somewhat natural and excusable. We wish all the readers of the DUBLIN BUILDER a merry Christmas—better Christmas fare than his Majesty King Henry the Second aforesaid, and a more comfortable habitation wherein to enjoy it. To many friends who have aided the objects which the DUBLIN BUILDER has in view, this is a suitable time to tender our warmest thanks. The circle is sufficiently large to render it an impossibility that we should do so in each individual case, and we beg to express a hope, that when next year we wish our readers a merry Christmas again, the burden of our obligations to our friends may be utterly unsupportable. We confidently leave it in their hands to render it so.

#### ROYAL IRISH ACADEMY.

A MEETING of the members of the Royal Irish Academy was held on the evening of the 2nd inst., at their house, No. 19, Dawson-street.

The Very Rev. Dean GRAVES, D.D., President, in the chair.

Dr. Reeves, secretary, read the minutes of previous meeting, which were duly confirmed. The Very Rev. Dean Graves read an interesting paper, "Monuments in the county of Kerry," lately discovered by

himself and his son, Dr. Alfred Graves. He said that the monuments brought under the notice of the Academy appeared to be nearly related to a class which formed the subject of a paper read by him at a meeting of the members in February, 1860. The paper was referred to council for publication. Mr. George C. Garnett then read a paper "On Deep Sea Sounding," and at its conclusion presented the Academy with some valuable charts, and a rare work relative to the subject. On the motion of Dr. Reeves, a vote of thanks was passed to Mr. Garnett for his presentations to the Academy, and his paper. Referred to the council for publication. The secretary, Dr. Reeves, then read the following papers:—  
"On the Composition of Candium, Arsenic, and Nitrogen," by Mr. G. J. Knox; "On Cranogues in Ballinlough and Lough Nahinch," by Mr. G. H. Kinahan. These papers also were referred to council for publication.

A general meeting of the Academy was held on Monday evening, the 12th inst.

JOHN F. WALLER, Esq., LL.D., Vice-President, in the chair.

Mr. D. H. Kelly presented, on the part of Mr. Hennessy, copies of two original tracts in the handwriting of the celebrated Irish writer, Duaid Mac Firbis, which Mr. Hennessy discovered recently among the Rawlinson collection of Irish manuscripts in the Bodleian Library, Oxford. The first tract comprised a portion of the treatise on Irish writers to which Mac Firbis refers in some of his works as having composed; but it was Mr. Hennessy's opinion that Mac Firbis had never finished the treatise, and that the copy now presented to the Academy contained probably a transcript of all that the great *Seanchae* had ever written on the subject. The recovery of this tract, even in its defective condition, will be a source of satisfaction to Irish writers, its loss having been lamented by successive inquirers since the beginning of the last century. The second tract was entitled "An aid to remembrance as regards certain bishops and dioceses, not considered so in recent times, but held to be such in contemporary ages." This treatise contained a list of 270 places, arranged in alphabetical order, regarded as the seals of bishops in earlier times, together with the principal ecclesiastics who ruled there. Although in the main agreeing with the Four Masters and the Martyrology of Donegal, as to names and dates, there were some valuable additions made by Mac Firbis to the labours of the O'Clerys. It would seem, however, that the original authorities consulted by the O'Clerys and MacFirbis were the same, or corresponded very exactly, a strong and convincing proof of the authenticity of their works. Duaid Mac Firbis had been preparing materials for the Irish portion of Sir James Ware's works, and had collected a good many manuscripts of his own and of his ancestors, who were hereditary historians to the O'Dowds of Tíreragh, in Sligo. After Sir J. Ware's death, 1660, his collection of Irish manuscripts was purchased by Lord Clarendon, when Lord Lieutenant here. At Lord Clarendon's death they were purchased by the Duke of Chandos, and at his death were sold by auction, and a portion having been purchased by Dean Miller, of Exeter, which are now in the British Museum, the chief part of the remainder became the property of Dr. Rawlinson, Fellow of St. John's College, Oxford, who bequeathed all his manuscripts to the college library; and the collection thus bequeathed forms some of the extensive treasures of the Bodleian Library. The Irish collection in the Bodleian had been previously examined by Dr. Todd, O'Curry, and O'Donovan, the latter of whom had paid it more than one visit; but the volume in which the Mac Firbis tracts were discovered by Mr. Hennessy, being of very tattered and insignificant appearance, did not attract their attention, and its examination by Mr. Hennessy was a matter of pure accident.

Mr. Kelly referred to the unavailing efforts of Dean Swift to procure the restoration to this country, in 1734, of the Ware manuscripts, and analysed in detail the contents of Mr. Hennessy's donation, and its value to the ecclesiastical historian. He also expressed his satisfaction in having been among the first to persuade Mr. Hennessy to visit the Bodleian collection, and ventured to believe that the fruits of his visit would be found more numerous than could have been anticipated, considering the short time which it occupied.

Mr. W. H. Harding read a paper "On Manuscript Mapped and other Townland Surveys of Ireland of a Public Character."

The Secretary read a communication from Mr. H. O'Hara, C.E., relating to Cromlechs which he discovered in India, and which very much resembled those found in Ireland. The thanks of the Academy were accorded to Mr. O'Hara for his valuable communication.

Castle also built two houses in Kildare place (then called Moleworth's fields) before he built Leinster house; one for the Massereene family, the other for Sir Kiffin Kingston Smith

## THE SEWAGE OF DUBLIN, AND ITS ECONOMIC APPLICATION.\*

THE sanitary condition of great cities, whether regarded in a personal or social light, must ever form a subject of absorbing interest to every reflecting mind.

Of late years the gigantic growth of our cities, and vast increase of their population, demand an improved system of sewage, in order to preserve the atmosphere in a state of purity.

With this question of sewage I propose to deal in the following paper; and although it must of necessity be limited, I yet hope to awaken public attention to the consideration of a question, regarded in any light, of such paramount importance.

There can be nothing more essential to a well arranged dwelling, than proper appliances for carrying off the effete animal matter and other refuse. Thorough house drainage is a leading principle in sanitary science, and although it is unquestionably the duty of the civic government to insist on its being generally adopted, it has, as yet, been but partially recognized. It is true that the majority of houses of respectable exterior, in large towns, have drains connected with them; but it must be borne in mind that it is purely optional with the owners or tenants so to benefit themselves. In this respect our constitutional liberty has run riot; for although laws may have been enacted for the purpose of enforcing a proper system of house drainage, they have scarcely, if ever, been put in force. It is not saying too much to state that a great many houses in our large towns are in a most offensive state from the want of proper sewerage, and which must be directly attributed on the one hand to the inefficiency of the local authorities where there is a compulsory law in existence, and on the other, to the utter indifference of the inhabitants themselves to the incalculable benefits to be derived from pure air and cleanly habitations.

With respect to street drainage, it must be confessed that we are still far behind the requirements of human comfort and public decency. From the report of the health of towns' commissioners presented in 1844, I gather that out of 50 towns in the sister country subjected to their inquiries, "in scarcely one place can the drainage or sewage be pronounced good; in some it is middling; while in forty-two it is decidedly bad."

Dublin has not as yet been favoured with a visit by the commissioners; but if it had, I have no doubt the inquiry would merely add to the category of imperfectly drained towns. Much has been done in England and Scotland since 1844, but it is doubtful whether, previous to the last six years, Dublin has been much benefitted from an improved sewerage. It must, however, be admitted that the sewerage works now in progress in our city reflect the highest credit on the engineer under whose direction they are being constructed. Those sewers are built on the plan most approved of by scientific men, and are calculated to be most enduring.

It must not, however, be lost sight of that the construction of new sewers and the repairing of old ones are undertakings which can progress but slowly. It must also be borne in mind that until the city is properly sewered we will be peculiarly subject to the recurrent plagues, ever the attendant evils of imperfectly ventilated and unsewered towns; nor should we be surprised at the calls of those unwelcome visitors, when we consider how pressing are our invitations to them.

The north side of Merrion-square still possesses the unevident distinction of a cess-pool drainage. Part of lower Sackville-street, and many other streets, not to mention lanes, alleys, and courts, are similarly circumstanced, while the entire thoroughfare of our quays present an inviting channel for the "black stranger." Can we, then, regard it as a matter of surprise that Dublin should be subject to what are called *dispensations of Providence*? Instead of regarding many of the forms of epidemic disease as direct dispensations of Providence, we should rather attribute them to our total disregard of the simplest sanitary laws—a disregard which inevitably results in unhealthy vitality. It is true we have the hereditary feeling that money put into the civic coffers seldom yield an equivalent return; for this, however, there is not at present, much foundation. There are too many eyes watching the public purse to allow of wasteful or unnecessary expenditure. If the citizens set more value upon the public health they would voluntarily increase the local taxation, for the purpose of speedily freeing themselves from miasmatic diseases and periodical plagues. With these brief preliminary observations, I shall at once enter into the immediate subject of this paper—the sewerage and sewage of Dublin.

There exist no very authentic records of the origin of our ancient city of Dublin and its drains and sewers. No doubt, the river Liffey was the great sewer of the old Celtic *Bally ath cliath*, or "town of the ford of hurdles," as, at the present day, we find it discharging

the same office for modern Dublin. The ancient town was very subject to the caprices of Anna Liffey. At one time it would be swollen to such a degree as to overthrow houses, and at other times it would be completely dried up; as, for instance, in 1452, when a portion of the bed of the river, two miles in extent, was dried up. That tributary of the Liffey, the Poddle, was also employed as a sewer; for we find in history that, in the year 1587, "red Hugh O'Donnell escaped from the Birmingham tower through the great sewer called the Poddle." The other small streams which empty themselves into the Liffey at Dublin, such as the Cammack, Bradogue, &c., were, no doubt, also used as sewers, as the requirements of the city for such drains increased, consequent on its enlargement.

In the year 1670 trenches were dug round St. Stephen's Green to carry off the stagnant water; and about six years after the river was substantially embanked. In 1729 the North Wall was completed; and during the latter part of the last century and the beginning of the present the Liffey was spanned by the many beautiful bridges which now adorn the city. The formation of what may be called the old sewer was coeval with the bridging of the river. During the 20 years preceding 1851 no sewers, as I have been informed, were made. As an example of the principle upon which most of these were constructed, I have been favoured with a sectional view of one of the old sewer beds, from the office of Mr. Neville, the city engineer, an enlarged drawing of which I beg to call your attention to. All the sewers, as they at present exist, have for their outlets the course of the river, which runs through the heart of the city. It is scarcely possible to conceive a better plan for husbanding the putrescent refuse matter of a city than in its being thus emptied into a shallow river, there to be tossed backwards and forwards by the flowing and ebbing of the tide, and finally to have a portion of its solid matter permanently deposited in its bed, only to be given off in pestiferous exhalations, which are wafted into every house and street in the vicinity of the river.

Any project which has for its object the removal of this nuisance and the consequent improvement of the sanitary condition of the city will, I am sure, meet with due consideration, not only from the members of this society, but from the citizens of Dublin generally. I am, therefore, encouraged to lay before you some suggestions on this important subject. I should mention here that as an inevitable result of the foul effluvia from the river, the house property along its banks is gradually undergoing a serious depreciation in value. I find from the valuation returns of 1847 and 1857, that in the intervals between these years it has diminished by nearly £6,000, or 22 per cent.; while the average depreciation of house property throughout the city, which includes some very deteriorated portions, is only 18 per cent. This is the more remarkable as the quays always were, and of necessity must continue to be, a great thoroughfare.

Next in importance to getting rid of the sewage as a sanitary reform, is its economic use as a fertilizer of the soil. That the sewage of many large towns is successfully employed for agricultural purposes, is incontrovertibly true. I shall adduce but one or two examples, for the information of those who may not hitherto have given this subject much consideration.

Milan is relieved of its effete animal matter and other refuse by means of two concentric canals, which convey the sewage of the city to the surrounding country where it has enhanced the value of the land considerably. But to come nearer home, I shall take the case of Edinburgh, wishing it, at the same time, to be understood that I do not offer the mode of applying sewage manure followed in that city as applicable in the case of a city like Dublin, having no elevation over the surrounding country; but I instance it as an example of the great results which have attended the application of city sewage as a manure.

The sewage of Edinburgh is allowed to flow by gravitation into large drains situated at the outskirts of the town; these drains convey the sewage to some distance from the city, where it is caused to irrigate the meadows, and it is found by abundant experience that the fertility of the irrigated meadows is exactly proportionate to the quantity of sewage supplied. The results of the application of the Edinburgh sewage are such as to be almost incredible, unless actually witnessed. The land subjected to the irrigation has risen enormously in value, but in no instance to more than it is worth. Land which formerly let at 20s. an acre now commands £30. Some land at the sea side, near Portobello, formerly almost valueless, now rents, in consequence of the application of the sewage, at from £15 to £20 per acre. So many as seven and even ten crops of hay have been raised in one season; but leaving the precise quantity out of the question, a sufficient number must have been produced to warrant and maintain so extraordinary a price for the land; the owners, according to some authorities, refusing £150,000 for their vested interest in the pro-

perty. It may be well, in reference to this subject, to quote here a portion of the evidence given in March last before the referees appointed by the first commissioner of public works to obtain the best plan for the drainage of London.

Mr. Macpherson, superintendent of streets and buildings in Edinburgh, says—"The population of the drainage area is estimated at 80,000, and allowing 20 gallons to be the quantity supplied daily to each person, there will be about 1,600,000 gallons of house drainage passed off by the sewer daily; the drainage is about one and a-quarter square miles in extent." The information of Mr. Bryce, the overseer of the Craighentiny Farm, is as follows:—"All the grass from the permanent meadows—viz., those on which nothing but grass is ever grown, is cut and sold; because, as the ground is soft, the animals, if allowed to feed on the ground, would spoil the plants; these meadows are irrigated about once a month throughout the whole year; they are cut about four times a year. Some meadows are watered by hose, but they are used for growing corn and such like crops; they are only watered during the months included from March till September; the grass from the permanent meadows is sold chiefly for the feeding of cows, because they produce more milk when fed on it than on any other kinds of grass. The average value of the crops from the permanent meadows is from £20 to £30 per imperial acre."

Irrigation with sewage water has been carried on for the last fifty years in the vicinity of Ashburton; for the last ten years in part of Lancashire and Middlesex; at Mr. Mechi's celebrated farm at Tiptree Hall; and at the North Surrey district school. With reference to the last-named place, a short extract from the report of Mr. Tuffnell, inspector of the school, may prove of some interest in connection with this subject. The school contains 800 souls; in connection with it is a farm to which the sewage of the school is applied. The agricultural superintendent says—"In November, 1855, I sowed three-quarters of an acre of Italian rye-grass. It was flooded during the winter with sewage, and on the 27th April, 1856, it was begun to be cut from that day to the last day of Oct. We cut one cart-load of green food every day, weighing about a ton; the part of the ground that was cut was always flooded with liquid manure immediately after the grass was cut and had been carted." "Then the produce amounted to 235 tons of green food per acre?" Yes; the grass stood 2 feet 6 inches high; sixteen head of dairy cattle and one horse were fed on it during that time; the horse had two bushels of oats a week, and the cows daily a run of four hours on five acres of pasture, besides the Italian rye-grass; but nothing else was given them during that period."

That the application of sewage for agricultural purposes has been successful is now almost universally admitted; but in every instance in which benefit has resulted from its application, it has been applied in the condition in which it issues from the sewers, i.e., without being subject to any process. Several patents have been taken out for the treatment of sewage by various agents for the purpose of obtaining its fertilizing constituents in a more concentrated, and, therefore, in a more valuable form. A few of the processes patented for effecting this purpose I shall in brief terms notice.

First. By causing the sewage to pass through filters, containing charcoal and other substances possessing the property of deodorizing putrid fluids, and retaining the solid matter suspended in them. This plan cannot be entertained, as the cost of such materials as charcoal would be much greater than the value of the amount of manurial matters which they are capable of separating from the sewage.

Second. By adding to the sewage certain chemical agents for the purpose of precipitating its fertilizing constituents. This plan must also be regarded as financially impracticable; first, because such chemical agents bear a high price; second, because the precipitation of those elements of sewage, which are useful in an agricultural point of view, is practically impossible. Manure, in considerable quantity, has been prepared from sewage, but, I believe, in no instance has such a manufacture proved successful—a result which might have been anticipated from the excellent papers of Professors Way, Anderson, and other chemists on this much vexed question.

Messrs. Hoffman and Witt, in their evidence before the London referees, in July last, state as their opinion, "that the conditions involved in the manufacture of a manure from the London sewage by the two processes above mentioned" "offer no chance of success as commercial speculations." The least expensive, most effective, and, after all, simplest plan, is to apply the sewage at once to the soil, and without subjecting it to any process whatever. It has been urged that when sewage is flooded over the fields disagreeable and dangerous effluvia are given off; but there is no foundation for this argument, as it has been fully proved that the sewage is absorbed so rapidly by the soil that an hour or two after its application not the slightest odour can be discovered.

\* Paper read by Mr. J. W. Gregg, T.C., on "the Utilization of the Sewage of the City of Dublin, November 7, 1867.

It was until lately considered that drainings and liquid manure of every kind containing urea should undergo fermentation in order that the urea might be converted into ammonia, in which state only it was considered to be available as food for plants. Doctor Cameron has, however, in a paper read by him before the British Association, at its recent meeting in this city, proved that "urea without being converted into ammonia may be taken up unchanged into the organism of the plant;" "that urea need not be converted into ammonia before its nitrogen becomes available to promote the process of vegetation;" "that there exists no necessity for a lowing drainings or other fertilizing substances containing urea to ferment, but that on the contrary, greater benefits must be derived from their application in a fresh and unfermented state." These conclusions, I may state, were not hastily formed, but only after experiments of some months' duration. This is the first time this theory has been propounded, and our professor has been warmly complimented in the leading agricultural journals of the day on the results of his investigations.

The sewage of Dublin resembles in composition that of the sewage of most other large cities.

I have obtained from Dr. Cameron an analysis of the sewage of Dublin, showing the mean results of a number of examinations of that fluid. The sewage was collected at various hours and in different parts of the city. It contains in 100 tons the following:—

	lbs.	s.	d.
Nitrogen .. ..	16.0	0	8
Phosphoric acid ..	4.2	1	4½
Salts of Potash ..	5.0	0	7½
Salts of soda .. ..	14.2	0	2½
Organic and other matter	7.0	0	4
Total .. ..	114.4	13	2½

Here we find the nitrogen to be the principal item; the phosphoric acid comes next in order of value, existing for the most part in a soluble state, so that in every 100 tons of sewage water that leaves the city the inhabitants sustain a loss of 13s. 2½d.—a loss which I hope some day to see appreciated; and if duly appreciated—saved. Six-sevenths of the amount of the fertilizing constituents of sewage exist in a soluble state, the remaining seventh is merely mechanically suspended in the water, and for the most part sinks to the bed of the river, where it remains, throwing off noxious effluvia, until it is slowly removed by dredging.

I shall now proceed to ascertain the quantity of sewage water that falls into the river. From a return I have been furnished with by the city surveyor, I find that about 1,500,000 cubic feet of water are daily supplied to the inhabitants; this gives to each person 32 gallons; taking the prospective population of 1861 to be 290,000, the period from which I am making these calculations, as I presume little will be done on this head before that period, on any plan no matter how feasible. We have next the rain-fall to take into consideration. The average fall of rain in the year is 28 inches over a catchment area of 3,500 acres, which leaves one-thirteenth of an inch daily to cover the superficial area. Taking the two principal supplies of water there will be as follows:—

Water supplied to inhabitants	gallons.
290,000 persons at 32 gallons per head daily	9,280,000
Rain-fall, average daily amount .. ..	5,683,000

Which gives a total falling into the river of 14,963,000 gallons of sewage water, which is, at 13s. 2½d. for every 100 tons, worth nearly £100,000. This, therefore, is the loss sustained daily by the inhabitants of Dublin. This value of the sewage is strikingly corroborated by the various estimates of the value of human excreta. Dr. Cameron has valued the refuse matter of Dublin at £100,000, assuming the population to be 300,000.

To collect and utilize this sewage, I propose to have cast iron tunnels laid along each side of the river bed, commencing at Barrack-bridge, and terminating at Carlisle-bridge. The length of each tunnel, would be 5,520 feet, having a fall of nearly four feet in the whole length, or one in 1,380. These tunnels, six feet in diameter, would be connected on either side with the city sewers by twelve cast iron outlets (flanged connections in all cases with nut and bolt screws; six outlets on each side of the river. The small sewers that now deliver into the river I would have to fall into the intercepting sewers at mean distance from each small sewer, and at a point nearest the outlets. On the south side, where the Poddle intersects and receives the sewage of a district in area about 450 acres, I propose to divide its course at a point near Nicholas-street, under which street it passes, making a new cutting under Nicholas-street, which rises some 20 feet, thence under Michael's-hill, from which, with a natural fall under Winetavern-street, it would empty itself into the sewer at Richmond-bridge, which should be enlarged or underpinned for that purpose. This would reduce the volume of water at Wellington-quay by one half, or nearly so, and would allow an equitable pressure throughout on the tunnel at the south side.

With respect to the other small streams which form sewers, they are not, I believe, of such great magni-

tude as to warrant interference with their present courses. Having so far connected the tunnel sewers with the city sewers, I would not continue them further in the river, as I fear the bulk of the tunnels would interfere with the anchoring of vessels alongside the quays, more especially at low water; besides, the fall of the bed of the river from Carlisle Bridge to the end of the quay is only 2 feet, which would scarcely be an advantage equivalent, in my opinion, to the great expense that must of necessity be incurred in laying and securing water tight the tunnels beneath the river; and I propose, then from that point a main sewer should be constructed on either side to correspond in proportionate size with the tunnels. That on the south might be simply run along the quays; while that on the north side would require the aid of syphons under each of the dock and canal bridges. The use of syphons in sewers is now advocated very much.

Mr. Lindley, civil engineer at Hamburg, in his evidence before the London referees, gives a description of a syphon which he has found to answer very satisfactorily. He says, in a main of considerable length, having only a fall of 1 in 3,000, he has used a syphon under a river which crosses its path, and though its length does not much exceed 200 feet, and its dip about 4 feet, yet it effectually flushes the sewer and keeps it free from deposit. The cost of these tunnel sewers (6 feet in diameter) for 5,520 feet, each side of the river from Barrack Bridge to Carlisle Bridge, would be £20,000; the street sewers along the quays would be, including syphons, £6,000; this would give a total of £26,000. In connection with, and as subsidiary to these main sewers, I think the plan proposed by Mr. Neville in 1853 to the corporation, of having high level intercepting sewers, would be of much service in relieving the main sewers and enabling them to be equal to the demand on their capacity, commensurate with the increase of house drains and also of the population. I might say here that the proportion of houses drained to the number of houses in the city is very small indeed. I do not think there is any precise account to be found detailing the exact number; but the houses supplied with water may give an approximate notion. The number of houses in the city is about 25,000, while those supplied with water, exclusive of large consumers, such as manufacturers, &c., is only about 13,000. The total length of the streets is some 108 statute miles, and the number sewer, from a return furnished me is—

Length of old sewers .. ..	42½ miles
" sewers to be constructed ..	4½ "
" sewers to be repaired .. ..	7 "
" new sewers constructed, or in process of constructing	14 "
	108 miles

A great number of the old sewers are fast filling up, and will sooner or later require re-construction altogether. I shall now proceed to detail the plan for the disposing of the sewage after it arrives at the depots. To provide adequately for the great quantity of sewage water, large tanks should be made of cast iron, or built with brick, and lined with concrete. Into these the sewage should flow, and deposit its suspended matter; the deposit tank should be connected with others by means of surface pipes, to carry off the supernatant liquid; these pipes would have gratings at the ends to prevent matter floating from passing into the receiving tanks: from these receiving tanks the sewage should be pumped up—the one on the north side to a height of 50 feet, and that on the south to a height of 70 feet, by engines for that purpose; the tanks into which the sewage would be pumped should be capacious enough to hold 16,000 cubic feet, or 100,000 gallons, equal to in dimensions 40 feet by 40 by 10 feet, the cost of these tanks would be—three at each depot, £4,000. Cast iron pipes should then be laid and connected with those tanks, commanding a height of 50 and 70 feet respectively—these pipes would run into the country at either side of the river; that on the north side towards the line of the Drogheda Railway; and at the point where it crosses the east wall, to continue on the banks of the line through the country. That on the south to run from the depot near Great Britain-quay towards the Grand Canal, round the docks on the west and south side, thence from Macquay's-bridge, along the banks of the canal. The advantages of using those two lines are obvious—first, the easy mode of laying the pipes, and next the height of both lines, which would command an immense tract of the surrounding country. The north side is peculiarly suited for sewage irrigation; besides the naturally low-levels, a great portion of the land, according to the ordnance survey, being only 50 feet above the level of the sea ( Ordnance datum), the land itself has an open, sandy soil, which, with the now well-known fertilizing qualities of the sewage water, as experienced in Edinburgh, makes it eminently adapted for such purposes. The country on the south side, according to the ordnance survey, has a greater range of elevation, but with the use of small farm engines, and a pressure already obtained at the depot of 70 feet head water,

it could be made subservient to the purposes of irrigation also. On a rough calculation, I find about 10,000 acres on the north side, and about 15,000 acres on the south side, could be made subject to the process of sewage irrigation; the cost of pipes for this purpose would be, for 8 miles, of 18-inch iron pipe, 4 miles on each side—£5,000, this would merely convey the sewage so far into the country. It is not to be expected that in a paper of this kind more minute details should be entered into. There is no doubt that if the citizens of Dublin and the farmers of the county properly appreciated its value, various means might be devised for securing so desirable an end—the former by getting rid of an unfailing source of injury to the public health, and the latter in obtaining an unlimited supply of nutriment for his crops.

The following is a summary of the cost of erection of steam engines, working, &c.:—

Two engines, 30-horse power each, at £60 per horse-power, which includes the erection of suitable and accessory buildings, &c. ..	£3,600
Six cast-iron tanks—three at each depot ..	4,000
Two cast-iron tunnels and street mains ..	26,000
Eight miles of sewage pipe—18 inch diameter ..	5,000
Incidental expenses .. ..	38,600
Total cost .. ..	£40,000
Interest on Loan of £40,000, at 5 per cent. .. ..	£2,000
Annual cost of working engines 2,200 ..	2,200
Other expenses, repairs, &c. .. ..	800
	5,000
Balance .. ..	95,000
	£100,000

Nett profit for one year, £95,000.

Mr. Greig concluded his paper with an appropriate extract from Dr. Cameron's "Chemistry of Agriculture."

## ART AND HISTORY.

In these days of Church Restoration, all sorts of questions are arising to the perplexity of those who have the good estate of our ancient buildings at heart. We say "days of Church Restoration," because it is most commonly with ecclesiastical buildings that the hand of the restorer is concerned; though most certainly he who has to preserve or adapt an ancient secular building to modern uses does not find his task any lighter than that of his ecclesiastical fellow-labourer. His difficulties in fact are considerably greater. First of all, secular architecture is much less understood than ecclesiastical. The world at large, with Lord Palmerston at its head, has a good deal of difficulty in understanding that there are any ancient secular buildings at all. Even professed architects and antiquaries are generally much less familiar with them than they are with churches. But, beside this, the intrinsic difficulties are greater. It is sometimes hard exactly to adapt a church which was built for one form of worship to the requirements of another, but it is still harder to adapt a house which was built for one state of society to the requirements of another. Our mode of worship has changed considerably from that of our forefathers, but it has not changed so much as our manner of daily life. These changes of course prove nothing against adopting the same style of architecture which our forefathers used, because the uses and arrangements of buildings and their style of architecture are two wholly different things. But they do throw considerable difficulties in the way of those who have to adapt either ancient churches or ancient houses to the wants of modern times. The demands of the past and the demands of the present do not clash nearly so often as superficial people fancy; but they do really clash sometimes. When they really do clash—that is, when the scrupulous retention of ancient work or ancient arrangements would cause a real practical evil—then the past must doubtless give way. But with reasonable people it seldom comes to this; a little dexterity and a little concession will generally find out a way to reconcile the two.

But, putting the question between past and present aside, difficult cases often arise as to points where modern use and convenience are not concerned either way. It may be remembered that we argued strongly, but ineffectually, against employing the Romanesque style in building any part of the fallen tower of Chichester Cathedral. This question did not in any way touch the practical uses of the present. The church could discharge its functions as a church just as well one way as the other. The question was one wholly of taste, or rather wholly of the inferences to be drawn from certain principles. The fact is that, besides the claims of the present and the past, the claims of Art and the claims of History are sometimes really at variance. And, still more commonly, claims are put in under those

respectable names which have no business at all in their company. All real lovers of ancient buildings will agree that they are not to be innovated upon simply because a modern architect thinks he can improve them, or even because he really can improve them. If it is simply wanted to produce abstract beauty, or to display the skill of the architect in producing it, the proper field for so doing is to be found in the erection of new buildings, not in the restoration of old ones. An absurd proposal appeared a little time back in the *Times* for sticking a portico, after the manner of Peterborough, against the west front of Westminster Abbey. Now, doubtless the portico of Peterborough is immeasurably grander than the west front of Westminster is, or ever was, or ever was meant to be. But it does not follow that we are therefore to attempt to turn Westminster into Peterborough. We must keep Westminster as it is, and Peterborough as it is; if either is defective in any respect, it is the fault of past ages and not of our own. If people wish to see a grand portico, they must be satisfied either to go to Peterborough to see it, or else to reproduce it in a wholly new building elsewhere. But there are much subtler questions than these, and our Chichester question was one of them. It may be remembered that, in that case, we wished to innovate; we wished to make the style of the tower and spire uniform, at the cost of making its lower portion, all that would be seen within the church, quite different from what it was before. Since then, a question has arisen at St. David's, on which we have somewhat to say which may at first sight seem inconsistent with what we said about Chichester. The presbytery or eastern limb of St. David's Cathedral has gone through several changes. It was built early in the thirteenth century; it received some repairs, after being damaged by an earthquake, later in the same century; it received further changes at the end of the fifteenth. Two thirteenth-century designs for vaulting were traced out, but neither of them was ever carried into execution. The fifteenth century gave up the idea of vaulting, added a wooden roof of its own style, at the same time raising the walls and lowering the gable. It should be observed that this was no isolated change, but part of a general reconstruction of the roofs throughout the church, which introduced the only fine specimens of roofing, both in wood and stone, which the church contains. At the same time a change was made in the windows at the east end. They were originally two ranges of lancets, but, along with the change of the gable, the upper range was changed into a single large and rather awkward perpendicular window. Here then is a good deal of history to study and preserve. It is now proposed to undo the whole of the changes of the fifteenth century, to restore the walls and gables to the original height, to restore the upper lancet windows, the design of which has been recovered, and to vault the presbytery in wood from the old vaulting-shafts, the walls being thought to be not strong enough to bear stone.

Now, what is to be thought of the proposed change? As a matter of appearance, there is no doubt as to its being an improvement. It will change a work the parts of which now are somewhat incongruous into an harmonious and very beautiful whole. And it will not be a mere conjectural innovation; it will be bringing the presbytery to the condition which its original builders intended, if they did not perfectly carry out their design. On the other hand, it is wiping out a piece of the history of the building; nay, by suggesting the distinctly false idea that the general reconstruction of the roofs did not extend to the presbytery, it is not only wiping out history, but falsifying it. Again, though a decided improvement in itself, it will put the presbytery out of harmony with the rest of the building, as seen outside. Putting aside this last argument, which may be thought to be at least balanced by the great improvement within, we have here a distinct case of the clashing of Art and History. Mere æsthetics certainly recommend the change. The answer brought is that, in dealing with an ancient building, we are not to go by mere æsthetics—that an ancient building is an ancient record, and that the proposed change will mutilate and even falsify the record. What judgment are we to give between such arguments? It seems to us that all depends on one question. What is the physical condition of the parts which it is proposed to reconstruct? Are they in such a state that the architect would think it necessary to rebuild them as a matter of safety, if there were no question about improving or bringing things back to an earlier design? If such reconstruction is not necessary, then we say, Leave the thing as it is; it comes under the general law of preservation; it would undoubtedly be easy to improve, easy to fall back on an earlier age and a better design; but our business is not to improve but to preserve; not to make the church as its original builders meant it to be, but to

keep it as its successive builders have actually made it. But if the architect can sincerely tell us that these portions are in such a state that he would, under any circumstance whatever, take them down and rebuild them, then we should bid him boldly carry out his improvements, boldly rebuild it according to the original design. Art dictates that course, and history no longer opposes it. If the work must come down, the genuine record is lost; and to build up its exact likeness would be simply to substitute a copy for the record, which would not have the value of the original. A genuine Perpendicular window, inserted in the fifteenth century, has its value; it may spoil an earlier design, but we respect it as part of the history of the building. But a modern building, made to look like Early English with Perpendicular insertions, is simply an unreal mockery. In a word, let us not rebuild or innovate in any way, from any mere notion of æsthetical improvement. But if rebuilding is needful, then it is more real and honest to rebuild so as to harmonize with the earlier, better, and more extensive portions of the building.

This is exactly the same argument as we used in the case of Chichester tower. At Chichester there could be no question as to the necessity of rebuilding, because the tower had actually fallen down. Just as in the case of St. David's presbytery, we held that the patchwork of different centuries was to be preserved if it could be preserved, but that, as it could not be preserved, it was better to replace it by a tower and spire which should be consistent and harmonious from the floor to the weather-cock. All that is wanted at St. David's is to show that the case is the same as Chichester, that is, that preservation of the work as it now stands is impossible. If it be possible, we can only say that it was a great pity to make the change, but, as it was made, it is a matter of history with which we have no business to meddle.

We speak only of the proposed works in the presbytery at St. David's, because it is there only that we know in detail what is proposed to be done. But the same rule would apply to the restoration of the four great lantern arches. At present, they are not uniform. In one of the recastings of the church, one of the original round arches was left, while the other three were rebuilt in the pointed form. This variety then is a most remarkable piece of history, but it is certainly not satisfactory to the eye. Here again let the genuine ancient work be preserved as long as any process will keep it up. But if, by any bad luck, the four arches should need being rebuilt from the ground, we should think it unreal to imitate, in modern work of one date, a peculiarity which arose wholly from the original arches having been built at different dates. History always pleads for the preservation of genuine work of any kind, as long as such preservation is possible. But when such preservation is impossible, History does not ask for the substitution of modern imitations, but leaves Art to settle the matter in her own way.

The restoration of St. David's Cathedral will, we should think, supply a good many other curious questions before it is done.—*Saturday Review*.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE second ordinary general meeting of the Royal Institute of British Architects for the session 1864-65, was held on Monday evening, 5th December, 1864.

T. L. DONALDSON, Esq., President, in the chair.

The President feelingly alluded to the recent decease of Mr. David Roberts, R.A., in whose removal, he said, art and architecture had sustained a great loss. The President then read a letter from his eminence Cardinal Wiseman, acknowledging the flattering notice made by the President, in his opening address, of his eminence's lecture on the architecture of London, delivered at the South Kensington Museum in April last. The letter was accompanied by several photographs of the excavations of the old Imperial Palace at Rome, now being undertaken under the auspices of the emperor of the French, which his eminence had forwarded for exhibition at the evening meetings of the Institute.

The paper read was "Some notice of Office Buildings in the city of London," by Mr. E. J'Anson, fellow. It was a subject, he said, ready to his hand, and if he illustrated it by works which he had himself executed, it was not from egotism, but because he had materials ready to hand. The new city office buildings were a striking feature of the metropolis, so important in extent that several companies had been formed for the erection of new offices, or the alteration of existing buildings, so as to meet the increasing demands of commerce. Mr. J'Anson referred to the rapid growth during the last few years of this class of building. Thirty years ago, he said, buildings erected especially for offices were unknown in London, and at first were let in separate suites as offices. Mr. J'Anson

then pointed out the several great centres of trade into which the city of London was divided. The warehouses of Manchester manufactories were, he said, conspicuous among others, and he mentioned several as being of an extent and magnificence which could hardly be imagined except by those who had visited them.

Mr. J'Anson then referred to some examples of office buildings (the plans of which were exhibited) in which a system of lighting from internal areas, lined with glazed white tiles had been extensively adopted. The peculiarities of construction of these and other buildings of like character having been explained in a very practical manner, the concluding portion of the paper was devoted to a consideration of the operation of the existing Building Act, in its relation to these structures, and to the state of the law as regards the obtaining proper light and air, in the course of which some remarkable anomalies on this subject were pointed out to the meeting.

A discussion followed the reading of the paper, in which the President, Mr. Kerr, Mr. Ashpitel, Mr. J. J. Cole, Mr. J. W. Papworth, and other members took part, and after a cordial vote of thanks to Mr. J'Anson for his very interesting and practical paper, the meeting adjourned till the 19th inst., when a paper will be read by Mr. A. W. Taylor, on the construction of Theatres.

#### THE RIVER LIFFEY NUISANCE.

THE following memorial has been presented to the Ballast Board, on behalf of a very large section of the public:—

"TO THE CORPORATION FOR PRESERVING AND IMPROVING THE PORT OF DUBLIN.

"MY LORD AND GENTLEMEN—We beg leave to call your attention to the collection of filth on the banks of the River Liffey, and the stench arising therefrom. This matter has been increasing for a length of time, and the corporation having extended lately the sewers, nearly all of which empty into the river, it has become a cesspool for the city at large. During the summer the effluvia was unbearable, and compelled many persons to remove their families from the neighbourhood of the quays, and made the promenade anything but inviting for persons going from the city to the Park. It must strike everyone such a state of things will depress the value of property; and it appears strange that while so many efforts are making to improve the sanitary condition of other parts of the city, that the long line of quays, which we as citizens take a just pride in, and which no stranger visits our city without inspecting, should escape the observation of the authorities charged with their care and preservation, and that no effort has as yet been made to abate or keep in check this daily increasing nuisance beyond the occasional sweeping with a few hand-brooms. We consider it is only necessary to call your attention to the matter, that you may have something done to remedy the evil.

"FRANCIS MURPHY.

"9, Usher's-quay."

REPLY.

"Ballast-office, Dublin, Nov. 19, 1864.

"SIR—I have laid before the board your letter of the 14th instant, enclosing a memorial signed by a number of inhabitants of Usher's-island, &c., calling the attention of this corporation to the effluvia arising from the bed of the river Liffey, and requesting that something be done to remedy the evil. In reply, I am directed to inform you the board regret that they have not any funds at their disposal for the purpose.

A. PROUDE, Assistant Sec.

The *Times*, May 7th, speaking of Benson's Watches in the Exhibition, says:—"Undoubtedly, however, the finest show in this respect is made by Benson, who offered prizes for designs for watch-cases at the South Kensington Museum, and who by this means has secured some of the most exquisite ornamental details for watch-cases that are shown in the building." Chronometer, duplex, lever, horizontal, repeaters, centre seconds, keyless, split seconds, and every description of watch, from the plainest to the highest quality of which the art is at present capable, and adapted to all climates. Benson's Illustrated Pamphlet on Watches (free by post for two stamps) contains a short history of watchmaking, with descriptions and prices, from 3 to 200 guineas each. It acts as a guide in the purchase of a watch, and enables those who live in Scotland, Ireland, and Wales, the Colonies, India, or any part of the world, to select a watch, and have it sent free and safe by post. J. W. Benson, prize medallist, class 33, honourable mention, class 15; 33 and 34, Ludgate hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and Clock Maker by Special Warrant of Appointment to H. R. H. the Prince of Wales.

# ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A SPECIAL general meeting of members of the Institute and others, to consider the constitution of the proposed Students' Association, in connection with the Institute, and to address a memorial to the President and Council on the subject, was held on the 2nd inst.

Present—Fellows: Messrs. E. T. Owen, J. H. Owen, Parke Neville, C. E., F. V. Clarendon, G. C. Ashlin, F. Franklin. Students: Messrs. S. P. Close, Joseph S. Connolly, Richard S. Swan, James Bermingham, jun., P. J. Byrne, R. A. Gibbons, H. Wilmot, W. Stirling. Associate: Mr. R. J. Stirling, C.E. The following gentlemen were also present: Messrs. Joseph Maguire, C. H. Brien, G. C. Henderson, Thomas Taylor, J. W. Martin, Alfred Deane, T. S. Hanrahan, E. Armstrong, George W. Cragie, Henry de Balmont, J. W. Haughton, Raffles Brown, J. E. Rogers, J. J. O'Callaghan, Samuel Stephens, Edward Kavanagh, George Parrott, Richard O'Brien Smyth, John Holmes, Thomas Holbrook, G. D. Taaffe, James Healy, J. M'Cormack, W. Williams, C. Lanauze, J. P. Davis, J. H. Bridgeford, A. G. Moran, H. H. Byrne, J. Woodhouse, A.R.H.A., W. H. Beardwood, P. J. Dodd.

On the motion of Mr. E. T. Owen (Fellow); seconded by Mr. F. V. Clarendon (Fellow) the chair was taken by Mr. J. H. OWEN (Fellow), Honorary Secretary to the Institute.

Mr. C. H. Brien read the circular convening the meeting, and stated that letters of apology had been received from Messrs. M'Curdy, Symes, Barre, and other members of the Institute, regretting their absence and approving of the objects of the meeting.

Moved by Mr. T. Drew (Fellow); and seconded by Mr. E. T. Owen (Fellow); Resolved—"That it is the opinion of this meeting that an Architectural Students' Association should be formed under the patronage of and in connection with the Royal Institute of the Architects of Ireland, constituted on a sufficiently wide basis to admit all persons desirous of studying the art of architecture, and the different sciences and pursuits in connection therewith, in such a way as will bring its advantages within the means of all persons entering the Association at the smallest possible expense."

Moved by Mr. Raffles Brown; and seconded by Mr. Joseph Maguire; Resolved—"That in the opinion of this meeting it is most desirable that no distinct and separate association should be formed, but that its best result will be an organization within the bounds of the Institute, the details of which it wishes to leave to the council of the Royal Institute."

Moved by Mr. G. C. Ashlin (Fellow); and seconded by Mr. W. Stirling (Student); Resolved—"That a respectful memorial be addressed to the Council of the Institute, setting forth the objects of the association, and the wishes of the promoters; and that pending a reply from that body the consideration of the constitution of the association be referred to another meeting."

Moved by Mr. P. Neville (Fellow) and seconded by Mr. F. Franklin (Fellow); Resolved—"That Mr. C. H. Brien be requested to act as hon. secretary to this meeting and to the future organisation."

Mr. Brien read a draft Memorial to the President and Council of the Royal Institute, which was approved by the meeting.

Moved by Mr. C. H. Brien (Hon. Sec.) and seconded by Mr. P. J. Byrne (Student); Resolved—"That the following gentlemen be requested to act as a committee of the students' organization to confer together and with the Council of the Institute as to the several details necessary to the carrying out of the project, and to report to a future meeting the result they arrive at, viz.:—Messrs. T. Drew (Fellow), E. T. Owen (Fellow), F. Franklin (Fellow), W. Stirling (Student), Raffles Brown, J. E. Rogers, and the proposer and seconder of the resolution."

Moved by Mr. T. Drew (Fellow), and seconded by Mr. Samuel P. Close (Student); Resolved—"That those persons present who are favourable to the formation of this association do hand in their names and those of their friends also desirous of joining such an association to the Hon. Secretary, such proceeding not being in any way considered as binding on them to become ultimately members of the proposed association; and that the Secretary be requested to forward the memorial now read to the Council, and that the Committee be requested to convene a general meeting at an early date after receiving the reply of the Council to take same into consideration."

On the motion of Mr. Drew, Mr. Samuel P. Close (Student) was requested to act as assistant secretary to the movement.

The following is the memorial adopted by the meeting:—

TO THE PRESIDENT AND COUNCIL OF THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The Memorial of the Students of the Institute and others assembled at a General Meeting on the 2nd December, 1864:

GENTLEMEN, In bringing under your notice an association which we are desirous of founding, under

the patronage of, and in connection with, the Institute, we are most anxious that we should not be supposed in any way to assume the initiative in a movement which properly comes within the jurisdiction of the Council and Fellows.

It has appeared to us, that while desirous of enjoying greater facilities for study and the practice of design and drawing under the auspices of the Institute, it would be unreasonable to expect that the Council and Fellows (all of them closely occupied with professional pursuits) should devote to the management of a Students' Class the time and attention which such a task would demand. We have, therefore, been induced to suggest that an association should be formed on a basis to be approved of by the Institute, which, while it was *worked*, and, in matters of detail, *managed*, by a committee of its own body, should be under the general control of the Institute.

The first point which occurs to us as essential to the success of such an association (and which we feel ourselves unable to meet without the assistance of the Institute) is the provision of a suitable place of meeting. It is unnecessary for us to refer to the difficulty of providing funds for this purpose from our own resources, a difficulty which, *alone*, would render the project incapable of realization, had we the slightest wish to form an association *independent* of the Institute, but the removal of which we believe will not be the only advantage connection with the Institute will bring to the proposed Association.

We beg to submit an outline of the objects, &c., of the proposed Association. They may be generally comprehended under the following heads, viz:—

1st. The holding of meetings (fortnightly or weekly) when students would exercise themselves in design on a given subject.

2nd. The reading of papers, *among themselves*, which young aspirants to the profession would be unwilling to submit to the more formidable tribunal of a meeting of the Institute.

3rd. The inspection and criticism of plans and designs contributed on loan, and the study of such books and drawings as may be the property of the Institute, or may be lent by individual members.

4th. The practice of modelling, carving, in wood and stone, drawing from the round or the figure, &c.

The students, and such senior members of the profession as they have consulted, agree in thinking that the Association should be established on such a *broad basis* as to admit (under certain restrictions) persons who may be disqualified under the bye-laws, for the studentship of the Institute, such as *art-students* desiring to study some branches of the profession as amateurs; *art-workmen* (to whom in particular we believe such an association would be of the greatest service) and, generally, persons connected with the different building trades, anxious to improve their artistic tastes.

We believe that the practical difficulties in working such an arrangement may be met by restricting the attendance of those who are not students of the Institute to a limited number of general meetings (to be held monthly or fortnightly, as may be agreed on) and by deciding that the students of the Institute shall be permitted to meet oftener if they so desired; and, also, that they shall possess such other privileges as may be granted to them by right of their connection with the Institute.

We would beg that we may be permitted to submit for election to the studentship of the Institute the names of persons who may have joined, or who may be desirous of joining our Association, who are found to be qualified under the bye-laws.

We would suggest that as a *matter of course* all Fellows and Associates of the Institute should be assumed to be members of the proposed Association, as to them the students must look for the greatest amount of assistance and instruction in the prosecution of their studies.

In again urging on the Council the necessity for providing a suitable room or rooms for the meetings of the Association, we wish to state, that should an extra subscription, to meet this object, be required from the students of the Institute, they are willing to meet the wishes of the Council to the extent of their ability, and to submit to their advice in this, as in all other matters, relating to the proposed association.

In conclusion, we trust that should the Council and Fellows see fit to confide to our hands the management of the details of the proposed Association, we shall be found worthy of the confidence reposed in us, and that no occasion shall arise when the Institute shall feel itself called on to withdraw any of the privileges, or advantages which may have been granted in compliance with the prayer of this Memorial.

Students of the Institute—(Signed) James Bermingham, jun., P. J. Byrne, Joseph Bell, Samuel P. Close (assistant secretary, pro tem.), Joseph S. Connolly, R. A. Gibbons, Alexander C. Macfarlane (absent in England), Francis Nolan, Henry R. Price, William Stirling (Committee), Henry Wilmot, Richard S. Swan. Other Students, &c., not Members of the Institute—(Signed) Raffles Brown (Committee), Wm. M'Guinness, Joseph Maguire, James E. Rogers (Com-

mittee), J. W. Houghton (Committee), James Healy, Henry O'Hara (authorized), James W. Martin, Richard O'Brien Smyth, Thomas Taylor, H. H. Byrne, Alfred Deane, Henry de Balmont, Mortimer H. Linklater (authorized), George Parrott, William H. Beardwood, T. S. Hanrahan, W. Williams, C. Lanauze, G. D. Taaffe, Edward Kavanagh, Edwin Armstrong, J. M'Cormack, jun., P. J. Dodd, — Russell (authorized), John P. Davis, Charles M'Cormack, — M'Bride (authorized) George C. Henderson, J. Bridgeford, W. Fry & Co. (authorized), John Holmes, architect, (authorized), J. Holbrook, architect, (authorized), W. M. Mitchell (authorized), William Turner, (authorized) George Turner (authorized), William Daniel (authorized).

CHARLES HENRY BRIEN,

Honorary Secretary, pro tem.

We, the undersigned, Fellows and Associates of the Royal Institute, desire to recommend the foregoing Memorial to the favorable consideration of the Council.

(Signed) W. J. Barre, Fellow (authorized), James Pain, Fellow (authorized), William Doolin Associate, (authorized)—F. Franklin (Fellow), E. T. Owen, Fellow (Committee), John Lanyon, Fellow, Thomas Drew, Fellow (Committee), J. Alfred Adams.

On the motion of Mr. Joseph Maguire, seconded by Mr. Neville (Fellow), Mr. G. C. Ashlin was called to the chair, and a vote of thanks passed to Mr. Owen. The meeting then adjourned.

## HURST'S ARCHITECTURAL SURVEYOR'S HANDBOOK.\*

It is fresh in the recollection of every architect and builder and building surveyor, when everyone who required such information as this little pocket-book contains, was obliged to keep a library of no mean dimensions, and to acquire what he wanted by tedious reference to different authorities, a few new ones, some moderately old ones, and a great many very old and all but useless ones. All of them ill arranged for reference, and many of them obscure, and all but impossible to comprehend. Of late years we had had, in the "Engineer's Pocket-Book" and some other publications, an attempt to meet this recognised want by presenting in a condensed form, tables, formulæ, and other information indispensable to those engaged in building or engineering works. It is no disparagement to the many excellent publications we refer to, to say that, in our opinion, this little pocket-book of Hurst's is the very best of them all without any exception. It would be useless to attempt a recapitulation of the contents, for it appears to contain almost everything that anyone connected with building could require, and, best of all, made up in a compact form for carrying in the pocket, measuring only 5in. by 3in., and about 3/4in. thick, in a limp cover.

We congratulate the author on the success of his laborious and practically-compiled little book, which has received unqualified and deserved praise from every professional person to whom we have shewn it.

## ROYAL DUBLIN SOCIETY.

The Royal Dublin Society held its usual monthly meeting on Thursday, the 1st inst.

HON. GEORGE HANDCOCK, Vice-President, in the chair.

A report from the Council respecting the proposed supplemental charter, and a report from the Committee of Natural History having been read, it was "Resolved"—That the society approves of the provisions of the proposed supplemental charter just read, and that it be referred to the Council to perfect it in detail."

On the motion that so much of the report of council as recommends a sum of £50 to be granted to the Committee of Natural History for the purpose named in the report be confirmed, an amendment was moved by Dr. E. P. Wright, that the paragraph of the report from the council recommending the sum of £50 to be allocated to the Committee of Natural History, for the purpose of having a large collection of minerals tested, named, and catalogued, be not confirmed. The amendment having been put, it was lost by eleven votes. The original motion was then put and carried.

The prize list of the Spring Show, 1865, was adopted, with the exception of the part relating to poultry, which was referred back to the Committee of Agriculture.

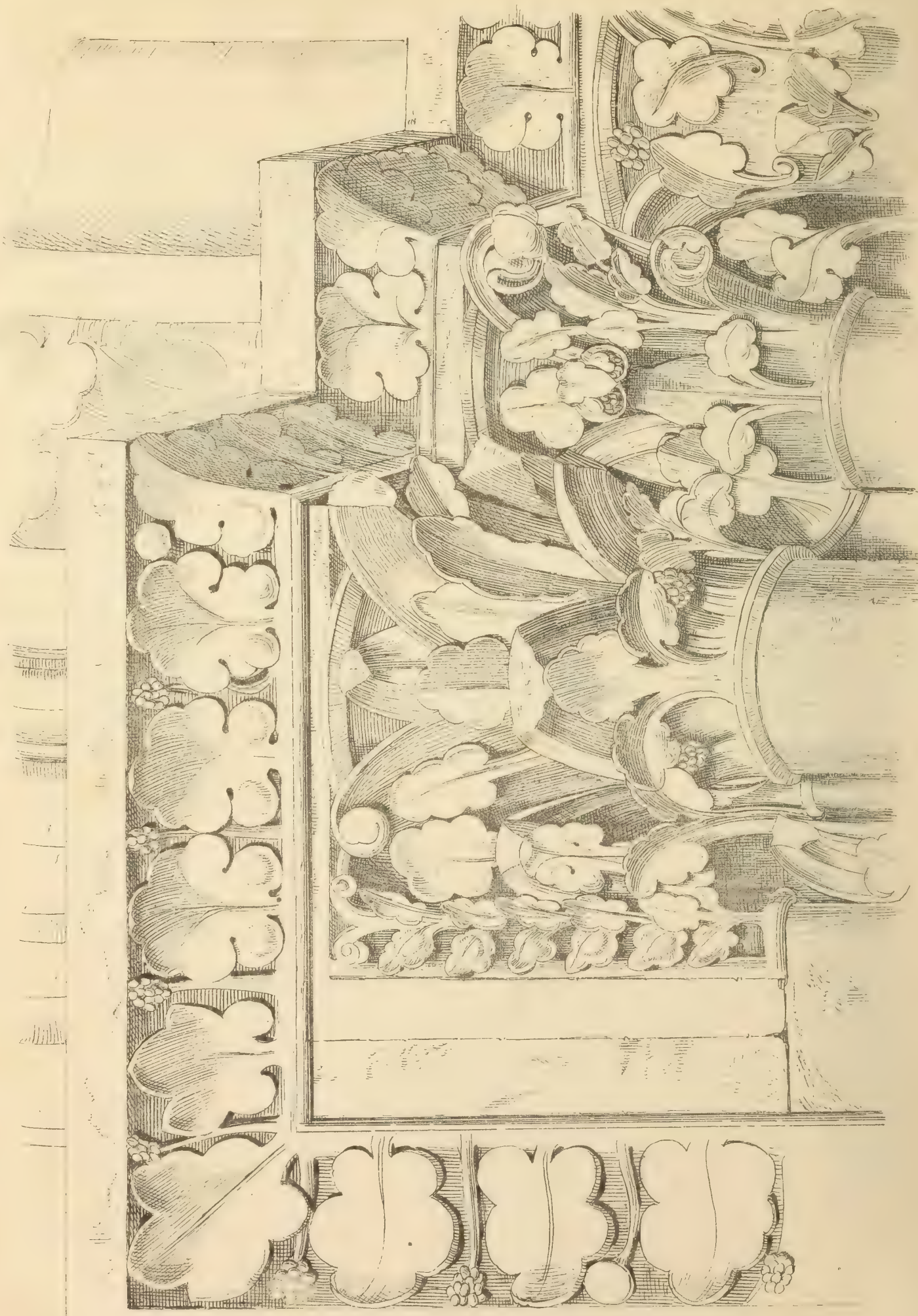
The Standing Committees were elected as follows:—

AGRICULTURE.—Richard Challoner, J.P.; P. Riall, J.P.; R. Collins, M.D., J.P.; W. Owen, J.P.; J. L. Naper, J. P. Tynte, J.P.; D. H. Sherrard, J.P.; H. Battersby, J.P.; R. C. Wade, J.P.; C. Cannon, J.P.; R. S. Fetherston H.

BOTANY.—S. Foot, J.P.; J. Toler, M.B.; B. F. Darley,

\* "A Handbook of Formulæ, Tables, and Memoranda for Architectural Surveyors, and others engaged in Building." London: E. and F. N. Spon. 1865.

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M.B.; W. Thornhill, M.D.; J. Eustace, jun., M.D.; D. T. Maunsell, M.B.; W. Frazer, M.D.; E. P. Brennan; Sir Robt. Shaw, Bart.; R. Wybrants; H. R. Ricci, M.D.

CHEMISTRY.—R. S. Ireland, M.D.; W. Madden, M.D.; J. Nalty, M.D.; R. Mulock, M.D.; E. D. Mapother, M.D.; G. B. Owen, M.D.; A. Mitchell, M.D.; H. J. Sibthorpe, M.D.; R. Macnamara, M.D.; H. P. Nolan, M.D.; C. O'Kelly, M.D.

FINE ARTS.—R. T. Macgarry, M.D.; Lt.-Col. Adamson; Capt. H. Shaw; E. Wright, LL.D.; E. W. Seymour; Wm. McKay, LL.D.; F. R. Davies; E. LeClerc, M.D.; J. West; T. N. Deane; H. E. Chatterton, Q.C.

LIBRARY.—H. D. Hutton; R. Griffin; Rev. Wm. Urwick, D.D.; Rev. B. Dickson, D.D.; F.T.C.D.; J. Barker, M.B.; F. J. Sidney, LL.D.; J. K. Ingram, LL.D.; F.T.C.D.; Ed. P. Wright, M.D.; J. R. Garstin, A.M.; R. Dowse, Q.C.; John Anster, LL.D.

MANUFACTURES.—W. Lindsey, J.P.; J. W. Mackey, J.P.; J. Sayers, M.D.; E. Purdon; W. Robinson, A.M.; A. H. Bagot; G. Deane; J. B. Greene; W. L. Joynt; J. A. Walker; W. Graham.

NATURAL HISTORY.—R. Callwell; W. Andrews; G. Dixon; A. A. Dunlop; J. Good; S. Gordon, M.D.; R. S. Reeves; Viscount Powerscourt; J. G. Rathborne, J.P.; P. Ewan, M.D.; J. B. Doyle.

NATURAL PHILOSOPHY.—J. Louch; J. K. Edwards; R. E. Donovan; J. R. Greer; J. Maguire, C.E.; D. Galbraith; J. Giloway, jun.; T. Byrne, M.B.; T. M. Archer; W. E. Bolton; J. R. Carroll.

### DWELLINGS FOR THE LABOURING CLASSES.

THE weekly publication of the sanitary returns by the Registrar-General is already, we (*Express*) would fain hope, effecting some practical advantage in reminding the public, who are too prone to forget, that there exist in this city terrible evils which imperil the public health. Amongst the most alarming are the habitations of the working classes. The houses of our artisans are mere hiding places for their degradation. Pure air and cleanliness are the exceptions to the rule. In four-fifths of the habitations a decent separation of the sexes is disregarded, because impracticable. And yet, the rents paid for these dens are such as would entitle the tenants to better accommodation. We have frequently suggested that a company might be advantageously established to supply a better class of residences for the working men, and we are glad to learn that measures have at length been taken to carry out this useful object. We understand that a company is in course of formation to supply this urgent want. The benefit to be derived from the establishment of sets of model dwellings for families would work an amount of sanitary reform impossible to calculate. They would serve as ventilators to the slums surrounding them. The model dwellings in London are built upon sites formerly enjoying a fearful celebrity for disease, and have effectually banished all traces of the epidemics by which they were haunted. The same principle holds good in this city. If the old houses, soaked as they are with blood poison, were but thinned so as to allow a volume of fresh air to gain admittance, and if the remaining buildings were fitted up on general sanitary principles, there can be no question but that an amount of sorrow and sickness would be averted such as would exceed the expectations of the most sanguine. Why should Dublin remain any longer without a society which is now regarded as a necessity in almost every city and town in England and Scotland? Why should the working men in Dublin be left to wallow in filth and disease when within the hands of a few there are means which, if properly used, would tend to elevate them morally, socially and physically? Reason suggests, and expediency demands that instant measures be taken. If cholera or some equally to be dreaded epidemic were to cast its dark shadow over this city, the masses would be decimated, since disease is already lurking in their homes, ready to break forth with devastating power.

[We understand that plans are being prepared by Mr. Charles Geoghegan, of Great Brunswick-street, architect, for remodelling, on sanitary principles, some of the dilapidated houses which are at present a disgrace to our city, and converting them into suitable workmen's dwellings. In the hands of a company, properly managed, the speculation would be sure to produce a handsome return, and get rid of a class of men known as "house-jobbers."]

WE have had much pleasure on several occasions of noticing in this journal the rapid improvement in business premises in our city. Being anxious to know something as to how the wholesale woollen, silk, shawl, hosiery, and haberdashery trade is carried on, we recently visited the premises 15, Merchants' Quay, through the various departments of which we were courteously conducted by a member of the firm. Passing through a spacious hall, we enter the lofty and neatly fitted up counting-house; beyond this, on each side of passage to the lower wareroom, are two private offices, both suitably fitted up. The other warerooms are comprised in two quadrangles of three storeys each, laid out for the exposition of the infinite variety of clothing goods required by all classes of the community. Here we were shown the manufactures of Manchester, Leeds, Paisley, Glasgow, &c., but we were

especially glad to find also a remarkably good display of our native manufactures, in many of which we remarked steady progress in the march of competition with those of the sister country. It is not necessary for us to go through the several departments,—our readers will comprehend what is usually embraced in such an establishment as we refer to. One peculiar feature we should not omit to notice, and which we recommend as a useful hint to all persons engaged in business of this or a similar character—the comfortably appointed apartment and retiring room for the use of ladies, who may be occasional visitors to this attractive establishment. The goods inwards are conveyed through a wide gateway adjoining the front entrance, from whence they are hoisted to the receiving-room on the third storey. On two sides of a spacious yard are the packing and entering-rooms, both admirably fitted up. There are also large store-rooms for reserve stock of heavy goods. These extensive premises were, we understand, formerly occupied by Messrs. Linden, Bolton and Co. The present owners have, in consequence of their increasing business, so enlarged and remodelled them as to render them most perfect in every way for their purpose.

### INSTITUTION OF CIVIL ENGINEERS.

THE first monthly meeting of this body for the season was held on yesterday evening, in the Museum Building, Trinity College.

Professor DOWNING in the chair.

An interesting paper on "The Wave Line" was read by Mr. Webb, member, and a lengthened discussion as to some new theories started by Mr. Scott Russell, took place.

Three new members were declared duly elected, and the Institute adjourned until the second Wednesday in January.

### GOSSIP FROM ROME.

"It is the most beautiful work of Art in Rome," says Gibson; "it made me melancholy the whole of the day after I had seen it, to think that, after the labour of a life, I had made such slight approaches to the perfection of the master hand which had executed that work." You have already received so admirable a description of the marvellous statue of Hercules that I shall not trouble you with details, but confine myself to such gleanings of interest as present themselves to me. Saturday was said to be the last day on which it would be open to public inspection until his Holiness has seen it; so taking my ticket—given gratuitously, by-the-by—I went down, with a host of worshippers, to the shrine. The statue lies on its back, on a kind of raised platform, in a room of the Palazzo Righetti, and a temporary gallery has been erected, to which visitors mount in order to have a better view. Like a colossal golden image it appears; for now that the incrustations of time have been removed, the gilt surface, which is perfect, flashes on the eye, and indicates, by the expense which was lavished upon it, in how high appreciation this statue was held even in that age of Giants. Grand in its proportions, it is exquisitely delicate in its details; the nails of the foot, the hair, the slight beard or whisker on the face are as fine as fancywork, whilst the muscles stand out with all the assertion of manly strength. The pupils are hollow, and, perhaps, says Gibson, they were originally filled with another material. On the surface Time, by its cunning, had formed pieces of malachite, which have been much sought after, and one morsel was secured, to be set, as I have heard, as a breast-pin, for the Emperor of Russia. Fortunate I consider myself to have secured one precious bit, which sparkles with the gold which is moulded into it. Where this grand work will be placed is, as yet, undecided, but report says that it is destined for the centre of the Belvedere Court, round which the best remains of Greek Art will be arranged, and the court, it is added, will be covered over with plate glass.

His Holiness has shown a high appreciation of the value of this treasure, and, by his order, the Academy of St. Luke has been down to examine its merits, and determine the injuries which it has received. The Government sent carriages for the members, as though they were summoned for a solemn ceremony; and the decision unanimously arrived at was that the statue was of the highest Greek Art, and was probably executed at or about the time of Phidias. The report naturally awakened a desire of possession, and his Holiness requested that the commission would hold another session to assign some probable value to the work. At this meeting it was explained that it was desired to arrive at some price, so as to place it within the power of a poor government to purchase it; and a committee of six sculptors was appointed, one of whom was our countryman, Gibson, to settle the point. Gold, says Gibson, could not cover its real artistic value, but it was another question which

was proposed; so, retiring to a private room, after a long consultation, they fixed the market value at £7,500. The materials alone, I have heard it said, are worth 12,000 scudi. Those calculations were made on the supposition that the Government would become the purchaser; but, last week, Signor Righetti presented this magnificent statue to his Holiness. Many say that Righetti was indebted to the government for a considerable amount, and that, by some arrangement, the statue was given in liquidation of the debt. I take for granted, however, that this is a misrepresentation.

In the court-yard of the Palazzo Righetti, the work of excavation is still going forward, and with good results. On Friday, some beautiful Corinthian capitals were discovered in a perfect state, and they are especially interesting as determining the style of architecture adopted in the Temple of Venus Victrix, which was erected by Pompey close to this theatre. Before his time, theatres were not allowed within the walls of Rome; in order, therefore, to reconcile the prejudices of the religious world to so sacrilegious an innovation, the Temple to Venus was built, and, divine service being over, the worshippers were caught by the magic of the theatre. This is not the only age in which indulgences were purchased for what were felt to be sins. Standing on the edge of the deep pit or quarry, in which once lay the Hercules, one looks down on the basements of the columns of the Temple of Venus, and recognizes the descent into the Theatre of Pompey, the first that was built of stone. The entire area of the court is to be excavated, as also the garden beyond, and when the theatre has been laid open, a roof is to be thrown over it on arches, some of which are already in the course of erection, and spectators will descend into it as of old, finding it, however, so far changed that it will be lighted with gas. The enterprise is magnificent, and every one must hope that the spirited proprietor will find such treasures of Art as will recompense him for his labours. Before leaving the Hercules, I may say that some persons here, who have every right to consideration, declare that the statue of Hercules is of the Gladiatorial age, about the time of Commodus, and is, therefore, Roman, though it may have been executed by a Greek. The nose is Roman, they say, and the finish has not the delicacy of the Greek. A gentleman, whose name is known throughout the world for his beautiful artistic productions, this morning pronounced the same opinion to me. "Where angels fear to tread," I forbear from expressing an opinion, and content myself with giving those of others. It appears that, in removing the oxydized copper, a hole was made in the left side, which was filled up in an interval of a month, when the public were excluded. It is supposed to be a secret, but my authority is good for asserting the fact.

The season has brought forth some well-executed bronze models of another remarkable statue, that of Augustus, which was, as you will remember, discovered about a year since. It lay in such a manner that parts of it occupied the land of three several proprietors. The wealthier of them has therefore purchased the portions of the other two, and has made another splendid donation to the Pope, on the subject of which donation I have heard no doubt expressed.—H., in *Athenaeum*.

The *Builder*, April 13, 1861, speaking of Benson's Argentine, says, "Under a short trial, it has certainly improved rather than fallen off in appearance." This splendid material is a compound of various metals, with a heavy deposit of pure silver, forming one hard compact body, possessing all the beauty, richness of colour, and durability of silver, at a fraction of its cost. When the argentine and the real silver are placed side by side, the most skilful judge cannot distinguish between them, while its durability is so great that after many years' wear its appearance remains unaltered. During the last seventeen years it has been so well received by the public, that its manufacture has been extended to all those articles usually made in silver, viz., spoons, forks, dinner, tea and coffee services, waiters, bread and cake baskets, candelabra, dishes of all kinds, epergnes, claret jugs, &c. A sample spoon will be sent post free to any part of the United Kingdom on receipt of 30 stamps, and an illustrated catalogue, containing 300 engravings, and full price-list of the various manufactures, both in argentine and solid silver, will be sent to any address on receipt of six stamps. A prize medal was awarded to J. W. Benson for excellence of manufacture, argentine and electro plate. Post-office orders and cheques should be made payable to James W. Benson. Branch establishment, 63, Cornhill. All communications should be addressed to the principal establishment, 33 and 34, Ludgate-hill, London. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

## ÆSTHETICS OF ART.\*

Concluded from page 247.

BUT to return, I have spoken of the subject before us as a natural science, and, if it be such, any classification of its elements must be natural, i.e., based on the generic character of their obvious qualities. Following this rule we may divide works of art generally into three classes—the colossal, the constructionally ornamented, and the constructionally ornamental. Of these, the first, which I have ventured to term the colossal, may be said to include all works of art which are remarkable for the immensity of their mass in relation to the actual requirements of their subjects. For example, I assume the figure of a man to be colossal only when its dimensions are such as to preserve the idea of supernatural proportion, from the point of view which the spectator should properly occupy, the intention of the artist being to impress the beholder by the quality of size; a method which (as we have seen) is derived from the simplest of nature's own formulae, significant of supremacy, and calculated to awaken awe in the mind of an observer.

Now it is remarkable that the works which may be strictly termed colossal are nearly all referable to an age in which might, rather than reason, governed the usages of society; and, whilst (as must necessarily be the case with every natural classification) this order of works will be found to merge gradually into the next, its own properties are sufficiently characteristic to suggest the most important inferences. And during the time that colossal proportions were mainly relied upon for the production of a subduing effect on the mind of man, we find a peculiarity in the method of colouring which may be deemed analogous and probably traceable to the same or a similar intention. The colours used were mainly primary, and the principle on which they were brought into relation rather one of contrast than conformity; and in exact accordance with this method was the practice of introducing long bands and bars or breadths of colouring, in situations which, on the theory of imitation, would be totally inexplicable. Not so, however, when we regard them as part of a scheme for the production of powerful effects on the imaginations of the beholder by the key note of contrast. The war Indian paints a bar of fiery red across the natural lines of his countenance, to make himself strikingly terrible, and the modern painter throws on his masses of bright colouring, to give life to his composition, though the necessities of the subject may not require them. Immensity of size and contrast of colouring are then found associated in the simplest, and, perhaps, the earliest formula of the language of art for a communication or awakening of the idea of powerfulness. Subsequent refinements have modified the crudity of the original formula. The immensity, which in an early stage of development was measured in relation to the spectator himself, has since become obtainable by comparison with surrounding objects, and the introduction of new methods of decoration has had its effect upon the older methods of colouring; and yet, if I mistake not, the essential principles of these methods and formula are unchanged by their improvements. And the modern artist is as much dependent on size or breadth of treatment in the matter of construction, and on contrast in that of colouring for the expression of powerfulness, as was the art-worker of a day which had less complicated appliances at his command. The constructionally ornamented includes all those works of art in which the principle of ornamentation appears to be the decorations of a work in strict conformity with the method of its construction. For example, a building of this kind of art appears to be adorned after its erection, the lines of its formation being made the basis of its ornament. To import the principle of decoration for mere effect, by means of colour or otherwise into a work of this class, would be little less than sacrilege. Whatever form the ornamentation may take, it must be adapted to the construction, and to the unskilled observer it may even appear to have been put on subsequent to the erection. The principal works of this class are found grouped in an epoch of art history which is contemporary with the rise of the arts and sciences. The reign of might was not extinct, nor, indeed, was it decidedly languishing; but men were working vigorously for their intellectual development, and it exactly accords with the principles of such a period that the method of ornament should be in advance of that of construction. The idea of refining or improving the existing state of things, indeed, seems to have possessed the minds of the art workers of this time almost morbidly, for in the mania of reform the works of nature herself suffered a share of their enthusiasm. A rigid standard of human proportion, an approved configuration of face and form, and an ideal expression of countenance, were held up, not, indeed, for the imitation of nature, but for the correction of those who presumed to study her works. Men began to think less of processes than results, and, ignoring

the intentions of the great mistress of art, they presumed to criticise her achievements. Hence have we the specific moulds and idealisms of the age, which was no less transitional in its character because we now refer to it as the classic. But the distinctive qualities of the constructionally ornamented will be more apparent when we regard it in comparison with that which I have ventured to term the constructionally ornamental. The works of the class to which I have previously referred bore ornaments rather than constituted them, whereas those of that to which I now pass are essentially ornamental in their construction. In the works of the colossal and constructionally ornamented the element of form is remarkable for its simplicity; straight lines and right angles predominate, and, with scarcely an exception, the curves employed by the designer are segments of a simple circle.

In the third class, however, this rule is departed from. The actual construction of a work of art is now governed by the more matured taste of a higher intellect. Curves, which were derived from the ellipsis and the parabola, are now employed for the purpose of construction and the range of natural objects rendered subservient to the purpose of ornament is greatly extended. Yet one singular anomaly obtains in relation to this class of art works, whereas from the peculiarity of their construction and the employment of more subtle curves and refined angles they would appear to be essentially an advanced stage of art development. It is difficult to detect a corresponding advance in the method of ornamentation. Indeed, it would almost seem that the constructional department, having incorporated the principles of ornamentation in its system, had fallen back upon the constructive elements of the lower class of art work for the principles of its own advancement. I am aware that in this opinion I am at variance with some authorities, and better knowledge might change my judgment. As at present informed, I confess it does appear to me that, excluding the actual imitation of natural objects, the foundation of the Gothic ornament is the simplicity of curve and angle which had hitherto constituted the formula of classical construction. Time will not allow me to dwell on this subject, but, in passing, I may instance the simple quatrefoil and its subsidiary figurations. The same remark applies to colour. The advance of art would appear to have destroyed the relation between decoration and construction which the constructionally ornamented had established, and colour came again to be employed for its own sake, and with respect to those principles of effect dependent on contrast rather than conformity, which were allied to an earlier stage of art development. The question of course suggests itself—Was that relation founded on truth or fallacy? I confess myself incompetent to answer the query, and I must ask you to remember that the remarks I am now making are simply suggestive.

A classification such as that I have just now attempted is necessary to facilitate the search for the primary elements of the art language; and if I mistake not, these will be found grouping all the natural properties of every object under the qualities of size, form and colour.

The order in which these qualities of any substance (whether natural or artificial in its origin) affect the beholder, will be found dependent upon certain conditions which obtain in result of their mutual relations. For example, if an object present colour in sufficient mass, probably the passer by becomes an observer, chiefly because the colour has attracted his attention, and form is a secondary subject of consideration. But if the same colour existed in different ratio to size he would not be so impressed, and size might arrest his eye. Or, again, if the form were itself striking, by reason of its unusual character, this would, doubtless, be the first note struck in his hearing, and colour and size would subsequently mingle in the harmony or discord. If, however, we come to estimate the relative value of the three properties of an object—its size, form, and colour, and try them by the rule of general influences, I think we shall be at once led to give the precedence to colour, and as corroborative proof of the justice of this estimate is the importance attached to it by the simplest and most ancient of art workers. The actual size of any object is unknown to the mere beholder, the estimate he forms of it being determined by the sense of its magnitude originating in the consciousness of his own superiority or insignificance; or it is derived from the judgment formed on comparison with surrounding objects; and the same condition obtains in relation to form and colour: the apparent is not the real, and may or may not resemble it. Theoretically, art recognises and embodies these principles in her practice, though, unfortunately, they are too commonly found wanting even in her best achievements, and, if I may be allowed in passing to assign a reason for this deficiency, I believe it is mainly traceable to a confusion of thought and intention very much dependent on the use of loose phraseology in our schools, and the substitution of general and often meaningless terms of

criticism, in the studio and before the world, for particular and definite explanations of the principles of our art work.

But the circumstance that nothing actually appears to the eye in its real character is not only due to the fact that the properties of size, form, and colour are essentially relative, but æsthetically considered their significance is dependent on the development of mind in the observer. To take a familiar illustration: the number of notes on the keyboard of a musical instrument must determine whether or not you can play a particular piece of music upon it. And so it is with art (as we saw when speaking of the æsthetic condition itself); the effect is dependent not only on the work of art, but on the man who observes it; and, although at first sight this may appear to complicate the subject, in fact it will be found to simplify it. And recognising the great degree in which the mind of an observer is concerned in the production of æsthetic effect, it will be possible for us to form a practical estimate of the qualities we are considering.

Thus, examining the property of size, and remembering that we regard the apparent only, a very little reflection will enable us to see that an observer will be impressed with it in one of three ways:—1st, he will be awed by immensity; 2nd, satisfied by a sense of suitability; or 3rd, to use a familiar expression disappointed. The second of these alone properly issues in the beautiful. For example, a man is placed before a colossal statue. He is awed by the immensity, and when we come to analyse the effect on his mind it is found to differ little, if at all, from the emotion of fear originating in an impression of dreadfulness. In all ages, and under all circumstances, the effect is of this nature, though remarkably variable in degree. Now it is evident that, if he comes to appreciate beauty in the object which so impressed him, it must be in virtue of an after act of his mind. Familiarity weakening the primary effect, a more mature judgment may be formed; but this is not immediately resultant from the first blush of appearances. In like manner, if a man be shown some work on a remarkably small scale, the first impression, however transient, is disappointment, or its commutable emotion, a kind of pitying surprise; and it is only after the subsidence of this effect, that he begins to examine and appreciate the beauty of the object, which had nothing important enough in the property of size to awe or satisfy him. When, however, the same man beholds an object which neither unduly awes nor disappoints him, he proceeds from the first moment to appreciate and analyse the loveliness which, in spite, or even in virtue, of its powerfulness or insignificance, it presents to him. So, likewise, in regard to form, the impressions of an object, in which neither size nor colour are the keynotes, will be dependent upon the nature of the lines and curves containing it. If lines are extensive, the quality of form merges in that of size; and, inasmuch as none of the apparent qualities of any object are real, but relative, the same remark is applicable to the curve or angle. The point of sight, however, operates so powerfully on the apparent form of the material before the observer, that it is impossible to derive the æsthetic value of either from a geometrical analysis of its construction; but, for the purpose of our first inquiry, it will suffice to remember that the more simple the curve, or, in other words, the nearer it approaches to the segment of a circle, and the closer the angle approximates to the right, the greater will be the effect of the object contained within it, and the more prominent will be the idea of size produced on the mind of the spectator, and this effect corresponds to the all-producing power of mass. On the other hand, the more acute the angles, and the more complicated the curves of a form, the weaker its primary effect on visual perception, and the more the latter resembles the disappointing influence of diminutive size; whilst the intermediate condition (or that in which the form of an object so completely fulfils the expectancy of a preconceived idea in the mind of a spectator that he is enabled at once to appreciate its secondary qualities) is analogous to the satisfactory or suitable in relation to the mass. Of course it is quite possible that size may so co-operate with form that the effect of both shall be modified. In this way, a defective form may be less unseemly on one scale than others, and the converse; and it will be obvious that the fallacy resultant from this circumstance may tell for or against a design, deceiving its author as he traces it on the paper before him, or misleading the observer when executed. Again, as to colour, sufficient breadth of treatment, and simplicity, the use of primary colours, as red, blue, and yellow, will have the æsthetic effect of impressing the observer with an idea of grandeur and nobility, whilst a too elaborate or secondary colouring will necessarily prove weak, however beautiful may be the subsidiary elements of the work; and that perfect harmony which satisfies the observer will alone awake within him the sense of beauty as an immediate impression.

The significance of peculiar masses, the power of certain lines and angles, and the quality of colours,

\* By J. Mortimer Granville. Read before the Bristol Society of Architects, Nov. 2nd, 1864.

with the relation in which each stands to the others and to the æsthetic effect of acoustic and other influences, arise out of the principles involved in the circumstances to which we have alluded.

From considerations such as these, it is that we must derive the elementary forms of the art language. Time will not permit us to pursue the inquiry beyond the very superficial glance already bestowed upon the three qualities of size, form, and colour; but in these we at once recognise initial characters of the alphabet, and in the secondary forms arising out of their several degrees of development, and the combinations and interchanges of significance which are possible between them, we cannot fail to discover other letters or formula.

But we must pass on to inquire more particularly how the elements thus elicited are to be employed by the designer? And here I must recur to the second proposition of my theory, namely, that the forms or symbols of the art language are so constituted that they will combine amongst themselves in definite formula, and in these only.

To illustrate my meaning let me suppose the case of an architect designing some work by which it is required to awaken a state of feeling which might be described as reverential admiration. Let the work be, for instance, a cathedral. Now imagine that, either from want of knowledge, or an accidental bias of mind, the art worker so engaged commenced his task by the constructional design of a building of sufficient capacity, and suitable form, and then proceeded to concentrate his strength upon the refinement and decoration of his work. All his lines are accurate, his ornamentation correct, his style beautiful, and his whole task well done, except that he did not attach sufficient importance to the primary significances of size and form in combination. The result is infallibly a failure. The artist may not be aware of it, because, his mind being engaged with the beautiful, he is less rigorous in his requirements of the awe-producing size and the impressive form. But when a committee of non-professional people come to look upon his drawings, or the public gaze at his buildings they are dissatisfied. Not being awed they ignore the beauty, or are unsatisfied in their quest of it. In short, the difficulties of art composition are identical with those of the single department of music. Not the talent of the greatest musician the world ever saw could produce harmony, or carry out a definite intention, unless the principles of combination governing the several elementary notes were rigidly adhered to. And to recur to a remark I made just now—the compass of the instrument on which the composition is to be executed has something to do with the result.

The same work of art will impress minds of different orders very variously. Some persons from habitude of thought and feeling are never attracted by the *solely beautiful*. But it is no less true that these persons have the perceptive sense necessary to its appreciation. And here my illustration (the instrument of small compass) fails. There are no instruments of small compass in the world of mind. All have the higher and lower notes; but mind is extensible, and the manner in which it comes to evidence extended compass is by the growth or development of the intermediate notes on the keyboard. And the practical value of that circumstance is this: if you seek to awaken a particular chord in the middle of a man's mind, you must first strike a higher treble or a lower bass chord, for the keynote of his harmony. The music of the soul can be called forth from the depth of consciousness in a savage or a money-grubber (perhaps the more insensible of the two), but the course of procedure must be variable, and, if I mistake not, the principles we have been considering will determine it. But the field we are traversing is so extensive that one is checked at every step by the danger of being carried off to a point from which return will be impossible; and I must confess myself unable to bring before you that comprehensive view of the subject which only can render it worthy of your attention. And yet I may take leave to remark that I believe the great necessity of art in the present day is scientific inquiry. For want of it men set about their work with little appreciation of the difficulties to be encountered, the obstacles to be overcome, and the ends to be attained by them. A general desire to please, or a devoted allegiance to some particular style, is all that represents in art those well-ordered processes and preconceived purposes which guide the experimenter in the science of chemistry. And yet art is a natural system. Nature is not only the example, but the governor, of its practice; and the laws which are embodied in her achievements are no less the constituents of a natural system than are the powers and affinities she has provided for the direction of the chemist. They must both be sought in the same way, and realised as rigorously in the daily exercise of their respective philosophies. The laws which govern the designer are no less inviolable than are those which determine the practice of a Liebig or Faraday, whether the task be analytical or synthetical research amidst the mysteries which surround him.

The purpose I have had in view on the present occasion has been to claim for æsthetics the character of a natural science, and to assert for it the prerogative of governance in relation to every work of the true artist, whether architecture—properly so called,—sculpture, or painting be his speciality, for the æsthetics of all are identical. The limits of time at my disposal have not, indeed, been sufficient for the statement of my theory and the exposition of its elements, but I regret this the less, because, as regards the latter portion of the task at least, what I should have imperfectly attempted is already accomplished in the works on your bookshelves. The want of art literature in the present day is not so much new information as more orderly treatment of that we have already attained, a better development of *natural laws*, a less conventional appeal to the customs of art work as infallible, and a more patient and generalising research amidst the significances of all that is significant and the powerfulness of all that is powerful, a more complete separation of the idea of portraiture from that of suggestive symbolism, and the assignment to each of its proper sphere in the art field; the recognition of definite natural formula, definite principles of combination, and definite æsthetic effects, is inseparably attached to the processes by which they are produced; the studious scrutiny, not only of nature's works, but her methods and mannerisms; and the embodiment of all the information we obtain in the practice of an art which shall be no mere mimicry of the myriad objects in her realm of power and loveliness, but as it were an extension of her own creation in the lesser but vastly important domain which has been conceded to the handicraft of her disciples. A high, nay, even a God-like, because a God-following, task to work out a world of mysteries in the path which the Creator of all things has provided for the progressive development of the being—man—who was created in His image. If it be a truth that the recognition of great significance, and the discovery of lofty motive in an enterprise, afford the strongest incentive to its accomplishment, let us admit that æsthetics in relation to art constitute a natural science, and that, as such, the laws which govern it are promulgated from the same Oracle that gave forth the physiological principles of our own existence.

#### LOUGH NEAGH DRAINAGE DISTRICT.

A MEETING of the Trustees of the Lough Neagh Drainage District (which comprises portions of the Counties of Antrim, Armagh, Down, Londonderry, and Tyrone) was held in the Imperial Hotel, Belfast, on Friday, the 25th ult.

The Rt. Hon. Lord LURGAN, in the chair.

Mr. W. J. O'Neill, Engineer of the district, was in attendance.

The secretary gave the following particulars as to rainfall for the years ending 31st of October, 1863 and 1864:—

	1863.	1864.
At Dublin ..	23.02 in.	23.157 in.
At Belfast ..	38.389 ..	31.121 ..
At Armagh ..	37.151 ..	31.139 ..

Highest and lowest water-levels at Toome Bar in each of the twelve months ending October 31, 1864:—

	Highest.	Lowest.
Nov., 1863 ..	10ft. 5in.	9ft. 7in.
December ..	10 3	9 6
January, 1864 ..	9 7	8 9
February ..	9 0	8 5
March ..	9 6	8 5
April ..	9 4	8 5
May ..	8 6	7 9
June ..	8 8	8 5
July ..	7 11	7 7
August ..	7 7	7 4
September ..	7 11	7 5
October ..	8 6	7 7

The following are extracts from the engineer's report:—

"Of the works ordered to be executed last spring, the Tall and Torrent rivers have been satisfactorily completed; the New Callan is about half finished; the Callan embankments have not been commenced, and the general or light contracts have been completed, except a few which are in progress. The works executed on the Tall will evidently be of permanent advantage in diminishing the cost of maintenance. Several barriers have been removed from its bed, and the shape of the channel much improved. The new Callan works are being carried out under a system of hand-dredging, which has met my anticipations in reducing their cost even below the estimate of last year. The expense of unwatering is under certain conditions avoided, and the lifting force of the water made available for assisting to raise the dredgings to its surface. There remains of the New Callan, beyond the existing contract, 1,056 perches to be excavated from two to three feet deep, of which I had hoped the provisions of the present estimate would have reached to the mouth of the Tall, or over 630 perches; but in order to keep the expenditure within the limits of

the present scale of taxation, I have been obliged to reduce the length to 300 perches, and to propose dealing with the remaining 330 in reference to the removal of weeds and bad shoals only. Of the works generally, it will be necessary to provide for thoroughly paring or improving the shape of a considerable number; in other respects these contracts can be so modified as to incur little or no increased expenditure. It will be necessary also to proceed with the excavation of the Torrent River up to Clement's Lock on the Coalisland Canal; the Ballybay River to Corkrain Bridge; and the old channel of same from Castle-street to the Bann at Portadown; also, portions of the Portmore Main Drain, Closet River, some tributaries to the Ballymartrill River, Ballycullen Drain, Ballyscullion and Drumemagh Streams, the Loughbeg Weir Cuts, and to excavate and stake the slopes of part of a small stream, near Portlengone, in the townland of Tyane. Several occupation bridges require to be repaired, and others renewed, some of which it will be desirable to effect in masonry, in order to avoid the expense of maintaining timber crossings, from which, in some cases, planks have been stolen. It will be desirable, in point of economy, to repair an old sluice on the Callan, at the mouth of the Ballygasey stream, instead of repairing the embankments above it. It does not appear to have been recognised by the Commissioners of Public Works. The masonry is becoming a ruin, but the repairs provided herein will render it secure and efficient. The county road bridge applied for over the Tunny Cut, in consequence of the then existing one obstructing the drainage, is in course of construction, if not already completed."

#### THE ALBERT EDWARD BRIDGE OVER THE SEVERN.

ONE of the most remarkable of those great engineering works that attend the construction of railways throughout this country is the new Albert Edward Bridge over the Severn on the Coalbrookdale Railway. It is, we believe, the largest cast-iron arch carrying a double line of railway that has yet been erected anywhere in the world, the span being 200 ft., with a rise of one tenth, and the height 60 ft., at the centre. A similar arch, from the designs of the same engineer, Mr. Fowler, was recently erected to carry the Severn Valley Railway over the same river lower down, and is known as "the great bridge at Arley," but as yet only one line of rails has been laid over it, and in height, as well as in its ornamental features, the Albert Edward bridge of the Coalbrookdale line has the advantage. Being situated, too, in a commanding position, with a magnificent landscape in the background, it will be sure to attract much of the attention of all travellers and visitors to the neighbourhood. This bridge is designed to connect most of the Great Western system of railways with an important portion of that system at Coalbrookdale, being close to the Buildwas Junction of the Wenlock and Severn Valley Railways, whence, by works of considerable magnitude, the joint line, known as the Coalbrookdale Railway, which traverses that picturesque valley, is carried to its junction with the Wellington and Shifnal branches at Lightmoor. The Albert Edward Bridge is composed of four cast-iron ribs, of an average depth of 4 ft., and of a width of 15 ft. in., stiffened and connected with struts and ties of cast and wrought iron. These, at the springings of the arch, rest in hollow shoes, which are sunk into large blocks of Derby stone, and are bolted downwards through the masonry; thus forming an immovable abutment, on which the stability of the structure mainly depends, whilst, at the same time, the arch is free to rise and fall under the effect of change of temperature or load. When recently tested by the government inspector, Captain Tyler, the deflection under a load of 400 tons was only half an inch; and on the removal of the weight the bridge resumed its original level. After long and repeated experiments with severe rolling loads, which showed that no perceptible vibration existed, Captain Tyler expressed himself fully satisfied with the structure in all respects. We are informed that about 450 tons of cast and wrought iron were used in the arch and superstructure, which seems a remarkably small quantity of material for a bridge of so large a span; but it is by an examination of the arch from beneath that we are enabled to perceive the careful and studied arrangement by which this amount of iron has been made to produce one of the strongest structures of its kind with an appearance of traceried lightness and beauty. The bridge was cast and erected by the well-known ironmasters the Coalbrookdale Company, for the contractors for the line, Messrs. Brassey and Field. The designs were supplied by Mr. John Fowler, of 2, Queen-square-place, Westminster, consulting engineer to the Great Western Railway and to the Metropolitan Railway. They were executed under the immediate superintendence

of Mr. Joseph Fogerty, member of the Institute of Civil Engineers, in whose charge, as resident engineer, the works both of this line and of the Severn Valley and Wenlock Railways have been carried on during the past five years. It may be remarked in general that the viaducts and bridges of these lines bear much evidence of bold design and skilful execution; but in the section traversing the Coalbrookdale Valley there is an unusual amount of difficult engineering work. Sweeping suddenly round a sharp curve into the beautiful valley which once formed the favourite hunting-ground of the monks of Buildwas, before the ironworks and railways had been invented to disturb its quiet, we see that quite a mountain of earth has been thrown up to make a platform from whence numerous branches and sidings run at various levels amidst the foundries of the Coalbrookdale Company. Passing through a pretty station, with long white platforms, perched on an embankment 60 ft. above the turnpike road, we then skirt the edge of a steep wooded cliff by a series of sharp curves trenched out of the hillside, and we are carried over a portion of the ironworks and the great reservoir of the same company on a fine curved viaduct of twenty-six arches, which has been three years under construction. Further on the railway passes through another reservoir confined by massive walls on each side of the line; till, emerging from deep cuttings, in which is exhibited a section of the great coal-field of Shropshire, we ascend to the summit level and junction-station at Lightmoor by a gradient of 1 in 50, which extends over a greater part of the line. Such is the Coalbrookdale Railway, which has been opened to public traffic.

It is singular that this bridge—the most recent and one of the most enterprising works of its class—is within sight of the first iron bridge that was constructed in England—one which was constructed by the same ironmasters in 1779, and which has given a name to the rising and important town of Ironbridge, on the banks of the Severn.—*Illustrated News.*

#### LAW INTELLIGENCE.

##### COURT OF COMMON PLEAS—DEC. 9.

**Brannigan v. Carroll.**—Action brought by plaintiff, a builder, residing at Collon, Co. Louth, against the defendant, who resides at Dunleer, in same Co., to recover £300, alleged to be due for work and labour, &c. The defence was that the work was done under a special agreement for £500, all of which was duly paid except £5, which was brought into court. It appeared that in August, 1859, plaintiff agreed to build a spire and tower for the Roman Catholic chapel at Dunleer, for the sum of £500, and in the progress of that work certain alterations were made in the original plans, and additional work was done at the request of the defendant, who was one of the committee for the chapel, and for this extra work the plaintiff now claimed to be entitled to recover. The defendant's case was that no work was done except under the contract. Verdict for defendant.

##### COURT OF QUEEN'S BENCH.

**The Queen v. Kennedy and Rutherford.** In this case the defendants are charged with desecrating the churchyard of St. Douglough's, by causing the graves in that burying-ground to be disturbed, and their contents scattered about in a most disgraceful manner. The case was opened by the Solicitor-General, who entered into a detailed explanation of the charge against the traversers. Several witnesses were examined in support of the charge, and the case for the crown closed. Mr. Whiteside, Q.C., in his speech for the defence, characterized the prosecution as a most unprecedented one, and got up by certain individuals to injure the traversers. It was unlikely that the Rev. Mr. Kennedy would be guilty of the charges preferred against him, after he had succeeded in building a suitable church wherein the parishioners might worship; nor was it probable that Mr. Kennedy, whose family resided in the parish for upwards of two centuries, would lend himself to any discreditable or unseemly proceeding. Witnesses were examined to rebut the evidence given for the prosecution, and also to shew that the Rev. Mr. Kennedy had obtained a faculty from the Consistorial Court for what had been done, although, it was admitted, an omission had been made in not obtaining leave to remove graves in carrying out the necessary improvements. At the close of the defendant's case, the Crown, on the suggestion of the Lord Chief-Justice, entered a *nolle prosequi*. His Lordship said he would have stopped the case sooner but that he had wished to give the defendants the opportunity of refuting every insinuation cast upon them. The evidence was wholly insufficient, and it appeared that the defendants had in no respect violated the law. The jury were discharged from

the issues; but, in answer to his lordship, they said they were unanimously of opinion that the Crown had failed.

#### CONSISTORIAL COURT.

**Dilapidation at St. Patrick's Deanery House.**—Judge Battersby sat on Tuesday, 6th inst., at the Palace of the Archbishop of Dublin, and delivered judgment in the matter of a claim made by the Dean of St. Patrick's on foot of dilapidations of the Deanery House. A schedule of dilapidations and requisite repairs was furnished to the executors of the late dean, amounting to nearly £1,400, and objections to several items were filed, and evidence given to show that a large proportion of these dilapidations was the result of natural decay. The judgment delivered by Judge Battersby bears in so important a manner on the question of ecclesiastical dilapidations, that we reprint it *in extenso*:—

In this case his Grace was unable to appear in consequence of indisposition, and, as it was I who heard the case, he has requested that I should deliver the judgment of the court. The Deanery House, the subject of this proceeding, was built in 1782, at an expense of £2,761 18s. 7½d. It was newly slated and repaired in the year 1839, at an expense of £250, charged on the benefice. In 1843 Dean Pakenham obtained a certificate against his predecessor, Dean Dawson, for the sum of £506 11s. 6d., and there is evidence that in 1845 Dean Pakenham expended £388 5s. 1½d. of that money in building a porch, and in repairs and improvements; but for this outlay he did not obtain a certificate. The report of the present Commissioners, who were appointed on the death of Dean Pakenham, charges his executors with £1,324 8s. 8½d., to be expended in present repairs, without charging anything upon the benefice for dilapidations occasioned by lapse of time. In 1839 the value of the prebend was stated in Dean Dawson's memorial to be £1,700 a year. Now, after deducting taxes and other outgoings, it is probably about £1,000 a year; not a large allowance for a dignitary next in rank to a bishop; and for a person with that income, the amount of dilapidations reported ought to build a sufficiently good house, or to go very near doing so. The report of the commissioners is objected to:—Firstly, "Because an abatement should be made on the whole amount to represent the degree in which lapse of time contributed to decay." Secondly, "Because all the items in the schedule to said objections annexed (about £650) ought to be charged against the benefice, and not against the executors." The case was before the court on several days, witnesses were examined for both parties, and in addition two builders and assistants as commissioners. These witnesses were all architects and builders, or manufacturers, of the greatest respectability; yet those produced at one side differed from those produced at the opposite side to the extent of at least 30 per cent. It would seem that the executors produced everybody who would work at the lowest rate, but the present dean produced all those who required the highest attainable remuneration. One of the latter calculates on a profit of 15 to 20 per cent. on his contracts; possibly the other might be content with 5 or 10 per cent., and, if so, that would account for a good deal of the difference between them. But this is clear, that witnesses could not be found to swear up to the full amount of the commissioners' valuation in all cases, and, therefore, it must be concluded that their award is not only made at the rate of the highest marketable charge, but beyond it, which ought not to be, the statute requiring only "staunch and habitable order," and the poverty of the clergy being such that the greatest economy ought to be practised, so as to avoid, as far as possible, the involving of them in any unnecessary expense. Some of the witnesses stated that contracts for the building and repairing of ecclesiastical residences are not, properly speaking, open to competition, but that the practice is to invite one or two persons to propose for them, and to give the contract to one of those; and it appeared that one of the gentlemen engaged in preparing the reports of dilapidations himself occasionally accepted the contracts. If this practice prevail, it is not right. The diocesan architect cannot be too particular in seeing that the work is properly done, the plan of the building suitable, and the materials of the proper description; but, subject to that, every clergyman should be allowed to make the best bargain he can; and I would suggest that whenever a building plan is approved of, an accurate specification should be given to the incumbent, in order that he may be able safely to advertise and contract. The second objection was, that items amounting to £650 should be charged, not against the executors, but against the benefice. The objection was valid as to certain of these items, which were principally charged for the roof. As, however, the present dean desired the repairs of the roof recommended by the commissioners, he would not decide against them; but as the defects had arisen clearly from lapse of time, and not from default on the part of the late dean, they must be borne by the benefice. Having stated that the present dean should allow for folding doors set up by the late dean, which he desired to have removed, his lordship made his order, which, after reciting matters already mentioned, continued as follows:—"And it further appearing that the roof of said house was at the death of Dean Pakenham, and still is in good repair save in some small matters, but that a worm or dry rot has commenced in the timbers thereof, occasioned by natural decay from lapse of time, which roof, notwithstanding, is likely to last for 40 or 50 years, it is ordered that the several items now appearing in the second column to said report annexed, amounting to the sum of £116 8s. 3½d., be struck out of said first column, and remain in said second column, and that the repairs to which sums are in said schedule allocated be executed within twelve months from this day, by money raised by way of charge on the benefice, or by money raised on mortgage, pursuant to the statute 14th and 15th Victoria, cap. 73, sec. 27, and do produce vouchers therefor, &c. And it is further ordered that the several items now appearing to the left margin of said first schedule, amounting to the sum of £132 4s. 5½d., be deducted from said first column, and that the balance remaining in said first column be paid to the Very Rev. John West, the present dean, and by him expended within twelve months from this day in the repairs of the dilapidations to which the sums in said first column are allocated in said schedule, and do produce vouchers, &c. And it is further ordered that each of said parties pay and discharge one moiety of the costs and expenses of said commission and report. And with these alterations it is ordered that said report be confirmed." This case illustrates so fully the hardship imposed upon the clergy by the present law of dilapidations, perhaps I may be excused for calling attention to the subject, and suggesting what appears to me to be a proper remedy; and that is, instead of the diocesan architects now paid by the clergy, to appoint two provincial architects, with adequate salaries, to be paid by the Ecclesiastical Commissioners, whose duty it shall be to

visit every ecclesiastical residence once in every three years, and to certify the then state of the repairs thereof, which certificate, when granted absolutely, or after the execution of any necessary repairs therein specified, shall discharge the incumbent from all liability up to that time. On the occasion of the first visit, this plan might create some trouble and expense, but afterwards it would not be attended with either, the shortness of the intervals precluding the possibility of much controversy as to the nature of repairs. It would also prevent an evil which I fear will soon be of frequent occurrence, and has always happened occasionally—that is, an incumbent dying insolvent, with his residence out of repair, perhaps falling down, and the benefice already charged to the utmost extent that the law allows, in which case there is no available fund for repairs. Where the average net income of the beneficed clergy does not amount to £200 a year—and very many are under £100—they cannot be expected to leave assets at their death, and unless repairs are done by little and little, as occasion may require, they cannot be done at all. The very costs of the commission and objections just disposed of would exhaust two years' income of many a benefice. This plan is on the same principle as that of the county surveyors; and I learn, from persons who have considered the subject, that the Ecclesiastical Commissioners have abundant funds for the purpose, if properly looked after and managed; indeed, the clergy have a primary claim on those funds, for, in addition to the property which has been altogether taken from the Church, the clergy pay a very heavy annual tax—more than sufficient to pay, and which ought to be applied to the payment of all the ecclesiastical officers. It is painful to see an educated gentleman with an income possibly not exceeding £50 a year—the amount of endowment required by the statute—or even less, called upon to pay for the doing of necessary acts, which people will not perform without remuneration, and which, being of a public nature, such as the payment of fees at visitations, or the like, ought to be paid to the several officers out of the public funds of the Church in the hands of the commissioners.

#### ARCHÆOLOGICAL.

Some curious relics of prehistoric antiquity have been recently discovered by Mr. S. Laing (late Finance Minister of India) in the grounds of Keiss Castle, Caithness. In a letter published a few weeks ago Mr. Laing gave a description of the result of the excavations. They took place in a funeral mound, or long "barrow," near the lodge-gate of Keiss Castle, on the road to the village, and another smaller mound on the sandy "links," near the seashore. It appears that six human skeletons have been found, i. closed in rude cists of unhewn stones, having the appearance of great antiquity. One of these was found at the base of the smaller mound in Keiss links; the five others in the large barrow, where from every appearance there must be from fifty to one hundred others. The remarkable fact about these skulls is that they show a type of singularly low development, being of small capacity, with narrow receding foreheads and projecting jaws. One skull in particular shows the prognathous type, or sloping outwards of the upper jaw teeth, characteristic of the negro and other inferior races, in a degree which seems scarcely human. Combined with this is a forehead receding at the same angle, and narrower by fully half an inch than the narrowest shown in a table of thirty-nine skulls of ancient tumuli, given by Wilson in his "Prehistoric Scotland." The skeletons generally indicate men of short stature, from 5 ft. to 5ft. 4 in. in height. They were buried at full length, or nearly so, but without regard, to position, lying in some cases on the back, in others on the face, or sideways, and with their heads to different points of the compass. The peculiar type of these crania adds to the interest of the question of their antiquity. Unfortunately, no trace can be found of any implement or ornament having been interred with them. But the shelly mounds, with which they are evidently associated, give evidence of their having belonged to the stone period. Excavations have disclosed part of a subterranean dwelling or place of sacrifice, built like the Picts' houses, with narrow passages and some small chambers, walled, paved, and roofed over, at a great expense of labour, with large unhewn stones, brought from the beach at some distance. In these were numerous shells, charred bones, and burnt matter; and among these debris were found two stone implements, one a smooth, oval, sandstone block, about six inches in diameter, round which a deep groove had been cut, giving it exactly the appearance of a ship's block cut in two. The other was a small round stone, pierced with a hole, of the sort well known to antiquaries as "whorls." Another "whorl" was found of bone, made of the ball of the femur of some animal; also a large pin and a skewer or bodkin made of bone. One or two chalk flints were found, which had some appearance of having been artificially chipped, and thrown aside as failures, but no trace of any flint weapon. These, however, with the total absence of any mark of tools on the stones and on the graves and buildings, their identity in type with other tumuli and barrows in which stone and flint weapons have been discovered, and the total want of any trace of pottery or earthenware, which must have mixed largely with the refuse heaps of any people acquainted with their use, will probably suffice to satisfy us that the mounds, with their accompanying remains, are really of the stone period.

A ROMAN ALMANACK.—Among the interesting discoveries which are being daily made at Pompeii, that of a Roman Almanack deserves particularly to be

recorded. It is engraved on a white marble slab, found in the vicinity of the Isis Gate, and contains the indication of the months arranged by threes in vertical columns. Each column is headed with the sign of the zodiac pertaining to the month it contains, and curious indications concerning the agriculture and religion of the Romans are interspersed here and there. At the top of each column, under the sign of the zodiac, there is the name of the month and the number of days. Next follow the *nonæ*, which during eight months of the year begin on the fifth day, a circumstance explaining why they were called *quintanæ* in those months, while in the remaining ones they received the name of *septimanæ* on account of their beginning on the seventh day. The *idus* are not marked because the interval between them and the *nonæ* was invariably seven days. The number of diurnal and nocturnal hours is also marked on the almanack, the integers being expressed in common Roman figures, and the fractions by an *s.* for *semi*, or by small horizontal lines for the quarter. The equinoxes and the summer solstice are also marked while opposite to the winter solstice there are the words *Hæmis initium* (the beginning of winter). Next comes the agricultural chapter, in which the farmer is reminded of the chief operations to be performed each month. The religious section is not the least interesting. It tells us which of the gods is the tutelary one of the month. It also gives us the principal religious festivals, and advises the farmer, if he would have a good harvest, not to neglect the worship of the protecting divinities. At the top of the marble slab Apollo is seen driving the car of the sun, and at the bottom Ceres is seen reaping a field. From all this information put into the almanack, it was evidently intended for the rural population. It has now been placed in the Museum of Naples.

About three years ago M. Auguste Mariette discovered at Sakharah, in the necropolis of ancient Memphis, not far from the Great Pyramids, the funeral chapel of the tomb of two personages called Nekht and Tounari. These persons filled important offices in Egypt under the reign of Rhamses II.—that is, about the time when Moses lived. The fact of this synchronism, by the way, asserted for the first time by the Vicomte E. de Rougé, is now confirmed by authentic testimonies of the existence of the Jews in Egypt under that reign, as M. Chabas has shown in his work on Egypt. To return to the chapel above alluded to, one of its walls is adorned with a bas-relief, which contains a hieroglyphic list of eighty-five medallions containing the names of Kings, arranged in two lines. This list has been called the table of Sakharah, and is the most important feature of the monument. M. Mariette has now, by continuing his excavations, discovered some fragments which were wanting to render it complete.—*Galignani*.

Part of a vaulted building of the thirteenth century has been recently brought to light by the removal of the old Crown Inn, in widening the High-street of Rochester. There has been much discussion respecting the original use of this crypt-like building. From its position it is supposed by some archaeologists to have been a bridge-chapel, being exactly at the foot of a wooden bridge which existed here as early as 1215. This bridge was 431 ft. across and 10 ft. wide, and upon it was built a wooden tower "with marvellous skill." King John attempted to burn the bridge when he besieged De Albini in the castle. On Good Friday, 1264, Simon de Montfort set on fire the bridge and tower, which were afterwards repaired. The bridge was again repaired in 1344. After the taking of Calais, in 1347, the traffic was so great that a new bridge of stone was built of the "spoils of towns and castles, &c." The new bridge was built 120 ft. from the site of the old one, and it is probable that the building referred to, being now at a distance from the bridge, was no longer used as a chapel. This is corroborated by the fact that at the time of the building of the new bridge a chapel or chantry was built close to it by John de Cobham, which chapel now remains. As early as the reign of Edward II. Symond Potyn, a man of no small account, dwelt at the inn called the Crown, and by his will, in 1316, bequeathed a house, to be called "The Spital of St. Catherine," for Rochester, for poor people, "lepers or otherwise." There are many historical associations connected with this ancient inn. Here Shakespeare lays one of the scenes of his play of "Henry IV." Queen Elizabeth, for four days, took up her abode at the Crown, on Sept. 18, 1573. During the past few days labourers have been busy clearing away the last of this piece of mediæval work, and scarcely a vestige of it now remains.

#### FINE ARTS.

We have much pleasure in stating that Mr. W. H. Lynn is the new associate of the R.H.A., elected in the room of Mr. Thomas N. Deane, elected an R.H.A. in consequence of the vacancy caused by the death of the late Patrick Byrne, R.H.A. The appointment could not have been more worthily bestowed. Mr.

Lynn's well-known abilities as an artist render any comment on our part unnecessary.

Among Mr. Millais's contributions to the forthcoming exhibition of the Royal Academy (says the *Athenæum*), will be an oil picture of the design which formed so valuable a part of his illustrations to "The Parables," representing the "Devil sowing Tares;" also a picture having for subject Mr. Tennyson's "Oh, swallow, swallow, flying south." The former will form the artist's diploma picture at the Royal Academy.

It is believed that Mr. T. Faed and Mr. Horsley will be elected Royal Academicians in the room of Sir John Watson Gordon and Mr. Dyce, deceased.

The South Kensington Museum has just acquired a cast from the famous bronze *bija*, of Roman workmanship, which is deposited in the Vatican. Also the door of Wells Cathedral, noteworthy for its beautiful iron work, two original *misereres* from the same place, and the lantern which originally came from the Abbey at Glastonbury, and has been preserved at Wells since the dissolution of the monasteries.

The S S chain is a regal gift to the Corporation of Dublin from Charles II., in 1660. There is now pendant to the chain a gold medal, with a profile likeness of William III. The name "Collar of S S" is due to the form of the links of the chain, every third or fourth link being in form of a double S, thus, SS.

An original painting by Greuze was recently discovered by a curiosity dealer of Cambrai in the possession of a village cure, and purchased for thirty sous; the buyer immediately disposed of it for 50*fr.*, and the picture is now in the collection of a wealthy amateur at Rheims, who considers himself fortunate in having obtained it for 3,100*fr.*

#### CHURCH BUILDING, ENGLAND.

Cundle Church has been re-opened after restoration. Mr. G. G. Scott, architect. It is one of the largest parish churches in the kingdom. The works comprise the removal of galleries, pews, and fittings; thorough repair of roofs and stonework; the pointing of walls of nave, aisles, and transepts, and restuccoing of the north and south chapels and chancel; the restoration of the original tracery of the windows; the placing of new, low, open seats, with handsome carved ends, reading-desks of carved oak, and replacing of pulpit, eagle lectern, and stone monumental slab flooring. To these has been added a painted glass east window, by Clayton and Bell, the gift of the Vicar, in memory of Mr. Bedell. The subjects are scenes from the life of our Saviour, with his crucifixion in the centre, and above the transom figures of Saints James, Matthew, Mark, Peter, Paul, Luke, John, and Jude. The church is warmed with two Garney stoves, and lighted by fourteen painted iron standard gasaliers of nine lights. A new organ is being built by Walker. The cost will exceed £4,000.

The church of St. Mary, Aberdare, has been consecrated by the Bishop of Llandaff. The building, of which Mr. Blomfield is the architect, has been erected by subscription. It is in the French Gothic style, of the dark blue stone of the neighbourhood, with Bath stone dressings. It consists of a nave with clerestory, divided from the aisles by arches supported, as becomes an iron country, on double columns of iron banded together, surmounted by handsome stone capitals. These columns have a very light and at the same time solid appearance, and interfere as little as possible with the sight and hearing of the congregation. There is also a chancel, with north and south aisles or chapels; and on the south-eastern extremity of the chancel is a vestry, surmounted by an ornamental tower of the saddleback description. The interior fittings are of varnished pine, all the 700 sittings being free. In addition to the font, which stands at the west door, there is also a baptistery, in which immersion may take place when desired.

The parish church of Banham, near Attleborough, has been re-opened, after extensive repairs.

The church of Egg Buckland, Devon, has been restored, at an expense £1,550.

The new church of Radlet, Aldenham, has been consecrated by the Bishop of Rochester. The church is built of flint and Bath stone. It is of cruciform shape, consisting of nave, transept, and chancel, with a porch on the north side, and a spire of Bath stone, at the angle of the transept an chancel. It contains sittings for 250 persons, all of which are free and open, having bench ends. The first floor of the tower is an organ gallery, communicating with the church by an archway with a low stone screen. The architects are Messrs Smith and Son of London.

The restoration of St. James' Church, the oldest in Bristol, having been completed at a cost of £4,000, and a north aisle added, the latter has been consecrated by the Bishop of Bath and Wells.

We are glad to observe that the Queen has approved of Mr. Sidney Smirke's designs for the restoration of the Chapel Royal, Savoy, which was burnt down last summer, and the works will be at once proceeded with at her Majesty's expense, Messrs. Myers and Son being the builders. It will be remembered that this ancient edifice at one time ran a great risk of being pulled down.

Coton Church, Ely, has been re-opened.

St. John's Church, Longsight, near Manchester, has been re-opened, after having been thoroughly cleansed and beautified. A stained glass window, by Lavers and Barraud, in memory of two of the Rector's brothers, has been placed in the north aisle by their mother.

The foundation-stone of St. Barnabas, the twenty-second new church in Islington within forty years, has been laid.

The foundation-stone of a new church at Barnwell, Cambridge, from the designs of Mr. R. R. Rowe, has been laid by the Bishop of Ely.

#### IRISH NEWS.

The new Wesleyan Methodist Chapel, Sandymount, (described in our No. for May 1st) was opened on Friday last. Mr. A. G. Jones, architect.

Patrick Moore, Esq., of Edenmore, near Raheny, has accepted an offer made to him by the Waterford Harbour Commissioners, to dredge and otherwise improve the "Ford Channel" in the river Suir, according to the plans of John Coode, Esq., for the sum of £15,700.

The Mansion-house, Dawson-street, is undergoing extensive alterations under the superintendence of the City Architect (Hugh Byrne, Esq.). A new supper-room is at present in course of erection, the men working night and day to have it completed by the 17th inst.; it is 60 feet long by 22 wide. Nearly all the single doors in the house have been altered to handsome folding doors, &c. It is intended to remove the present stables, to make room for more convenient and commodious ones. Mr. Robt. Parker, Marlborough-street, contractor.

A new front, 30 feet high, with storied bay windows on each end, and a porch in the centre, forming a fine façade, has been lately erected at Kelvin Grove House, Carlow, for Arthur Fitzmaurice, Esq.; the entire works are of finely chiselled granite, with elaborately moulded entrance-door, steps, and landings, large windows, filled with plate glass, and finished with a cornice and blocking, &c., over lead flat roof. A good deal of care and constructive skill are shewn on the whole, more especially in the details of large, semi-octagonal, bay windows, and the entire work reflects credit on Mr. Joseph A. Lynch, Carlow, the contractor.

Drumbo Parish Church has lately received considerable alterations and additions. In 1863, through the subscriptions of the landlords, parishioners, and others, the chancel and a southern transept capable of holding about sixty or seventy persons were completed. This year there has been added a north transept, corresponding with the former, at the joint expense of the late Robert Bart, Esq., of Purdisburn, and Mrs. Callwell, of Belvidere. Messrs. Welland and Gillespie, architects of the Board of Ecclesiastical Commissioners, were the architects. Two brass tablets, engraved in church text and mediæval characters, and illuminated by Mr. G. L. Hill, Castle-street, Belfast, adorn the transepts, and commemorate the munificence of the donors.

Messrs. M'Gaughey have been declared the contractors for the premises to be erected for the Provincial Banking Company in the town of Omagh.

NEWRY.—The following works are in progress and in contemplation, in this thriving town, under the directions of Mr. W. J. Barre, of Belfast:—A company having been formed under the Limited Liability Act for the purchase of the Newry Commercial Buildings, they have made considerable alterations and improvements on the existing building, the works of which are now almost completed. Addition of a lecture hall and improvements to interior of Sandystreet Presbyterian Church; works now in progress. New schools for a branch of Christian Brothers are to be erected at corner of Margaret street and the Mall; works about to be commenced. It is also in contemplation to erect a third Presbyterian Church in Newry, designs for which have been furnished to the committee appointed for its erection.

The premises, 12, Grafton-street, have lately undergone extensive alterations and been converted into business premises for Messrs. William Hayes and Co., druggists and oilmen, under the direction of Mr. Joseph Maguire, architect. In our next number we purpose giving the particulars.

## ENGLISH NEWS.

A meeting has been held at Wimbledon to promote the formation of a public park at that place, and the proposal is supported by Earl Spencer, the lord of the manor.

At Manchester a new Freemason's Hall, built at a cost of £12,000, was opened recently.

The Ludgate station of the London, Chatham, and Dover Railway will soon be open to the public. That portion of the line which extends from the so-called Blackfriars station on the Surrey side of the Thames, comprises the bridge which now forms one of the handsomest works of its class in this country. From Earl-street to West-street, at the junction with the Underground Railway in Farringdon-road, the line is about half a-mile in length. On this length occurs the Ludgate-hill Viaduct, which carries the line across one of the most crowded thoroughfares in the world, and spoils a point of view designed by Wren for St. Paul's, whence a fine architectural composition was made with the spire of the church of St. Martin, Ludgate, and the dome of the Cathedral. It is a great pity that so valuable an example of what is rare in London should have been marred; it is surprising to find popular writers so ignorant of Art as to aver that the arrangement of the spire and dome is an unfortunate one.

## Railway Intelligence.

**WATERFORD AND KILKENNY.**—The half-yearly general meeting of this company was held on the 2nd inst. The directors' report and statement of accounts were read. The receipts for half-year ending 29th September, 1864, were £10,713 10s. 7d.; the working expenses £5,253 6s. 1d. The receipts for corresponding half-year were £10,194 6s. 11d.; the working expenses, £4,934 8s. 2d. The directors recommend that a dividend, at the rate of 1½ per cent. per annum, be paid on the preference stock of the company for the half-year, and after such payment that the balance of £305 19s. 9d. be carried to next account. They beg to inform the shareholders that the Kilkenny Junction Railway to Abbeyleix, in the Queen's county, a distance of 19 miles from Kilkenny, is now finished, and the works from Abbeyleix to Maryborough are progressing.

**CORK, BLACKROCK, AND PASSAGE.**—A general meeting of this company was held on the 4th inst. for the purpose of receiving the half-yearly report of the directors. The chairman stated that though they had considerable opposition to struggle against, their affairs were in a satisfactory state, and he congratulated them, especially on the increase of subscription tickets during the past six months. The report was then adopted unanimously, and a dividend of 3 per cent. declared.

Plans and sections for the following new railways, and extension of railways, have been deposited with the Board of Trade up to the 30th ult.:—Banbridge Extension; Belfast Central; Bray and Enniscorthy; Clonmel, Lismore, and Dungarvan; Cork, Middleton, Fermoy, and Lismore; Dublin Metropolitan Junction; Dublin Port (Tramways); Dublin, Rathmines, and Rathgar; Dublin Trunk Connecting (City Extension); Dublin Trunk Connecting (Deviation, &c.) Dublin, Wicklow, and Wexford; Dublin, Clontarf, and Dollymount; Dublin Metropolitan Junction; Dublin Suburban; Dundrum, Foxrock, and Kingstown Junction; Fermoy and Lismore; Kilrush and Kilkee Railway, and Poulasherry Reclamation; Limerick and North Kerry Junction; Navan and Kingscourt; New Ross and Ballyellin Railways; Newry and Greenore; Rostrevor and Greenore; Rostrevor Extension;

Waterford, Lismore, and Fermoy; Waterford and Wexford Junction; West Cork; Wexford Junction.

There are over 100 railway and other private bills deposited this year more than there were at the same time last year. In railway bills there are 50 more, and the gas and water bills make up the remainder. Acting upon the example set by the Dublin Trunk Connecting Railway, some of the most eminent engineers have deposited plans asking power to connect railways by tunnels under navigable rivers.

It is said that a beginning has been made in connexion with the proposed railway from Derry to Castledawson. The intended line has been examined; the alleged difficulties have not been discovered, and a preliminary meeting is shortly to be held in Magherafelt.

The works of the Greenore Railway will be commenced early in the ensuing spring.

## MONUMENTS, STATUES, ETC.

Mr. Steell has completed a bronze statue, heroic size, of the late Mr. T. Bruce, of Falkland. Mr. Steell has on hand a statue of the late Lord Justice-General Boyle, to be erected on a central site in the town of Irvine, the expense to be defrayed by public subscription. The Ramsay statue, to be set up in West Princes'-street Gardens, Edinburgh, is quite ready, but its erection is delayed until the pedestal for the Wilson statue will be placed in position, when both will be inaugurated.

A mural monument to the memory of the late Lord Gosford is to be placed in the south aisle of Mullabrack church. The design is very appropriate, consisting of a carved and richly-moulded base of Caen stone, on which is placed a panel of black marble containing the inscription, memorial brasses, family arms, &c.; at the sides are pilasters, and columns of serpentine, having bases and capitals of Caen stone which support a row of interlaced arches, the mouldings of which, as well as those round the inscription, are ornamented with sculpture. The monument is designed by Mr. G. A. Burn, of London, and its execution has been entrusted to Mr. McCullough, of Armagh.

A monument to the late Primate has been placed in the aisle of Armagh Cathedral. It is by Baron Marochetti, and has been erected under the centre arch on the south side. It consists of a white marble figure of the late Primate in his robes, in a supine posture; and the likeness is most striking. The pedestal, which is altogether Roman, is of Sicilian marble, on a black plinth. The panels of the pedestal are of black marble, and bear inscriptions, in gold letters:—North panel—"In memory of the late Right Honourable and Reverend Lord John George Beresford, D.D., Archbishop of Armagh, Primate of all Ireland, and Chancellor of the University of Dublin." South panel—"The mortal remains of this reverend prelate repose in the crypt beneath. He departed this life on the xxiii. day of July, A.D. MDCCCLXII., in the LXXXIX year of his age." The east and west panels bear Scriptural quotations.

## Miscellaneous.

The *Mechanics' Magazine* of September 5th, in its description of Benson's Great Clock, says:—"Benson's great piece of clock work is certainly a marvellous achievement in clock-making, both as regards the workmanship, and its capacity under difficult circumstances for time measuring." Benson's new show rooms contain clocks designed by the first artists of the day, and include clocks for the

drawing-room, dining-room, bed-room, library, hall, staircase, bracket, carriage, church, turret, railways, warehouse, counting house, with musical, astronomical, and every description of clock, from the plainest to the highest quality of which the art is at present capable. Church and turret clocks especially estimated for. Benson's illustrated pamphlet on clocks and watches (free by post for two stamps) contains a short history of clock and watch-making, with descriptions and prices; it acts as a guide in the purchase of a clock or a watch, and enables those who live in Scotland, Ireland, Wales, the Colonies, India, or any part of the world, to select a clock. Also a short pamphlet on cathedral and public clocks, free for one stamp. J. W. Benson received a prize medal and honourable mention in classes 23 and 15.—33 and 34, Ludgate Hill, London. Branch establishment, 63, Cornhill. Established 1749. Watch and clock maker by special warrant of appointment to H.R.H. the Prince of Wales.

**MONSTER ROPE.**—A firm in Newcastle have completed the manufacture of a monster hempen rope for a railway incline. It is two and a-half miles in length, and weighs eighteen tons.

**DUBLIN INTERNATIONAL EXHIBITION.**—The Queen has graciously consented that the proposed Exhibition shall be announced as under her Majesty's patronage. The building is nearly completed.

**AN IRON HILL DISCOVERED.**—On the Canadian shore of Lake Superior, a hill 600 feet in height, and several miles in length, composed mainly of iron ore, yielding 60 per cent. of iron, has been discovered by an Indian. It is said to form part of the Marquette range of iron ore.

**THE NAVIGATION OF THE BANN.**—The Chairman of Commissioners has received copy of a resolution passed at the Court of the Hon. Irish Society, making their grant of £10,000, to be paid towards the works at the entrance of the river, the cost of which has been estimated at £40,000.

## TO CORRESPONDENTS.

We shall be obliged by receiving from any of our readers, in town or country, brief notes of works contemplated or in progress.

Books for Review in this Journal should be forwarded to the Publisher, at the Office, 42, Mabbot-street.

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All Communications respecting the DUBLIN BUILDER, should be addressed to MR. PETER ROE, 42, Mabbot-street, to whom all payments for Subscriptions and Advertisements must be made.

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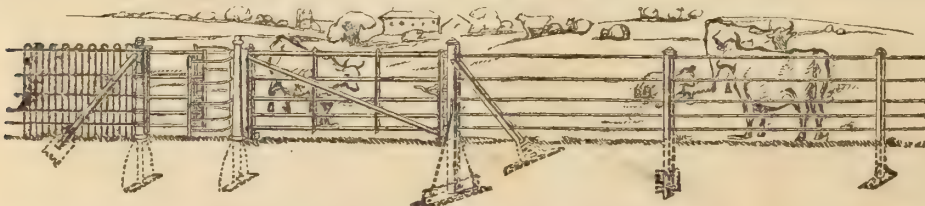
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